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Gender, Governance and Traditional Medicine: Women's Roles in Natural Resource Based Healthcare

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ABSTRACT: Traditional medicine connects natural resources with culturally rooted knowledge and everyday healthcare, and in most cases women function as healers, caregivers, users of medicinal plants, cultivators, and keepers of ethnobotanical knowledge. This review looks at the role of women in traditional medicine and in healthcare based on natural resources from the standpoint of gender and governance. A structured literature review was carried out using a dataset of 196 records that were published between 2015 and 2026. After selecting only those studies that dealt substantially with women or gender, traditional medicine or medicinal natural resources, and aspects of governance, 33 studies were retained for thematic analysis. Five closely related themes came to light: women as healers, caregivers and keepers of knowledge; gendered governance and the unequal recognition they receive from institutions; the intergenerational transmission and continuity of knowledge; access to medicinal resources and environmental sustainability; and the contributions of women to community, maternal and reproductive healthcare. In all the different settings, women's medicinal knowledge is incorporated into daily care, social networks and ecological relationships, although formal authority and control over resources tend to be gendered. The review concludes that in order to maintain healthcare based on natural resources it is necessary to have gender-responsive governance, to ensure meaningful participation by women who hold this knowledge, to protect traditional knowledge, to guarantee access to medicinal resources and to establish evidence-based relationships between traditional and biomedical healthcare.

1. INTRODUCTION

Traditional medicine has a significant role at the point where natural resources, knowledge rooted in culture, and human healthcare come together. In numerous communities, medicinal plants and other biologically available resources are still used as part of household and community efforts to deal with illness, either in addition to or instead of seeking biomedical care. The link between natural resources and health therefore extends beyond the pharmacological qualities of specific plants; it also relies on the social processes involved in identifying, collecting, cultivating, preparing, administering and interpreting medicinal resources. These practices are maintained by knowledge systems that link therapeutic use with the local environment, cultural memory and daily experience. For instance, a study of women in Mecca concerning the use of medicinal plants shows that knowledge is influenced not just by the availability of plants but also by social networks, markets, written materials, religious knowledge and contact with biomedicine (Alqethami et al., 2017). Likewise, research carried out among indigenous Ati women in the Philippines indicates that herbal therapies remain part of reproductive healthcare even though social and health policies are promoting a shift towards formal medical services (Ong and Kim, 2015).

Women have a particularly important role in these systems. In the various writings they are described as traditional healers, practitioners of herbal medicine, caregivers, midwives, collectors and cultivators of medicinal plants, providers of community health services, and keepers of indigenous knowledge (De Vera and Fajardo, 2022; Manyonganise, 2023; Mantuan and Sannomiya, 2024; Mussoi et al., 2025; Suresh and Thomas, 2025). Their involvement ranges from dealing with common illnesses to providing reproductive and maternal healthcare, managing household health, cultivating medicinal plants, and maintaining culturally rooted healing practices. The fact that they take part in such a wide range of activities is significant since it contradicts the usual view of women as merely users or beneficiaries of traditional medicine; instead they can be involved at every stage in the process by which natural resources become healthcare resources—namely by identifying plants, preserving recipes and methods of preparation, making decisions about treatment, giving care, and passing on knowledge to future generations.

The gendered organisation of care helps explain why women often develop distinctive bodies of medicinal knowledge. Alqethami et al. (2017) recorded about 110 medicinal plants that were known to a group of women in Mecca and noted that this knowledge was obtained via social networks, mass media, and written materials. The study also revealed generational differences, with younger women showing a greater preference for biomedical resources and non-oral sources of information. These results show that medicinal knowledge is not static or socially neutral; rather, it is shaped by gendered experiences and changes as women's access to education, media, markets, and formal healthcare changes. Mantuan and Sannomiya (2024), in a systematic review that focused specifically on women and medicinal plants, make the same point by calling for greater attention to gender in ethnobotanical research and by highlighting women's relationship with medicinal knowledge, healthcare, and the transmission of knowledge.

Women's knowledge of medicinal remedies is especially evident in studies of reproductive, maternal and domestic healthcare. Ong and Kim (2015) documented 49 medicinal plants used by indigenous Ati women for various conditions relating to female reproductive health and looked at the way modern social and health programmes are altering these practices. Research carried out in other situations also connects women's medicinal knowledge with pregnancy, childbirth, postpartum care, children's health and the treatment of common domestic ailments (Alqethami et al., 2017; Mantuan and Sannomiya, 2024). The fact that these patterns occur does not mean that women's traditional knowledge is limited to matters of reproduction; instead, it illustrates how the gendered responsibility for care provides repeated opportunities to become familiar with illness, with therapeutic resources and with methods of treatment.

Women's central role in traditional healthcare does not automatically translate into equivalent institutional recognition or decision-making power. This discrepancy makes governance central to understanding women's position in traditional medicine. In this review, the term governance is used in a broad sense to include formal policy, regulatory arrangements, customary institutions, community decision-making, social norms, power relations, and the institutional procedures that either recognise or sideline traditional medicine. Kozhisseri and Rajan (2020), applying a feminist political ecology approach in the Attappady Hills of Kerala, demonstrate how Adivasi women's connections with healing, land, the commons, and medicinal resources are part of broader processes involving sedentarisation, development interventions, and gendered authority. Similarly, Akakpo and Awubomu (2025) situate women traditional healers in Ghana within a social context in which healing practice comes into contact with gendered restrictions and institutional recognition.

The relationship in question is further complicated by historical structures of knowledge and power. Amster (2022) shows that the indigenous pharmacological knowledge linked to women in Morocco was understood via the patriarchal beliefs of French colonial science. It is important to note that colonial and biomedical institutions did not simply bring in new treatments; they also changed the status of knowledge, expertise, and legitimate healing. Manyonganise (2023) makes a similar point, claiming that colonialism and the actions of missionaries disrupted the relationships that Shona women had with their indigenous health knowledge and the natural environment in Zimbabwe. As a result, the current way in which traditional medicine is governed cannot be separated from the longer history in which indigenous knowledge was classified, regulated, or subordinated.

Formal policy can open up possibilities for recognition at the same time as it generates new tensions. Although regulation can grant legal status, offer licensing procedures, provide training or establish ways of working with biomedical services, it can also favour those practitioners who already have access to institutions. The case of indigenous Ati women shows this ambiguity. Ong and Kim (2015) demonstrate that reproductive health and social welfare programmes intended to improve maternal health also undermined existing herbal and reproductive practices. The question is not whether biomedical care should be rejected, but how shifts in healthcare affect the status of traditional practitioners and whether local knowledge holders participate in

decisions that transform their practices. Research into the collaboration between traditional and conventional medicine in Burkina Faso also indicates that formal cooperation needs to take into account recognition, professional relationships, and the conditions under which practitioners join institutional systems (Rainatou et al., 2021).

Governance also affects access to natural resources that can support traditional healthcare. Medicinal knowledge has limited practical value where relevant plant resources are no longer accessible. Costa and Marin (2023) associate rural women's medicinal-plant knowledge in Brazil with land, popular health practices and collective struggle. Kozhisseri and Rajan (2020), although not a study of medicinal plants specifically, show how Adivasi women's livelihoods and access to land and commons are shaped by sedentarisation, development interventions and gendered power. Suresh and Thomas (2025) emphasise women's role in preserving and transmitting medicinal knowledge in Kerala. Taken together, these studies support a cautious connection between natural-resource access, gendered livelihoods and the conditions under which traditional health knowledge can be maintained.

The importance of the ecological aspect is that women can not only act as users but also as managers and conservators of medicinal biodiversity. Manyonganise (2023) connects women's indigenous health practices with environmental conservation, covering both the harvesting and domestication of medicinal herbs. Research into women's traditional knowledge in Brazil and India also shows that home gardens and plant resources which are locally managed can support both household healthcare and the continuation of knowledge (Costa and Marin, 2023; Suresh and Thomas, 2025). However, even if the knowledge is still present, biodiversity loss, changes in land use, and decreasing access to the commons might make traditional medicine less feasible in practice. The sustainability of medicinal resources thus relies on ecological conditions and on the social institutions that regulate access to them.

Knowledge transmission is also a vital aspect. Traditional medicinal knowledge is usually acquired by means of observation, practical experience, and oral instruction within families and communities. Women can learn from their mothers, grandmothers, other relatives, neighbours, and from experienced healers, after which they pass on this knowledge to the younger generations. According to Alqethami et al. (2017), the ways in which women acquire knowledge are already being altered as a result of the impact of mass media and biomedicine. Suresh and Thomas (2025) do likewise point out that intergenerational transmission is essential for preserving the medicinal knowledge of Malayali women. These patterns therefore cause concern regarding continuity when younger people migrate, take up different occupations, or prefer to use biomedical healthcare. Loss of knowledge is thus not merely the result of individuals deciding to give up tradition; it might be a sign of deeper structural changes in the areas of education, employment, the environment, healthcare and family structure.

Even though there is an increasing amount of writing on women, on medicinal plants and on traditional healing, the evidence is still scattered throughout the fields of ethnobotany, public health, anthropology, gender studies, political ecology and research into natural resources. Many ethnobotanical studies tend to record the species, their uses and the methods of preparation without looking at questions of institutional power. Gender-oriented studies might show the roles of women but tend to give less attention to how medicinal resources are managed. Research into policy may deal with the formal recognition of traditional medicine without considering whether institutionalisation leads to the reproduction of gendered inequalities. Mantuan and Sannomiya (2024) stress the need to make gender a more explicit part of ethnobotanical analysis, and studies of indigenous and rural women show that knowledge, health, land and authority are closely linked (Costa and Marin, 2023; Kozhisseri and Rajan, 2020). Because of this scattering there is a requirement for an integrated synthesis which treats the traditional medicine practices of women as being at the same time health-related, gendered, institutional and ecological.

Hence, the present review looks at women's roles in traditional medicine and in healthcare based on natural resources from the point of view of both gender and governance. Instead of viewing medicinal knowledge, healthcare practice, and access to resources as independent topics, the review examines the ways in which these are linked via the everyday roles of women and the institutions that acknowledge, regulate, or restrict those roles. The review is guided by four questions: (1) What kinds of roles do women carry out in traditional medicine and in healthcare based on natural resources? (2) In what way do governance structures, policies and gendered power relations affect women's participation, their authority and the recognition they receive from institutions? (3) How is women's medicinal knowledge passed on, and what factors endanger its continuity? And (4) In what way does access to medicinal natural resources affect the sustainability of women's traditional healthcare practices? The value of this review lies in the fact that it brings these questions together into one analytical framework, enabling a direct

comparison to be made between the important role women play in traditional healthcare and their position within the institutions and resource systems that govern it.

2. MATERIALS AND METHODS

2.1 Review Design

The study used a structured literature review in order to bring together recent research concerning women's roles in traditional medicine and in forms of healthcare based on natural resources. A structured review was chosen since the body of evidence is multidisciplinary and covers ethnobotanical, public health, anthropological, gender, political ecology, and traditional medicine research. Its aim was not to arrive at an estimate of the overall clinical effect but rather to spot recurring patterns with regard to women's roles, institutional recognition, the transmission of knowledge and access to resources. The review thus involved both descriptive mapping and thematic synthesis. This method enabled studies that employed different methodologies and came from various disciplinary fields to be compared on the basis of a common area of analysis.

2.2 Identification and Search Strategy

The literature-discovery strategy was organised around three overlapping concept groups. The first concerned women and gender and included terms relating to women, female practitioners, healers, caregivers, midwives and women knowledge holders. The second concerned traditional medicine and natural-resource-based healthcare and included traditional medicine, indigenous medicine, herbal medicine, medicinal plants, ethnobotany, ethnomedicine and traditional healing. The third concerned governance and institutional context and included governance, policy, institutions, decision-making, power, recognition, access, knowledge transmission, conservation and resource management. SciSpace was used as the principal literature-discovery and screening environment for the working dataset. Because SciSpace functions as a cross-source discovery platform rather than a single bibliographic database, this review does not claim a database-specific, fully reproducible Scopus- or Web of Science-style search. The search was intentionally broad to capture terminology used across ethnobotany, public health, anthropology, gender studies, political ecology and traditional-medicine research. The working dataset was restricted to publications from 2015 to 2026, consistent with the review's focus on recent literature. Search concepts were combined iteratively during discovery, and potentially relevant records were retained for eligibility screening against the criteria described below.

2.3 Screening and Eligibility

The working dataset consisted of 196 records. Screening was conducted in two stages. First, titles and abstracts were examined for substantive relevance to women or gender and to traditional medicine, medicinal plants, indigenous healthcare or other forms of natural-resource-based healthcare. Records dealing only with laboratory, chemical or pharmacological properties, without a meaningful social or gender dimension, were excluded, as were studies in which women appeared only as a demographic category. Second, the remaining records were examined in greater detail using information on publication year, publication type, geographical setting, methodology, women's roles, traditional-medicine or natural-resource focus, governance or institutional dimensions, health-related findings, knowledge transmission and resource access. A study was retained when women or gender were substantively relevant, traditional medicine or medicinal natural resources formed a central part of the study, and the article contributed evidence relevant to at least one review question, including institutional recognition, power, policy, access to resources, knowledge transmission, healthcare integration or conservation. First-stage screening reduced the 196 records to 50 detailed candidates (27 Core and 23 Maybe/Verify). Detailed eligibility assessment excluded a further 17 candidates, leaving 33 studies for thematic synthesis. Because the working dataset was assembled through a literature-discovery workflow rather than a prospectively registered database protocol, Figure 1 is presented as a transparent screening flow and not as a formal PRISMA flow diagram.

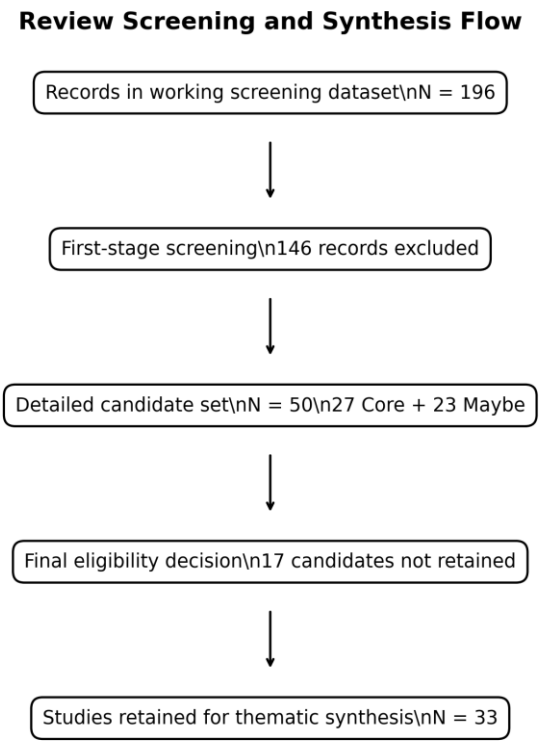

Figure 1. Review screening and synthesis flow.

2.4 Data Extraction

A matrix of structured extraction was used to obtain information from the studies that were selected. The fields which were extracted comprised the author and the year, the country or region, the objective of the study, the methodology, the type of publication, the traditional medicine or medicinal resource under investigation, the roles of women, the governance or institutional aspect, the health-related findings, the knowledge-transmission processes, the problems relating to access to resources, the conservation aspects, and the research gaps. The extraction procedure was intended to keep both the descriptive information and the analytical material relevant to the review questions. The roles of women were coded within a number of categories such as healer, practitioner of herbal medicine, caregiver, midwife, collector or cultivator of medicinal plants, keeper of knowledge, and participant in community healthcare. Broadly speaking, information on governance was coded to include formal policy, institutional recognition, regulation, decision-making, gendered power relations, access to land and resources, traditional knowledge rights and the relationships with biomedical healthcare.

2.5 Data Synthesis and Thematic Analysis

Data from the 33 included studies were synthesised thematically using the structured extraction matrix. The synthesis focused on recurring patterns in women's roles in traditional medicine, the use and management of medicinal natural resources, governance and institutional dimensions, knowledge transmission, resource access, healthcare contributions and reported research gaps. Findings were first compared across studies to identify convergent, divergent and context-specific observations. Closely related findings were then grouped into provisional analytical categories. The categories were iteratively reviewed against the extracted study findings and the four review questions so that the final themes remained grounded in the included literature rather than being imposed as predetermined categories.

As a final consistency check, the provisional categories were compared across geographical and disciplinary settings and refined where they overlapped conceptually. Contradictory or non-uniform findings were retained rather than forced into a single gender pattern. Five themes were ultimately used as the analytical framework: (1) women as healers, caregivers and custodians of medicinal knowledge; (2) gendered governance, power and institutional recognition; (3) intergenerational knowledge

transmission and continuity; (4) access to medicinal resources and environmental sustainability; and (5) women's contributions to community, maternal and reproductive healthcare. The themes therefore represent a cross-study synthesis of recurring patterns while allowing for heterogeneity between cultural and institutional contexts.

3. RESULTS AND DISCUSSION

3.1 Descriptive Analysis of the Reviewed Literature

The thematic synthesis at the end included 33 studies chosen from the initial working dataset of 196 records. The evidence that was kept consists of the original high-fit core together with further studies which improved the coverage of medicinal gardens, decolonial healing knowledge, indigenous health rights, community-driven ethnobotany, and the integration of traditional women's health practices.

The literature in question covers a number of different regions, such as Latin America, Sub-Saharan Africa, North Africa, South Asia, Southeast Asia, and the Middle East; Brazil stands out in the dataset, this being due to the existence of a well-developed body of work on medicinal plants, rural women, traditional knowledge and community health (Costa and Marin, 2023; da Costa et al., 2021; Mussoi et al., 2025; Xipaia et al., 2022). Further research looks at women's medicinal knowledge in Saudi Arabia (Alqethami et al., 2017), indigenous reproductive healthcare in the Philippines (Ong and Kim, 2015), women traditional healers in Ghana (Akakpo and Awubomu, 2025), indigenous health discourses in Zimbabwe (Manyonganise, 2023), colonial pharmacological knowledge in Morocco (Amster, 2022) and Adivasi women's relationships with land and healing in India (Kozhisseri and Rajan, 2020). This geographical spread indicates that women's involvement in traditional medicine is widespread, even though the institutional and ecological circumstances of that involvement differ greatly.

Qualitative and ethnographic methods are widely used. Researchers often carry out semi-structured interviews, participate in direct observation, organise focus groups, and make use of narrative techniques in order to record medicinal knowledge and women's experiences. Ethnobotanical surveys and the use of mixed methods are also common when the aim is to identify plant species, therapeutic applications, or the variations in knowledge among different social groups (Alqethami et al., 2017; Ong and Kim, 2015; Torres-Avilez et al., 2019). This methodological approach is in keeping with the character of the research questions since a number of the studies look at how knowledge is obtained, how healing practices are incorporated into everyday life, and the impact of institutional or cultural change on traditional medicine. The evidence is therefore full of social and contextual details but is less reliable when it comes to clinical assessments of efficacy and safety.

Medicinal plants are the main natural resource looked at in the various studies. However, the relevant resource base includes not just individual species but also home gardens, forests, the commons, agricultural landscapes and markets. Women's roles go beyond direct treatment as well; the literature refers to women as healers, carers, traditional birth attendants, herbal practitioners, collectors, cultivators, sellers and keepers of knowledge (De Vera and Fajardo, 2022; Manyonganise, 2023; Suresh and Thomas, 2025). Many of the studies also indicate that these different roles overlap. A woman might, for example, cultivate plants, look after members of her household, pass on knowledge to her daughters or grandchildren, and take part in community healing all at the same time. This overlap is important from an analytical point of view since it demonstrates that healthcare based on natural resources is maintained through a network of interconnected types of labour and not through a single professional role.

Governance is found in both formal and informal ways throughout the dataset. The formal aspects involve health policy, regulation, licensing, the requirements for institutional childbirth, and collaboration between traditional and biomedical practitioners (Ong and Kim, 2015; Rainatou et al., 2021). The informal aspects consist of customary authority, the gender relations within the household, community leadership, and social recognition and control over land or forest resources (Costa and Marin, 2023; Kozhisseri and Rajan, 2020). The thematic analysis therefore regards governance as comprising the various arrangements by means of which knowledge, authority and resources are organised, rather than limiting the concept to government policy alone.

Table 1. Characteristics Of The 33 Studies Retained for Thematic Synthesis.

No	Author(s), year	Study title	Journal / source	DOI	Primary thematic contribution
1	Juliana Almeida da Costa & Joel Orlando Bevilaqua Marin (2023)	Mulheres rurais e plantas medicinais: saberes populares e significados na luta pela terra	Estudos Sociedade e Agricultura	10.36920/esa31-1_st02	Medicinal-plant knowledge; land/social struggle; recognition in health and education
2	K. Suresh & Juby Thomas (2025)	Analyzing the Role of Malayali Women in the Preservation and Transmission of Traditional Medicinal Knowledge in India	Kristu Jayanti Journal of Humanities and Social Sciences	10.59176/kjhss.v5i0.2534	Preservation and intergenerational transmission of medicinal knowledge
3	Victoria Mantuan & Míriam Sannomiya (2024)	Women and medicinal plants: a systematic review in the field of ethnobotany	Acta Scientiarum. Biological Sciences	10.4025/actascibiolsci.v46i1.70700	Gender in ethnobotany; knowledge transmission; reproductive health; knowledge holders
4	Irene A. De Vera & W. T. Fajardo (2022)	Gender Roles by the Sambal-Bolinao in Their Traditional Herbal Healing in Bolinao, Pangasinan, Northern Philippines	European Journal of Medicine and Natural Sciences	10.26417/172nzj17r	Gender roles in herbal healing; plant handling/conservation; unequal knowledge transmission
5	Ellen Amster (2022)	Head of a Serpent, a Pinch of Rue: Women, Indigenous Pharmacology, and the Patriarchy of French Colonizing Science in M…	History of Pharmacy and Pharmaceuticals	10.3368/hopp.63.2.195	Colonial science; women's indigenous pharmacological knowledge; gendered authority
6	Samuel Bewiadzi Akakpo & Richard	Women in Traditional Healthcare in Contemporary	E-Journal of Humanities, Arts	10.38159/ehass.202561112	Women healers; knowledge acquisition;

No	Author(s), year	Study title	Journal / source	DOI	Primary thematic contribution
	Awubomu (2025)	Ghana: Evidence from the Volta and Oti Regions	and Social Sciences		healing practices; practical challenges
7	Viviana Rodríguez Venegas & Cory Duarte Hidalgo (2024)	Medicina ancestral de las mujeres diaguita en el norte chico chileno	Anthropologica	10.18800/anthropologica.202401.004	Women's ancestral medicine; medicinal plants; matrilineal/intergenerational transmission
8	Afnan Alqethami et al. (2017)	Medicinal plants used by women in Mecca: urban, Muslim and gendered knowledge	Journal of Ethnobiology and Ethnomedicine	10.1186/S13002-017-0193-4	Women's medicinal-plant knowledge; knowledge sources; generational differences
9	Molly Manyongani se (2023)	COVID-19, gender and health: Recentring women in African indigenous health discourses in Zimbabwe for environmental con…	HTS Teologiese Studies / Theological Studies	10.4102/hts.v79i3.7941	Women's indigenous health knowledge; gender; environmental conservation
10	Homerverge l G. Ong & Young-Dong Kim (2015)	Herbal Therapies and Social-Health Policies: Indigenous Ati Negrito Women's Dilemma and Reproductive Healthcare Transit…	Evidence-Based Complementary and Alternative Medicine	10.1155/2015/491209	Reproductive healthcare; 49 medicinal plants; policy-related healthcare transitions; safety/efficacy review
11	Emmanuel Aoudi Chance et al. (2025)	Decolonizing healthcare: the role of traditional medicine in building inclusive health systems for Cameroonian women	BMC Complementary Medicine and Therapies	10.1186/s12906-025-05133-0	Traditional medicine use among Cameroonian women; health equity; inclusive health systems
12	Aline Motter	O trabalho das agricultoras	Revista Latino-Americana de	10.5212/rlagg.v.14.i2.0010	Women farmers; medicinal-plant

No	Author(s), year	Study title	Journal / source	DOI	Primary thematic contribution
	Schmitz & Roseli Alves dos Santos (2023)	familiares no cultivo das plantas medicinais e na preservação dos conhecimentos tradicionai…	Geografia e Gênero		cultivation; preservation of traditional knowledge
13	Ana Paula Xipaia et al. (2022)	As plantas medicinais na vida de mulheres indígenas Xipaya e Kuruaya: histórias, conhecimentos tradicionais e usos na c…	Tellus	10.20435/tellus.v22i47.803	Indigenous women; medicinal plants; cultural continuity and transformation in an urban setting
14	Alfonsina Andrade Ortega (2025)	Las mujeres curadoras de la provincia de Imbabura	ANTROPOLOGÍA - Cuadernos de Investigación	10.26807/raci.v31.2025.373	Women healers; traditional medical hierarchy; ancestral knowledge and interculturality
15	Jorgeanny de Fátima Rodrigues Moreira (2024)	Mulheres, geografia e saúde: plantas medicinais e benzeção como alternativas de cura no território kalunga	Boletim Goiano de Geografia	10.5216/bgg.v44i1.77972	Women's caregiving; medicinal plants and blessing; healthcare access in Kalunga territory
16	Boly Rainatou et al. (2021)	Collaboration between practitioners of traditional and conventional medicine: A report of an intervention carried out w…	International NGO Journal	10.5897/INGOJ2021.0355	Women healers; licensing; collaboration between traditional and conventional medicine
17	Fernanda Vieira da Costa et al. (2021)	Gender differences in traditional knowledge of useful plants in a Brazilian community.	PLOS ONE	10.1371/JOURNAL.PONE.0253820	Gender differences in plant knowledge; social networks; knowledge transmission

No	Author(s), year	Study title	Journal / source	DOI	Primary thematic contribution
18	Raquel Paiva Dias-Scopel & Daniel Scopel (2018)	¿Quiénes son las parteras munduruku? Pluralismo médico y autoatención en el parto domiciliario entre indígenas en Amazo…	Desacatos: Revista de Ciencias Sociales	10.29340/58.1994	Munduruku midwifery; shared family knowledge; medical pluralism; home birth
19	Milena Regina Mussoi et al. (2025)	Women and traditional knowledge in health care: understanding traditional healing practices in Brazil	Ciência & Saúde Coletiva	10.1590/1413-81232025301.13012023	Women traditional healers; knowledge transmission; social function; relationship with biomedicine
20	Neelima Sawakar (2017)	Gender dimension towards Right over Traditional Knowledge by Adivasi women of Melghat Tiger Reserve, India	IOSR Journal of Humanities and Social Science	10.9790/0837-2204065867	Adivasi women; rights over traditional knowledge; biodiversity and medicinal knowledge
21	Wendy Marisol Torres-Avilez et al. (2019)	Gender and Its Role in the Resilience of Local Medical Systems of the Fulni-ô People in NE Brazil: Effects on Structure…	Evidence-Based Complementary and Alternative Medicine	10.1155/2019/8313790	Gender differences in medicinal knowledge and transmission; local medical-system resilience
22	Lavanya R & Pramod V Pattar (2017)	Traditional knowledge on folk medicine by rural women in Chikkanayakanahalli Taluk, Tumkur district, Karnataka	International Journal of Herbal Medicine	Not reported	Rural women; 32 medicinal plant species; primary healthcare; knowledge documentation
23	Polianna dos Santos	Plantas medicinais utilizadas por	Research, Society and Development	10.33448/RSD-V10I12.19916	Quilombola women; medicinal plants;

No	Author(s), year	Study title	Journal / source	DOI	Primary thematic contribution
	de Farias et al. (2021)	mulheres em comunidades quilombolas do Recôncavo Baiano			household healthcare; biocultural importance
24	Benedita Celeste De Moraes Pinto et al. (2024)	Fazeres e Saberes de Mulheres que se Utilizam de Plantas Medicinais em Práticas de Curas na Amazônia Tocantina no Pará	Revista Científica Gênero na Amazônia	10.18542/rcga.v0i25.16839	Women's healing practices; medicinal plants; knowledge and supplementary household income
25	Piyasa Mal & Nandita Saikia (2025)	Cultural persistence in health-seeking behaviour: a mixed-method study of traditional healing practices among Garo trib…	Journal of Biosocial Science	10.1017/s0021932025000094	Garo women's health-seeking; traditional healers; accessibility, affordability and cultural persistence
26	Fatima Chechetto et al. (2017)	Integração de conhecimentos em plantas medicinais na perspectiva de gênero e abordagem transdisciplinar em busca de sus…	Revista Fitos	10.5935/2446-4775.20170018	Women's protagonism; medicinal-plant production; sustainability and local social networks
27	Cruz Xiomara Peraza-de Aparicio et al. (2025)	Huertos medicinales familiares: Empoderando a las mujeres rurales en el cuidado de la salud familiar	Revista de Ciencias Agropecuarias ALLPA	10.56124/allpa.v8i16.0119	Family medicinal gardens; rural women's empowerment; family healthcare
28	Bianca de Araújo Neves et al. (2024)	Plantas medicinais e os saberes tradicionais de	Missões: Revista de Ciências Humanas e Sociais	10.62236/missoes.v10i3.292	Women's medicinal-plant healing; decolonial knowledge;

No	Author(s), year	Study title	Journal / source	DOI	Primary thematic contribution
		mulheres da agrovila itaqui - castanhal/pa			environmental threats to local resources
29	Deepa Kozhisseri & Sudhir Chella Rajan (2020)	Unfolding nomadism? A feminist political ecology of sedentarization in the Attappady Hills, Kerala	Journal of Political Ecology	10.2458/V27I1.23600	Feminist political ecology; Adivasi livelihoods; land/commons; sedentarisation and gendered power
30	Erleny Garcia Arnoud; Benedita Celeste de Moraes Pinto; Clara Rízia Pinheiro Felix (2025)	Artes de cura com a medicina da terra: educação e saberes de mulheres ribeirinhas da Amazônia Tocantina	ARACÊ	10.56238/arev7n3-046	Riverside women; medicinal plants; healing knowledge; cultural identity and autonomy
31	Lourdes Raymundo Sabino (2024)	Mujeres Pjiekakjo y remedios caseros	Revista Inclusiones	10.58210/fprc3543	Pjiekakjo women; home remedies; 30 plants; biocultural knowledge and indigenous health rights
32	Ella T. Vardeman et al. (2026)	Wombs, Washes, and Wisdom Translational Ethnobotany and the Plant Healing Practices of Haitian Women in the Diaspora	Fourth World Journal	10.63428/fhzrmw29	Haitian women; translational ethnobotany; community co-creation; knowledge sharing and cultural heritage
33	Lusy Noviani & Fajar Prasetya (2025)	Jamu and Women's Health: Exploring Its Role in Reproductive and Maternal Care	Journal of Tropical Pharmacy and Chemistry	10.30872/jtpc.v9i3.323	Narrative review of Jamu in women's reproductive and maternal health; safety and integration issues

Note: Inclusion decisions were based on the predefined eligibility criteria and the screening matrix. The table reports the final set of studies used in the thematic synthesis.

3.2 Thematic Analysis

The last screening also included recent studies which extended the synthesis beyond the original group of studies. Among these are investigations into family medicinal gardens and rural women's healthcare autonomy (Peraza-De Aparicio et al., 2025),

decolonial healing practices among women in the Pará Amazon (Neves et al., 2024; Arnoud et al., 2025), the plant-based home remedies used by Pjiekakjo women and their indigenous health rights (Raymundo Sabino, 2024), community-driven ethnobotany among Haitian women in the diaspora (Vardeman et al., 2026), and the role of Jamu in women's reproductive and maternal care (Noviani and Prasetya, 2025).

Five themes arose as a result of the synthesis. Even though they are set out separately in order to facilitate analysis, they are closely linked. The roles of women in healthcare are linked to the transmission of knowledge; the transmission of knowledge in turn requires continued access to medicinal resources; and gendered governance influences both access to resources and institutional recognition. The themes thus represent different aspects of the same overall relationship between women, traditional medicine, natural resources and authority.

3.2.1 Women as Healers, Caregivers and Custodians of Medicinal Knowledge

Women are constantly seen as key figures in traditional and natural resource-based healthcare; their roles involve traditional healing, preparing herbal medicine, providing care, acting as midwives, collecting and cultivating medicinal plants, and preserving ethnobotanical knowledge (Alqethami et al., 2017; De Vera and Fajardo, 2022; Manyonganise, 2023; Mantuan and Sannomiya, 2024; Suresh and Thomas, 2025). The literature thus contradicts the idea of women being passive recipients of traditional medicine, for instead they take part in producing and maintaining the knowledge by means of which medicinal resources become usable healthcare resources.

The connection between caregiving and knowledge is most evident in the context of household healthcare. According to Alqethami et al. (2017), the women of Mecca had a particular kind of knowledge concerning medicinal plants for common illnesses, a knowledge form which had been influenced by social networks, written materials, markets, and biomedical alternatives. The study also indicates that women's knowledge varies from one generation to the next; the younger participants were more inclined to choose biomedical resources and to obtain their information from written or mass-media sources. This shows that women's traditional knowledge is adaptive rather than static, and that changes in the environment of information affect their current healthcare decisions.

Research from Latin America also sets medicinal knowledge in the context of women's everyday social roles. Costa and Marin (2023) connect the rural women's knowledge of medicinal plants with common health practices and their wider experiences of land and of collective life. Xipaia et al. (2022) record the presence of medicinal plants in the lives and histories of indigenous Xipaya and Kuruaya women, showing how closely women's knowledge is linked to their cultural identity and to local resources. Mussoi et al. (2025) similarly examine women and traditional knowledge in the field of healthcare in Brazil, supporting the idea that women's therapeutic practices are rooted in social relationships and not merely in individual instances of using plants.

Women show a great deal of expertise in the area of reproductive and maternal healthcare. Ong and Kim (2015) recorded 49 medicinal plants that Ati women use for conditions relating to female reproductive health and found that differences in medicinal knowledge were linked to age, education level, and the number of children. Likewise, Mantuan and Sannomiya (2024) also regard women's health and reproductive care as key areas in the literature concerning women and medicinal plants.

In these studies, women's role is both practical and intellectual. It does not stop at the administration of cures; women identify useful medicinal resources, keep the methods of preparation, make decisions about treatment and maintain the social relationships by means of which knowledge is passed on. Traditional healthcare thus in part relies on women's ability to reproduce a living knowledge system. The more difficult issue is whether the practical authority they have within households and communities is also recognised by the institutions that regulate healthcare and natural resources.

3.2.2 Gendered governance, power and institutional recognition

A second theme concerns the relationship between women's involvement in healing and the authority available to them within wider institutional and social structures. The evidence is not identical across all settings, but several studies show that women's practical knowledge can coexist with constraints on recognition, resources or formal participation. Kozhisseri and Rajan (2020), using feminist political ecology in the Attappady Hills, do not study traditional healing directly; rather, they show how Adivasi women's livelihoods, access to land and commons, sedentarisation and development interventions are shaped by gendered power. This broader political-ecology evidence is relevant to the review because access to land and resources forms part of the context in which natural-resource-based knowledge and livelihoods are sustained.

Historical research supports this view. Amster (2022) demonstrates that the indigenous pharmacological knowledge of women in Morocco was shaped by the patriarchal beliefs of French colonial science. The problem was not merely that colonial medicine brought in different kinds of treatment; colonial institutions also decided which knowledge was considered legitimate and who was regarded as an authoritative source of knowledge. Manyonganise (2023) similarly links the marginalisation of women's indigenous health knowledge in Zimbabwe, linking it to the disruption caused by colonial and missionary forces. These studies show that the existing inequalities in the use of traditional medicine are in part historical and institutional, and not simply due to current household norms.

Modern policy can lead to similar tensions in various forms. Ong and Kim (2015) illustrate that social-health policies introduced in order to improve the reproductive outcomes of indigenous Ati women also brought into question the traditional herbal and reproductive practices. This example illustrates that policy interventions may produce benefits while also changing the position of traditional practitioners. The issue therefore is not whether formal healthcare should be expanded, but rather how such an expansion is controlled and whether indigenous women have a real say in the decisions that affect their knowledge and practices.

The literature on collaboration between traditional and conventional medicine also highlights the importance of institutional design. Rainatou et al. (2021) report an intervention with traditional women healers in Sanmatenga, Burkina Faso, specifically aimed at improving their ability to obtain licences to practise traditional medicine. The study therefore provides direct evidence that administrative and regulatory requirements can shape women's access to formal recognition. Akakpo and Awubomu (2025), in their qualitative study of two women healers in Ghana, document knowledge acquisition, healing practices and practical challenges including finance, poor record keeping, health problems, spiritual concerns and depletion of medicinal plants. These studies show that institutional recognition operates alongside material and social constraints rather than automatically resolving them.

The governance problem therefore cannot be assessed through formal recognition alone. Across the studies that directly address policy, rights or institutional relations, important questions concern who participates in regulatory decisions, whose knowledge is recognised, how practitioners gain access to formal systems, and who controls relevant resources and benefits. The evidence supports a recurring, although not universal, tension between women's substantial practical contribution to traditional healthcare and the degree of formal recognition or institutional influence available to them.

3.2.3 Intergenerational Knowledge Transmission and Continuity

The third theme concerns the transmission of medicinal knowledge and the conditions that support its continuity. Traditional medicinal knowledge is usually obtained by means of observation, practical experience and oral instruction within families and communities. Women learn from their mothers, grandmothers, relatives, neighbours and from experienced healers, and it is possible for them later to become important transmitters themselves. This is shown in the studies carried out in Saudi Arabia, Brazil and India (Alqethami et al., 2017; Costa and Marin, 2023; Suresh and Thomas, 2025). The transmission of knowledge is thus a social process that takes place within relationships and not merely a simple transfer of information about plant species.

Alqethami et al. (2017) give a clear instance of changing knowledge acquisition: women in Mecca reported learning about medicinal plants through social networks, mass media and written materials, and younger women showed greater use of biomedical resources and non-oral information sources. Importantly, gendered knowledge does not always mean that women possess more medicinal knowledge than men. Among the Fulni-ô in northeastern Brazil, Torres-Avilez et al. (2019) found that men knew more medicinal plants, therapeutic targets and information units, while also showing that gender structured knowledge transmission and the resilience of the local medical system. Together, these studies indicate that gender shapes medicinal knowledge, but the direction of gender differences is context dependent.

Suresh and Thomas in 2025 also stress the role of Malayali women in the preservation and transmission of traditional medicinal knowledge in India. By focusing on women as custodians, they show how important everyday situations are—such as household activities and the cultivation of medicinal plants—for passing on this knowledge from one generation to the next. Thus, the continuation of this knowledge is in part determined by whether the younger members of the family stay involved in the environments where medicinal plants are grown, gathered and used. Even if the communities still place a value on traditional medicine, urbanisation, migration and changes in livelihoods can still reduce these opportunities.

The literature also raises questions about rights over documented traditional knowledge. Sawakar (2017) examines Adivasi women's traditional knowledge from a gender and rights perspective and argues that women's role as carriers and preservers of

such knowledge has often been insufficiently recognised. This makes documentation more than a technical exercise: where knowledge is recorded for research, conservation or product development, questions of recognition, control and benefit sharing should be considered alongside preservation.

Knowledge continuity therefore involves more than just the willingness of older people to teach. For transmission to take place it is necessary to have opportunities for practice, to maintain access to medicinal resources, and to have social recognition both of those who hold the knowledge and of the younger people who stay connected to the places where that knowledge is useful. Changes caused by ecological loss, institutional delegitimation and shifts in livelihoods can disrupt these conditions. Intergenerational transmission is therefore not merely a cultural issue; decisions relating to healthcare, education, land and resource governance also affect it.

3.2.4 Access to Medicinal Resources and Environmental Sustainability

The fourth theme concerns access to the ecological resources required for traditional healthcare. Medicinal knowledge has limited practical value when the plants and other resources on which it depends are no longer accessible. The research highlights home gardens, farms, forests, the commons and markets as important sources of medicinal materials; household resources, land tenure, customary arrangements and environmental regulation all influence women's access to these areas. As a result, healthcare based on natural resources is closely linked with land and biodiversity governance.

Costa and Marin (2023) demonstrate that the knowledge of rural women regarding medicinal plants in Brazil is linked to their broader experiences of land and collective struggle, thereby indicating that the continuation of health practices relies on access to both productive and ecological areas. Kozhisseri and Rajan (2020) do the same when they examine the relationship between Adivasi women and the land and the commons in Kerala, illustrating the impact of development, sedentarisation and gendered power on livelihoods and access to resources. Thus, these studies go beyond analysing the use of plants to consider the political circumstances that ensure the availability of medicinal resources.

Home gardens are also an important kind of space. According to Suresh and Thomas (2025), women's preservation of medicinal knowledge is connected with the ongoing maintenance of useful plants, and research carried out in Brazil has similarly demonstrated that women take part in cultivation and in the management of plants at the household level. Cultivation can increase accessibility, decrease reliance on distant wild resources, and offer a context in which younger generations can be taught. It can also help with conservation by ensuring that species which would otherwise become less available locally are kept alive.

Manyonganise (2023) clearly links women's traditional health practices with environmental conservation in Zimbabwe. The study points out the part that women play in collecting and domesticating medicinal herbs and calls for women to be placed at the heart of indigenous health and environmental discussions. This connection is important since the conservation of biodiversity and the sustainability of healthcare can support each other; when women have in-depth knowledge of medicinal plants and their harvesting methods, leaving them out of environmental decision-making may undermine both the conservation policies and the resilience of local healthcare.

Even so, environmental change involves certain risks; deforestation, the loss of biodiversity, commercial extraction, and changes in land use can lead to reduced access to medicinal species. Women may be particularly affected by these pressures since they have the main responsibility for providing healthcare within the household but have little power over land or environmental policy. For this reason, the existing literature advocates an integrated understanding of sustainability, namely that in order to protect medicinal biodiversity it is necessary to take into account the rights, knowledge, and decision-making roles of the people who manage and use these resources. Conservation policies which ignore the different ways in which people have access to resources might well preserve the biological resources while at the same time weakening the social systems by means of which those resources support health.

3.2.5 Women's Contributions to Community, Maternal and Reproductive Healthcare

The fifth theme concerns women's contribution to household and community health through traditional knowledge. Traditional medicine is usually most apparent in the area of everyday care, since women make use of remedies that are readily available to them to deal with common illnesses. Alqethami et al. (2017) indicate that women in Mecca employed medicinal plants to treat common complaints and combined plant-based treatments with biomedical healthcare. This pattern indicates that traditional

medicine is not always an alternative system working on its own; it can be part of a broader healthcare strategy in which women switch between different kinds of treatment.

Reproductive and maternal healthcare are particularly important. Ong and Kim (2015) record the herbal therapies employed by the Ati women in connection with their reproductive healthcare and look at the way social and health policies have altered these practices. The study is especially valuable since it illustrates the interaction between therapeutic knowledge and policy. Traditional reproductive medicine is not merely a cultural remnant; it is a living practice which is transformed as women come into contact with formal maternal health programmes, conditional welfare requirements, and biomedical services.

While the literature offers more evidence regarding patterns of use, knowledge, and social roles than it does about clinical efficacy, ethnobotanical and qualitative studies can show that certain remedies are important within a culture and are widely used, even if they do not necessarily prove therapeutic effectiveness or safety. Ong and Kim (2015) specifically took into account evidence concerning both safety and efficacy for the reproductive remedies that were preferred, and Alqethami et al. (2017) noted emic toxicological comments together with the use of the plants. These examples illustrate the importance of interdisciplinary research which connects ethnobotanical knowledge with suitable pharmacological and clinical evaluation.

Women's role in promoting community health therefore goes a great deal further than just providing herbal treatments. They link medicinal resources with decisions at home, with caregiving, with cultural knowledge and with interactions with formal health services. In this capacity, women have an impact on the timing of the use of traditional medicine, on when biomedical care is obtained, and on how therapeutic knowledge is passed on within families. Even though it is necessary to have evidence regarding safety and efficacy, acknowledging their contribution actually reinforces the argument for including women who hold such knowledge in the governance of multiple healthcare systems.

3.3 Cross-Cutting Discussion

The review brings together literature from ethnobotany, public health, gender studies, anthropology and political ecology. A cross-cutting pattern is that women frequently contribute to medicinal-plant knowledge, caregiving, healing practice and knowledge transmission, although the form and extent of these roles vary by setting (Alqethami et al., 2017; Costa and Marin, 2023; Mantuan and Sannomiya, 2024; Mussoi et al., 2025). Studies concerned with rights, regulation and political ecology further show that practical knowledge does not automatically confer formal recognition, secure resource access or institutional influence (Rainatou et al., 2021; Sawakar, 2017; Kozhisseri and Rajan, 2020). The analytical contribution of this review is therefore not to claim a universal gender pattern, but to examine the conditions under which women's healthcare knowledge is maintained, recognised and connected to governance and natural-resource access.

A significant consequence relates to the way care is organised on the basis of gender. Women's knowledge of medicinal remedies is usually acquired as a result of their duties concerning household health, reproductive care and the wellbeing of children. Although these duties can lead to a high level of expertise, they may also cause women's healing work to be seen as just ordinary domestic work rather than as specialised knowledge. Mantuan and Sannomiya (2024) demonstrate the need for gender to be treated as a clear analytical category in ethnobotany, while Alqethami et al. (2017) show that women possess a particular body of medicinal knowledge which has been overlooked by previous research that had concentrated on male healers and rural populations. Women's knowledge thus being invisible can therefore be perpetuated not only by institutions but also by the way in which research is designed.

Another point is that institutional recognition should not be automatically seen as equivalent to empowerment. It is possible for traditional medicine to be formally recognised even if gendered hierarchies continue to exist. Kozhisseri and Rajan (2020) show that women's relationships with healing and natural resources are part of broader systems relating to access to land and patriarchal authority. Amster (2022) illustrates historically how colonial science was able to take over or reinterpreted indigenous pharmacological knowledge while putting the women connected with it in a subordinate position. These findings indicate that recognition has to be assessed in terms of distribution: namely, who gains authority, who obtains professional status, who takes part in regulation, and who ends up controlling the benefits resulting from formalisation.

This point is particularly important in the case of governments aiming to incorporate traditional medicine into formal health systems, since such integration may enhance referral services, safety, and legitimacy, but it can also alter the conditions under which traditional practitioners work. As Ong and Kim (2015) demonstrate, social and reproductive health policies can lead to changes in indigenous healthcare practices, and Rainatou et al. (2021) point out the institutional difficulties involved in

cooperation between traditional and conventional practitioners. Integration that is sensitive to gender issues would therefore involve more than simply including women practitioners in the existing biomedical structures; it would also require considering their knowledge, the way they are represented, their working conditions, and their ability to influence the rules that govern collaboration.

Another point concerns the relationship between health and natural-resource governance. Studies in the review connect women's medicinal knowledge with land-based practices, cultivated plants and local resource systems, although the strength of this connection varies across settings (Costa and Marin, 2023; Suresh and Thomas, 2025). Kozhisseri and Rajan (2020) provide broader evidence that Adivasi women's access to land and commons is shaped by development and gendered power, while Manyonganise (2023) explicitly links women's indigenous health knowledge with environmental conservation. These findings suggest that loss of access to medicinal resources can affect the practical continuity of traditional healthcare and support closer consideration of public health, gender and sustainable resource management together.

Knowledge transmission raises a further issue. The literature often portrays women as the guardians of traditional knowledge. However, such a role can become a burden when women are expected to preserve it without looking at the conditions which enable transmission to take place. The younger generations have access to different opportunities in education, employment, and healthcare, while older women may have little time or lack institutional support in order to teach. Alqethami et al. (2017) have already noted the shift among younger women towards written sources, mass media, and biomedical remedies. Suresh and Thomas (2025) do likewise stress the importance of transmission for the continuation of Malayali medicinal knowledge. Preservation strategies should therefore establish social and institutional environments that support learning rather than just requiring women to keep the traditions unchanged.

Documentation also raises questions of rights and ownership. Traditional knowledge may be valuable to scientific, conservation and commercial initiatives, but the women who maintain such knowledge should not be treated merely as sources of ethnobotanical information. Sawakar (2017) specifically frames Adivasi women's traditional knowledge as a rights issue and highlights the limited recognition historically accorded to women as knowledge carriers. Future governance frameworks should therefore address recognition and control over knowledge and, where research or commercial use is involved, apply appropriate ethical safeguards concerning consent, attribution and benefit sharing.

A major point of debate is that of evidence and safety. The fact that women's contributions are acknowledged does not mean that all traditional remedies are safe or clinically effective. A great deal of the literature that has been reviewed is of a qualitative or ethnobotanical nature and its aim is to record knowledge and social practices rather than to assess therapeutic effectiveness. Ong and Kim (2015) give a helpful example by examining safety and efficacy evidence in relation to reproductive remedies which are important from a cultural point of view. Improved cooperation between ethnobotanists, social scientists, pharmacologists and public health researchers could help to strengthen the evidence base while at the same time keeping regard for the cultural context and women's rights.

The synthesis highlights several research gaps. There is a need for comparative studies to look at the way different regulatory systems impact women practitioners and to determine whether certain governance structures can improve recognition without leading to exclusive professional obstacles. Furthermore, more focus should be placed on the economic aspects of women's traditional healthcare activities, such as pay, entrepreneurship, participation in the market, and the sharing of benefits. The environmental aspect is still not well developed in a great many studies concerned with health; future research should investigate how issues such as land tenure, climate change, the decline in biodiversity and conservation regulations influence women's capacity to carry on their medicinal practices. Lastly, gender should be examined in an intersectional manner. Women vary according to age, ethnicity, indigeneity, class, degree of rural residence, education and social status, and these differences may affect their access to knowledge, resources and institutional authority.

The review also has important methodological implications. Because the literature is multidisciplinary, it is difficult to carry out a comprehensive search since studies that are relevant will be listed under different sets of keywords. A study based on ethnobotany, for example, might include significant evidence on gender and governance even if it does not use those terms in its title. Likewise, research in political ecology could provide insights into access to medicinal resources without being classified as dealing with traditional medicine. Future systematic reviews should therefore make use of several databases, apply transparent Boolean strategies and carry out citation chasing, and they should report the reasons for excluding full-text articles. Since the

present review does so, it clearly presents the final synthesis and at the same time sets out its structured approach to literature discovery separately from a prospectively registered systematic review protocol.

Several limitations should be considered when interpreting the synthesis. First, the included studies are heterogeneous in cultural setting, study design, disciplinary orientation and the meanings attached to terms such as traditional medicine, indigenous healthcare and governance; the themes should therefore be read as recurring analytical patterns rather than universal claims. Second, the literature-discovery workflow may be affected by selection and publication bias, including uneven indexing of local or non-English scholarship and greater visibility of studies reporting distinctive gender or ethnobotanical findings. Third, the review did not conduct a formal meta-analysis or clinical quality assessment, and much of the evidence is qualitative, ethnographic or descriptive. Finally, although several studies identify policy, licensing, recognition and resource-access issues, there remains limited empirical evidence evaluating whether specific gender-responsive governance interventions improve women's authority, resource security, practitioner recognition or health outcomes. Future research should test such interventions comparatively across institutional and cultural settings.

The report indicates that there is a type of relational sustainability in which ecological resources, knowledge, legitimacy and participation all rely on each other. It is possible to preserve medicinal plants even if the knowledge needed to use them is lost; it may happen that knowledge is recorded even though the women who possess it lose control over its use; and traditional medicine can gain formal recognition without women's influence on institutional decisions changing. By considering these situations together, it becomes clear what a gender and governance approach contributes to healthcare based on natural resources: sustainability does not merely concern the continued existence of medicinal resources but also the social conditions that allow knowledge holders to continue to use, pass on and govern them.

3.4 Policy Implications and Future Research

The results indicate a number of possible policy actions. Firstly, gender considerations should be included when traditional medicine policies are being designed rather than taking it for granted that giving recognition will benefit all practitioners in the same way. It is important to have women healers, birth attendants, cultivators and holders of knowledge taking part in advisory and regulatory bodies in those cases where policies have an impact on licensing, training, referral or the use of medicinal resources. Secondly, any programmes which record medicinal knowledge must set up clear rules regarding consent, attribution and community control, especially when the knowledge might have commercial value. Thirdly, health policy should be coordinated with land and environmental governance since access to medicinal resources is a necessary condition for the ongoing practice of healthcare based on natural resources.

Future research needs to go beyond simply recording the fact that women have medicinal knowledge and should instead aim to explain the variations in authority and outcomes. Comparative studies could look at why women practitioners receive stronger institutional recognition in some situations than in others, examine the effect of regulation on their way of life, and investigate whether formal cooperation with biomedical systems has a positive or negative impact on their autonomy. Longitudinal research would also help to make clearer how intergenerational knowledge changes over time, especially in the context of urbanisation, the use of digital information and environmental change. Lastly, there is a need for interdisciplinary research in order to link social evidence regarding women's practices with a rigorous assessment of the safety, quality and effectiveness of the medicinal resources commonly used.

4. CONCLUSION

Women play a central role in traditional medicine and in forms of healthcare based on natural resources, since they act as healers, caregivers, users of medicinal plants and cultivators, birth attendants, and guardians of ethnobotanical knowledge. The contributions of women, as shown in the literature examined, include everyday household care as well as reproductive healthcare, community healing, the transmission of knowledge, and the management of medicinal resources. The fact that women hold such a central position shows that the link between natural resources and human health is maintained not only through biological materials but also through social knowledge and care practices.

Women's practical contributions are not always accompanied by institutional authority, secure access to resources, or formal recognition. The power relations that are based on gender, colonial pasts, the regulation of healthcare, systems of land governance and changes in the environment all affect whether women can practice, pass on and benefit from their knowledge.

Traditional medicine should therefore be seen not just as a therapeutic area but as a field of governance in which issues of legitimacy, participation, rights and control over resources are central.

To provide a gender-responsive form of healthcare based on natural resources it is necessary to ensure that women who have knowledge of this matter take a meaningful part, to protect traditional knowledge, to take account of access to both land and medicinal resources, and to establish relationships between traditional and biomedical healthcare that are based on evidence. This kind of approach will help to improve the sustainability of medicinal resources while at the same time acknowledging the social institutions and knowledge systems by means of which these resources make a contribution to human health.

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AUTHOR CONTRIBUTIONS

Nurul Asmaa Ramli contributed to the conceptualization and methodology of the study, conducted the literature search, data curation, and formal analysis, and was responsible for writing the original draft as well as reviewing and editing the manuscript. Farah Arina Wahi Anuar contributed to the literature search, data curation, validation, and review and editing of the manuscript. Nur Asmadayana Hasim contributed to the methodology, formal analysis, validation, and review and editing of the manuscript. Syumi Rafida Abdul Rahman contributed to validation, formal analysis, and review and editing of the manuscript.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

ETHICS STATEMENT

Ethical approval was not required for this study because it is based exclusively on a review and synthesis of previously published literature and did not involve human participants, animals, or the collection of primary data.

DATA AVAILABILITY STATEMENT

The data supporting this study are derived from publicly available published sources cited in the manuscript. The literature-screening and data-extraction materials used in this review are available from the corresponding author upon reasonable request.

REFERENCES

[1] Vardeman, E.T., Juste, S., Jacques, J., Lamarre, H., Kennelly, E.J., Vandebroek, I., 2026. Wombs, washes, and wisdom: Translational ethnobotany and the plant healing practices of Haitian women in the diaspora. Fourth World Journal 25(2), 51-67. https://doi.org/10.63428/fhzrmw29.

[2] Raymundo Sabino, L., 2024. Mujeres Pjiekakjo y remedios caseros. Revista Inclusiones 11(2), 208-224. https://doi.org/10.58210/fprc3543.

[3] Peraza-De Aparicio, C.X., Triviño-Suárez, P.L., Alvarado-Andrade, D.H., 2025. Huertos medicinales familiares: Empoderando a las mujeres rurales en el cuidado de la salud familiar. Revista de Ciencias Agropecuarias ALLPA 8(16), 65-86. https://doi.org/10.56124/allpa.v8i16.0119.

[4] Noviani, L., Prasetya, F., 2025. Jamu and women's health: Exploring its role in reproductive and maternal care. Journal of Tropical Pharmacy and Chemistry 9(3), 337-354. https://doi.org/10.30872/jtpc.v9i3.323.

[5] Neves, B.A., Santos, P.A.L., Neves, M.A., Silva, T.S., Santos, N.L., 2024. Plantas medicinais e os saberes tradicionais de mulheres da Agrovila Itaqui - Castanhal/PA. Missões: Revista de Ciências Humanas e Sociais 10(3), 1-12. https://doi.org/10.62236/missoes.v10i3.292.

[6] Arnoud, E.G., Pinto, B.C.M., Felix, C.R.P., 2025. Artes de cura com a medicina da terra: educação e saberes de mulheres ribeirinhas da Amazônia Tocantina. ARACÊ 7(3), 10868-10888. https://doi.org/10.56238/arev7n3-046.

[7] Akakpo, S.B., Awubomu, R., 2025. Women in traditional healthcare in contemporary Ghana: Evidence from the Volta and Oti Regions. E-Journal of Humanities, Arts and Social Sciences 6(11), 2873-2887. https://doi.org/10.38159/ehass.202561112.
[8] Alqethami, A., Hawkins, J.A., Teixidor-Toneu, I., 2017. Medicinal plants used by women in Mecca: Urban, Muslim and gendered knowledge. Journal of Ethnobiology and Ethnomedicine 13, 62. https://doi.org/10.1186/s13002-017-0193-4.
[9] Amster, E.J., 2022. Head of a serpent, a pinch of rue: Women, indigenous pharmacology, and the patriarchy of French colonizing science in Morocco. History of Pharmacy and Pharmaceuticals 63(2), 195-222. https://doi.org/10.3368/hopp.63.2.195.
[10] Costa, J.A. da, Marin, J.O.B., 2023. Mulheres rurais e plantas medicinais: saberes populares e significados na luta pela terra. Estudos Sociedade e Agricultura 31(1), e2331107. https://doi.org/10.36920/esa31-1_st02.
[11] da Costa, F.V., Guimarães, M.F.M., Messias, M.C.T.B., 2021. Gender differences in traditional knowledge of useful plants in a Brazilian community. PLOS ONE 16(7), e0253820. https://doi.org/10.1371/journal.pone.0253820.
[12] De Vera, I.A., Fajardo, W.T., 2022. Gender roles by the Sambal-Bolinao in their traditional herbal healing in Bolinao, Pangasinan, Northern Philippines. European Journal of Medicine and Natural Sciences 5(2). https://doi.org/10.26417/172nzj17r.
[13] Kozhisseri, D., Rajan, S.C., 2020. Unfolding nomadism? A feminist political ecology of sedentarization in the Attappady Hills, Kerala. Journal of Political Ecology 27(1), 939-960. https://doi.org/10.2458/v27i1.23600.
[14] Mantuan, V., Sannomiya, M., 2024. Women and medicinal plants: A systematic review in the field of ethnobotany. Acta Scientiarum. Biological Sciences 46, 1-10. https://doi.org/10.4025/actascibiolsci.v46i1.70700.
[15] Manyonganise, M., 2023. COVID-19, gender and health: Recentring women in African indigenous health discourses in Zimbabwe for environmental conservation. HTS Teologiese Studies/Theological Studies 79(3), a7941. https://doi.org/10.4102/hts.v79i3.7941.
[16] Mussoi, M.R., Giordani, R.C.F., Hoffmann-Horochovski, M., Silva, C.R., 2025. Women and traditional knowledge in health care: understanding traditional healing practices in Brazil. Ciência & Saúde Coletiva 30(1), e13012023. https://doi.org/10.1590/1413-81232025301.13012023.
[17] Ong, H.G., Kim, Y.-D., 2015. Herbal therapies and social-health policies: Indigenous Ati Negrito women's dilemma and reproductive healthcare transitions in the Philippines. Evidence-Based Complementary and Alternative Medicine 2015, 491209. https://doi.org/10.1155/2015/491209.
[18] Rainatou, B., Souleymane, C., Salfo, O., Mohamadi, Z., Rene, M.D., Alimata, B., Jules, Y., Mathieu, N., Mohamed, B.B., Geoffroy, O.G., Sylvain, I., Lazare, B., Noufou, O., Marius, L., Felix, K.B., Sylvin, O., 2021. Collaboration between practitioners of traditional and conventional medicine: A report of an intervention carried out with traditional women healers in the province of Sanmatenga (Burkina Faso) to improve the obtaining of the license to practice traditional medicine. International NGO Journal 16(1), 9-16. https://doi.org/10.5897/INGOJ2021.0355.
[19] Sawakar, N., 2017. Gender dimension towards rights over traditional knowledge by Adivasi women of Melghat Tiger Reserve, India. IOSR Journal of Humanities and Social Science 22(4), 58-67. https://doi.org/10.9790/0837-2204065867.
[20] Suresh, K.G., Thomas, J., 2025. Analyzing the role of Malayali women in the preservation and transmission of traditional medicinal knowledge in India. Kristu Jayanti Journal of Humanities and Social Sciences 5, 60-64. https://doi.org/10.59176/kjhss.v5i0.2534.
[21] Torres-Avilez, W., Nascimento, A.L.B. do, Santoro, F.R., de Medeiros, P.M., Albuquerque, U.P., 2019. Gender and its role in the resilience of local medical systems of the Fulni-ô people in NE Brazil: Effects on structure and functionality. Evidence-Based Complementary and Alternative Medicine 2019, 8313790. https://doi.org/10.1155/2019/8313790.
[22] Xipaia, A.P., Parente, F. de A., Barros, F.B., 2022. As plantas medicinais na vida de mulheres indígenas Xipaya e Kuruaya: histórias, conhecimentos tradicionais e usos na cidade de Altamira, Pará. Tellus 22(47), 137-164. https://doi.org/10.20435/tellus.v22i47.803.