# The influence of indigenous knowledge sharing practices on traditional medicine use: A case of Ludewa District, Njombe, Tanzania

Shaban O. Chika[1]
Ronald Bernard Tarimo[2]
Frank-well Dulle[3]

[1]shabanchika@sua.ac.tz

[1]https://orcid.org/0009-0006-6270-606X
[2]https://orcid.org/0000-0001-6398-7541
[3]https://orcid.org/0000-0003-2016-6596

[1,2,3] Sokoine University of Agriculture, Tanzania

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## ABSTRACT

Indigenous knowledge-sharing practices persist as fundamental components that facilitate the development of traditional medicine worldwide. It postulates a wealth of knowledge and experience that represents a significant resource in the sustainable development of society. Yet, the extent to which knowledge-sharing practices influence traditional medicine use in Tanzania, particularly in Ludewa District, remains insufficiently understood. This study assessed the influence of indigenous knowledge-sharing practices on traditional medicine use in Ludewa District, Njombe, Tanzania. Specifically, the study examined the influence of indigenous knowledge-sharing practices on the use of traditional medicine. The study was guided by the theory of indigenous knowledge management system theory (IKMS). Concurrent mixed-methods research approach was used. However, 252 participants were studied, and 8 traditional healers were interviewed. The study sample was selected using purposive, simple, and snowball sampling techniques. Collected data was coded on IBM SPSS version 25. Descriptive statistical analysis, including means, frequencies, and percentages, was used, and multiple linear regression was employed to analyze the influence of indigenous knowledge-sharing practices on traditional medicine use. Findings revealed that indigenous knowledge-sharing practices, such as mentorship and apprenticeship, community of practice, and peer learning, are the major practices that have positively influenced the use of traditional medicine. However, peer learning ($\beta = 0.111$, $p = 0.022$) is a key factor that significantly influences the use of traditional medicine. The study recommends that the Ministry of Health, through the Traditional Medicine and Alternative Health Council, establish formal mentorship programs to encourage knowledge transfer and the proper imparting of medicinal knowledge to the new generation, and to encourage the active use of traditional medicine.

**Keywords:** Indigenous Knowledge, Local Knowledge, Ludewa, Sharing Practices, Traditional Medicine, Tanzania.

## I. INTRODUCTION

Indigenous knowledge-sharing practices remain a cornerstone of facilitating the accessibility and use of traditional medicine across the globe (Japhari et al., 2025). This sharing practice yields a wealth of knowledge and experience, representing a significant resource for communities' health-related matters (Tugume et al., 2026). In the indigenous context, sharing practices vary over time, across geographical contexts, and with life experiences, environmental interactions, beliefs, and oral traditions (Bi et al., 2025).It is embedded in a culturally rooted system to accelerate the creation, preservation, control, and transfer of medicinal knowledge (Bell et al., 2025). Therefore, indigenous communities apply practices such as apprenticeship, mentorship, observation, storytelling, proverbs, songs, repeated instruction, taboos, and rituals to encourage socialization and knowledge exchange; thus, communities develop competence in the identification, preparation, and management of medicinal products (Ouma, 2022).

Indigenous medicinal knowledge is managed by various local knowledge holders, such as herbalists, traditional healers, elders and other community members who have a calling and have undergone relevant training on the preparation and use of traditional medicine (Ngonyani et al., 2025). They practice traditional medicine with their own assistants, with proper direction from them. This practice promotes active sharing of traditional medicinal knowledge. Similarly, parents, specifically women, act as the controllers of families, being responsible for all important family matters, including health. Through experiences and practices, they become fully traditional medicine custodians, transferring medicinal knowledge to their own children (Ijatuyi et al., 2025).

Worldwide, elders are found in all societies, as part and parcel of indigenous communities, believed to be custodians of traditional medicine. They continue to have high social standing in many places, applying influence on traditional medicine usage. They also play a significant role in sharing traditional medicinal knowledge by transforming personal knowledge into a more structured, permanent form (Iwata, 2024). In the African context, indigenous medicinal knowledge is embedded in people's minds; communities still use local methods to share the wealth of knowledge, which hinders formal access to and use of traditional medicine (Odunlade & Okiki, 2019). Developed communities capture and share medicinal knowledge via formal methods and digital technologies. Through written documentation and the sharing of audiovisual recordings, it provides clear instructions on how to acquire and use traditional medicine. Similarly, the establishment of digital documentation, such as databases, mobile applications, and online repositories, enables the easy sharing of indigenous medicinal knowledge and ensures wider access among community members (Kasoki et al., 2025).

Tanzania, like other African countries, is blessed with megadiversity. The availability of forests, mountains, and natural vegetation provides a wide range of herbal resources to support indigenous healing systems (Ahmed & Hughes, 2022). In most rural settings, traditional medicine is considered a vital tool for restoring patient health and is believed to improve people's health care status (Parvin et al., 2025). By tracing history, the use of traditional medicine dates back to ancient times, when people used natural products, such as plants, animals, microorganisms, and marine organisms, to prevent or treat illnesses. According to the World Health Organization, around 80% of the global population uses traditional medicine, with Tanzania estimated at 60% (Bishoge et al., 2024). Furthermore, most African countries that use traditional medicine call on the World Health Organization for assistance in generating evidence and data on traditional medicine practices and products. In 2013, the World Health Organization developed a strategy in response to the World Health Assembly resolution on the development and use of traditional medicine (Ahmed & Hughes, 2022). This strategy promotes the sincere sharing of knowledge and the use of traditional medicine worldwide. Developed communities stand with confidence by establishing frameworks and regulations to share and protect traditional medicine and its use. While local communities take this medicine and its related knowledge for granted, fewer were predicting the future by establishing preservation measures.

Despite indigenous communities being knowledgeable enough about traditional medicine and its usage, the extent to which knowledge-sharing practices influence traditional medicine use in Tanzania, particularly in Ludewa District, remains insufficiently understood. This study aims to assess the influence of indigenous knowledge sharing practices on the use of traditional medicine.

### 1.1. Statement of the problem

Indigenous knowledge-sharing practices, particularly in traditional medicine, facilitate communities in expanding their medicinal knowledge and know-how, thereby accelerating the active utilization of traditional medicine (Kumar et al., 2026). Therefore, indigenous communities practice and hold knowledge of where, when, and how to use a variety of traditional medicines in their surroundings (Kasoki et al., 2025). However, despite the widespread transmission of indigenous medicinal knowledge, currently, indigenous medicinal knowledge is facing the persistence of secrecy and limited documentation (Masango, 2020). This resulted in uncertainty about the sharing of indigenous medicinal knowledge and hindered traditional medicinal use. Furthermore, the extent to which knowledge-sharing practices influence traditional medicine use in Tanzania, particularly in Ludewa District, remains insufficiently understood.

Most studies done so far in the country have either analyzed the application of information and communication technology in traditional medicine (Iwata, 2024), indigenous knowledge and conservation of traditional medicine (Kibonde, 2020), traditional institutional management of sacred forest in Tanzania (Mgaya, 2020) or commonly used plants for various health conditions in Mlangali Ward, Ludewa District (Kayombo, 2016). Thus, this study aimed to explore the influence of indigenous knowledge-sharing practices on traditional medicine use in Ludewa, District Njombe, Tanzania.

### 1.2 Research Objectives

i. To examine the indigenous knowledge sharing practices for traditional medicine use in Ludewa District.
ii. To assess the influence of knowledge sharing practices on traditional medicine use in Ludewa District.

## II. LITERATURE REVIEW

### 2.1 Theoretical Review

#### 2.1.1 Indigenous Knowledge Management System (IKM) Theory

The theory postulates that indigenous knowledge is not a monolithic body of knowledge but rather a collection of conceptual and theoretical perspectives that critically narrate how it is generated, shared, stored, governed, and

sustained within the community. Furthermore, it is treated as a holistic, culturally embedded system of understanding, practices, and worldview that is community-owned, with elders as the knowledge custodians (Sospeter et al., 2026). Furthermore, a study done by Kurtkoti et al. (2024) explores that Indigenous Knowledge is a collective body of methods, practices, techniques, tools, intellectual resources, explanations, beliefs, and values gathered over time in a particular locality. The knowledge system directs communities to participate in indigenous practices through observation, experience, oral tradition, peer learning, community-based learning, and practical training. Knowledge is transferred from one generation to the next. The use of traditional medicine among community members is influenced by their indigenous knowledge systems, which are closely associated with life experiences, interactions, and beliefs. Furthermore, Zaman et al. (2018) explain that indigenous knowledge systems consist of seven knowledge management activities: get, use, learn, contribute, share, build, sustain, and divest. Sospeter et al. (2026) explains that indigenous knowledge management systems have been marginalized and diminished by Western scientific knowledge systems, while these knowledge systems are valid and worth preserving for the current and future needs of the generation. This knowledge has been useful in the context of traditional medicine; communities currently use indigenous practices to understand and apply their patterns. The implication of indigenous knowledge systems for local communities lies in the fact that these systems underpin much of the world's medicinal knowledge, on which local communities rely for their endurance, daily life, healing, and nutritional needs (Tugume et al., 2026).

This study uses the indigenous knowledge management system theory because it covers the general indigenous system of knowledge from creation to preservation. As it focuses on the general life of the indigenous community, it covers all important aspects, such as context-specificity, holism, dynamism and adaptability, orality and experience, and collective ownership, which are critical to the pipelines and sources of knowledge. This study focuses on indigenous knowledge sharing practices. The study adopted an indigenous knowledge-sharing variable, comprising all necessary indigenous components, such as storytelling, peer learning, training, practical demonstrations, communities of practice, and other local practices currently applied in the community. Also, the study used the variable of use as the dependent variable, which is measured by factors such as frequency of use, purpose of use, and reliance on use.

## 2.2 Empirical Review

### 2.2.1 Indigenous Knowledge Sharing Practices for Traditional Medicine

Indigenous knowledge-sharing practices are the aspect that encompass various features of life, including traditional medicine (Chigwada & Ngulube, 2024). And therefore, ensuring availability, accessibility, and use of traditional medicine around indigenous communities (Ijatuyi et al., 2025). Sharing practices are common customs in many African societies. Most communities' practice socialization as part and parcel of their life. Greetings, talking to neighbors, peer learning, informal associations during planting and harvesting, informal meetings and ceremonies, and facilitating the transfer of medicinal knowledge from one person to another (Tugume et al., 2026). In Tanzania, a study done by Masango (2020) found that in traditional medicine career, medicinal knowledge is easily navigated through traditional means. Traditionally, there is no formal process of knowledge transfer; communities randomly provide instructions on how to use the medicines, how to obtain them, their benefits and disadvantages. These practices are commonly experienced during social cultural events where communities meet, though local gatherings like burrier ceremonies and local clubs' peers shares their experience concerning the use of traditional medicine. Also, practices like story telling which takes place in family level provides knowledge and skills of using traditional medicine. Most of people observe the practices that has been conducted by parents and relatives this makes easily transfer of knowledge. Contrary to study done in London which stated that there is copyright infringement in the matter of sharing medicinal knowledge (Carroll et al., 2025). Majority have been using this knowledge not for financial gain, due to nature and reality of indigenous context, but there is a need to officially recognize this knowledge so that it can be used by the copyrighted tribe. Furthermore, a study done by Katonge (2025) has revealed that not only face-to-face conversations facilitates knowledge sharing on traditional medicine use, but also a community of practice and mentorship among traditional healers and sometimes within family level facilitate knowledge sharing on traditional medicine use. Where by observing and participating on several medicinal practices provides a confident of using traditional medicine. Another means it is through the use of mobile phones, recently mobile phones, are the popular tool that is used to communicate everywhere, relatives and peers uses mobile phones to communicate and share traditional medicines practices. This shows that the use of technology facilitates quick knowledge sharing compared to other methods. Furthermore, indigenous knowledge is owned by individuals; its sharing is largely determined by the person's willingness (Carroll et al., 2025). Financial benefits, spiritual prohibitions, and the reluctance of herbalists and traditional healers in communities impede the active sharing of this knowledge and its practices. Although various studies have been conducted worldwide, there is little empirical evidence on the extent of indigenous knowledge sharing practices for traditional medicine use in Ludewa District, Njombe, Tanzania.

### 2.2.2 The Influence of Knowledge Sharing Practices on Traditional Medicine Use

Worldwide, the use of traditional medicine is influenced by many factors, including knowledge-sharing practices. Knowledge sharing practices is the tendence of exchanging information, experiences, knowledge and expertise among people in a particular locality (Mgaya, 2020). Sharing of medicinal knowledge among communities are confidently influence the use of traditional medicine. In indigenous context Medicinal knowledge is informal knowledge, raised and maintained within local communities, transferred within generation via oral tradition. Several practice such as communal gatherings, peer learning, community of practices, practical training facilitates active sharing of knowledge, where medicinal knowledge is smartly shifted and being used by community members. A study conducted in Bangladesh found that the use of traditional medicine is influenced by family background and rooted in local cultural experiences, which are shaped by our culture (Parvin et al., 2025). Culture shapes people's learning, practice, and use of traditional medicine. This fact is contrary to the Tanzanian context, where the majority use traditional medicine because of its availability. Study done by Masango, (2020) explore that availability of medicine facilitates active usage of traditional medicinal therapies, most of local communities engage in using traditional medicine, because of its availability, availability of traditional medicine is grounded in local context like rural areas, although in many urban, and peri-urban areas it is vice versa, people learn the essential of these therapeutic practices and decides to use it without intervening with cultural background. A study by Diyamett et al., (2016) also highlighted that, despite awareness of the Tanzania Medicine and Medical Devices Authority (TMDA) regarding the availability of traditional medicine, no evidence shows that the ministry, government authority, or center has implemented measures to verify the integrity of indigenous knowledge for traditional healers. Adherence to traditional medicine knowledge will encourage its use. The decision to use is not rooted in cultural experiences; rather, it is either a medical recommendation (Gwandure & Lukhele-olorunju, 2023), other patients they involve on using traditional medicine due to medical recommendation, sometimes therapeutic medicine seems to provides poor results that's why communities engage on using traditional medicine. or driven by other factors that mostly orient the use of traditional medicine. The environmental context in which individuals live facilitates their engagement with Traditional medicine, also common knowledge and understanding influence the adoption of traditional medicine. Also, social demographic factors impede the active use of traditional medicine (Mujinja & Saronga, 2022). Although various studies have been conducted worldwide, there is no empirical evidences regarding social-demographic influence on traditional medicine use.

## III. METHODOLOGY

### 3.1 Research Design

Concurrent mixed-methods research approach, where quantitative and qualitative data were collected at a single point in time and then analyzed separately. Researchers collect and analyze both numerical and non-numerical data. This approach enables the researcher to clearly understand and evaluate the implications of indigenous knowledge sharing practices in traditional medicine. It is applied because it suggests Indigenous Knowledge sharing practice studies as an effective method for collecting diverse types of data that can be used to confirm the validity and consistency of Indigenous Knowledge in a certain area. The study adopted a cross-sectional research design, in which data will be collected at a single point in time.

### 3.2 Study Area

The study was carried out in the Ludewa district, Njombe, Tanzania, because the district has limited documentation of knowledge-sharing practices on traditional medicine use. It is also primarily rural, where a large population depends on traditional medicine for primary health care due to limited accessibility and affordability of modern health services.

### 3.3 Target Population

The target population was Ludewa community members; the unit of analysis was traditional medicine users from Ludewa district. The target population for this study was 29,864, which includes four wards: Lugarawa, Mkongobaki, Mlangali, and Milo. And villages are Mdilidili, Ikowo, Lusala, Maholongwa,

### 3.4 Sampling and Sample Size

The study sample size was 252, calculated from the total population using the Israel sample size table. The Israel table for sample size determination was used to determine the sample size for this study. The table provides guidelines for determining an appropriate sample size for a given population size and desired confidence level. According to the Israel sample size table, if a precision of ±7% is chosen for a population of 29,864, this justifies the sample size of 252 used in this study. The study used purposive sampling techniques to select four wards and four villages from all the wards. The study was intended to obtain in-depth insights from wards near health-related services and from wards far

from them. So, Lugarawa and Mlangali wards were found to be close to health services, including villages such as Mdilidili and Lusala. In contrast, ugela and Mkongobaki were found to be far from health services, including the villages of Ikowo and Maholongwa. Furthermore, the respondents were purposefully selected based on their availability, willingness, and consent to participate in the study, and the study specifically required individuals who are traditional medicine beneficiaries and have relevant experience or knowledge of traditional medicine. In addition, key informants were selected through snowball sampling, specifically to reach traditional healers who are not registered. For registered traditional healers, simple random sampling was used; the researcher used a list of names from the leader of the Ludewa District.

### 3.5 Data Collection Instruments and Procedures

Data was collected using questionnaire and interview methods. A total of 262 questionnaires were distributed, 252 were returned and found suitable for analysis. The shortfall was attributed to respondents' unavailability and incomplete responses. However, the achieved response rate was considered adequate for ensuring the reliability and validity of the study findings. Respondents were both literate and illiterate; for literate respondents, the data were self-administered, and for illiterate respondents, a research assistant administered the data collection. Additionally, quantitative methods are used to collect numerical data, and qualitative methods are used to collect non-numerical data. Quantitative data were collected using a semi-structured questionnaire, while qualitative data were collected through an interview guide. Semi-structured interviews were conducted with a total of eight (08) key informants, two from each ward. Additionally. Qualitative data is analyzed using thematic analysis, to ensure understanding, translation will be done from the (Pangwa) language into English.

### 3.6 Data Analysis

To measure indigenous knowledge-sharing practices, items were formulated for each practice: mentorship and apprenticeship, storytelling, community of practice, peer learning, and demonstration and practical training. A five-point Likert scale, ranging from strongly disagree (1) to strongly agree (5), was used to measure the influence of indigenous knowledge management practices for traditional medicine use. To measure traditional medicine usage, respondents were requested to indicate the frequency of use, where by 1represents the least frequent and 5 represents the most frequent, and on the purpose of use 1 represents not at all and 5 represents very frequency, and reliance of use, 1 represents less reliance and 5 represents most reliance Furthermore, the traditional medicine usage index score was computed by summing the responses from all the items. Low values indicate low traditional medicine use, while high values indicate high use. A method was adopted from. Quantitative data collected from the questionnaire were coded and analyzed using SPSS (version 25). Descriptive statistics, such as the mean, were used to analyze the indigenous knowledge management practices, while the influence of indigenous knowledge sharing practices on traditional medicine use was analyzed by using multiple linear regression

$$Y= \beta 0+ \beta 1X1+ \beta 2X2+ \beta 3X3... \beta 11X12$$

Where:

$Y$ = TM usage index score
$\beta 0$ = Interception
$\beta 1...\beta 11$= Regression coefficients
$X1$ = ward
$X2$ = years lived in the community
$X3$ = Age
$X4$ = Gender
$X5$ = Education level
$X6$ = Occupation
$X7$ = Religion
$X8$ = Mentorship and apprenticeship
$X9$ = cultural practices and storytelling
$X10$ = community of practices
$X11$ = Peer learning via social and cultural events
$X12$ = Demonstration and practical training.

Before running multiple linear regression analyses, key assumptions were tested to ensure the model's validity. Multicollinearity was examined using Variance Inflation Factors (VIFs) and Tolerance values; autocorrelation was assessed using the Durbin-Watson statistic.

### 3.7 Ethical Considerations

Ethical issues were taken into consideration where by research follow and adhere all required principles for data collection and privacy of respondents. To ensure the validity of an instrument, the researcher borrows an already validated instrument and submits it to an expert to ensure the consistency of the findings and enhance the overall validity of the research results. The validation process also included piloting the instrument with a small sample of respondents from Kinole village, which shares the same indigenous characteristics. Reliability of the instrument was assessed using Cronbach's Alpha (α), a widely used measure of internal consistency. The instrument was pre-tested with a few participants, and reliability was calculated from the pre-test data. A Cronbach's Alpha score of $\alpha = 0.972$ was achieved, indicating a high level of internal consistency. This ensured the instrument produced stable, consistent results across repeated trials.

## IV.FINDINGS & DISCUSSION

### 4.1 Demographic Characteristics of Respondents

This section presents the demographic characteristics of the study respondents. Understanding the characteristics of the sample population provides important context for the study's findings, especially regarding the determinants of indigenous medicinal knowledge use in Ludewa district. The results as presented in Table 1 showed that the majority (52.8%) were male respondents, while 47.2% were female. The dominance of male respondents as beneficiaries of traditional medicine can be attributed to the higher number of males who practice and benefit from it. This is similar to a study by Kibonde (2020), who found that traditional medicinal knowledge is complemented by practical experience of the wild environment, where females may face limitations because it is rarely accessible and risky. Regarding respondents' age, the largest groups were 28.2% and 24.2% for the 31-35 and 18-25 age ranges, respectively. This suggests that the majority of beneficiaries in traditional medicine are youth. According to the 2022 Population and Housing Census, Tanzania has a predominantly young population, with approximately 34.5% of the population aged 15–35 years (National Bureau of Statistics [NBS], 2024). Furthermore, among respondents who use traditional medicine, a considerable proportion (26.6%) have experience of 0-5 years, followed by 25.0% with experience of 6-10 years. This implies that most respondents have no more than 10 years' experience with traditional medicine. Less experienced respondents are less likely to be sufficiently conversant with practicing traditional medicine. Regarding education level, the dominant group were 41.7% who attained secondary education. This indicates that the majority of communities attained secondary education. This postulates that the fee-free education policy, implemented by the government of Tanzania through the Ministry of Education, facilitates communities in attaining secondary education (Parvin et al., 2025)

**Table 1**

*Demographic Characteristics of Respondents*

| **Variable** | | **n** | **%** |
|---|---|---|---|
| Wards | Mkongobaki | 70 | 27.8% |
| | Lugarawa | 90 | 35.7% |
| | Mlangali | 42 | 16.7% |
| | Milo | 50 | 19.8% |
| Age | 18-25 | 61 | 24.2% |
| | 26-30 | 53 | 21% |
| | 31-35 | 71 | 28.2% |
| | 36-40 | 25 | 9.9% |
| | 41 and above | 42 | 16.7% |
| Age lived in a community | Years 0-5 | 66 | 26.2% |
| | Years 6-10 | 61 | 24.2% |
| | Years 11-20 | 59 | 23.4% |
| | Years 20-40 | 32 | 12.7% |
| | Years 41 and above | 34 | 13.5% |
| Sex | Male | 132 | 52.8% |
| | Female | 120 | 47.2% |
| Education level | No Formal Education | 18 | 7.1% |
| | Primary | 64 | 25.4% |
| | Secondary | 105 | 41.7% |
| | Tertiary | 65 | 25.8% |
| Occupation | Business personnel | 47 | 18.7% |
| | Farmer | 128 | 50.8% |

| | | | |
|---|---|---|---|
| | Government employee | 48 | 19.0% |
| | Student | 26 | 10.3% |
| | Elder/Herbalist | 3 | 1.2% |
| Religion | Christianity | 210 | 83.3% |
| | Islam | 40 | 15.9% |
| | Traditional beliefs | 2 | .8% |
| Experience | Years 0-5 | 67 | 26.6% |
| | Years 6-10 | 63 | 25.0% |
| | Years 11-20 | 75 | 29.8% |
| | Years 20-40 | 24 | 9.5% |
| | Years 41 and above | 23 | 9.1% |

### 4.1.1 Indigenous Knowledge Sharing Practices

The study was set to determine indigenous knowledge-sharing practices among members of the community in Ludewa district. The study found that 73(29.0%) of respondents used peer learning to share indigenous medicinal knowledge. 57 (22.6%) of respondents use communities of practice to discuss safe preparation methods for traditional medicines across generations within their families, and 54 (21.4%) stated that mentorship and apprenticeship are used to share medicinal knowledge. This indicates that socialization practices foster effective knowledge transferring. This transfer does not depend on scientific training or a formal mentoring process; it is just an informal method of career development. It is local method, focusing on individuals to help them become competent in traditional medicine. Furthermore, this local gathering makes them into unit, as they unit they discuss several issues including healthcare, so through socialization communities share what they have and what they know about traditional medicine, including the practices, and its implication, this builds greater significance to community, because community trust what they own and use it. During the interview, one of the traditional healers from Mlangali stated that"

> *Mfivembo (during barrier ceremonies) and Mfilabu (in local bars and clubs), people ask puzzled questions concerning traditional medicine. Once I respond, I raise a big discussion that stays for a long time until they get a new concept, and most of them are friends and neighbors" (*Traditional healers 4th February 2026).

This finding is consistent with a study conducted by Bell et al. (2025) revealed that peer learning facilitates exchange of knowledge among community members, and builds strong connections with mutual relationships. As Maasai communities around the world share indigenous medicinal knowledge and address health-related challenges through shared ceremonies, healing practices, and commonality. Meaning that peers who sit together in local gatherings had a greater chance to exchange their experiences and insights concerning the usage of traditional medicine. Furthermore, a study done by Ngonyani et al. (2025) revealed that, community of practices facilitates effective sharing of indigenous knowledge in a particular indigenous context. Though observation and direct participation in medicinal practices people create a choice of adopting and using traditional medicine. Starting from family level, family members heal several diseases through the use of traditional medicine. Preparation process and all kind of practices build confidence of understanding, practicing and using traditional medicine. Furthermore, Elders had the power to manage and share their knowledge, preserve resources, and participate in traditional medicine related activities through the establishment of mentorship and apprenticeship programs, regulations, rituals, and communal gatherings. Likewise, Malekani, (2022) emphasizes this by showing that socialization, learning, and innovation occur during this process. During socialization, and other medicinal practices like mentorship people share their own insights, experiences, wisdom and combine it with others' knowledge to form new knowledge.

**Table 2**

*Indigenous Knowledge Sharing Practices*

| Statement | Not at all | Rarely | Neutral | Frequency | Very Frequency |
|---|---|---|---|---|---|
| Mentorship & Apprenticeship | 57(22.6%) | 40(15.9%) | 60(23.8%) | 54(21.4%) | 41(16.3%) |
| Storytelling | 44(17.5%) | 47(18.7%) | 72(28.6%) | 51(20.2%) | 38(15.1%) |
| Community of practices. | 42(16.7%) | 35(13.9%) | 65(25.8%) | 57(22.6%) | 53(21.0%) |
| Peer learning | 31(12.9%) | 40(15.9%) | 58(23.0%) | 73(29.0%) | 50(19.8%) |
| Demonstration & practical training. | 49(19.4%) | 52(20.6%) | 52(20.6%) | 50(19.8%) | 49(19.4%) |

### 4.1.2 Traditional Medicine Use

This subsection presents the frequency, reliance and use of traditional medicine. Table 3 shows the tendency toward using traditional medicine, experience with traditional medicine, frequency of use, and reliance on traditional medicine to treat different diseases. The study aimed to investigate the utilization of traditional medicine by the

indigenous community. The study showed that 214 (84.9%) of respondents agreed, based on their knowledge, that they had observed an increase in usage in recent years. Additionally, respondents were asked how often they use traditional medicine; 199 (79.0%) reported using it occasionally. Moreover, respondents were asked to indicate their reliance on traditional medicine. It was found that 66 (26.2%) respondents had not relied on traditional medicine. Furthermore, respondents were asked to indicate the purpose of their use of traditional medicine. 3.0992 mean of respondents indicates that due to the factor of easy accessibility, the majority indicates neutral responses, and for the factor of low cost, 3.1389 of respondents also indicate neutral responses. This shows that most respondents agreed to use traditional medicine, but the frequent of use seems to be low, and the purpose of using traditional medicine is not clearly stated in the study. Furthermore, people are not reliant on traditional medicine, as most respondents did not regularly depend on it they use it when specific health needs arose. Study done by Chimukuche et al. (2022) revealed that due to availability of formal health services in most of rural places, communities trust much formal health services and this factor specifically delay the usage and reliance of traditional medicine. During back days rural settings were began by none of formal health services, in few places there are small in number, scatted and mostly owned by religious institutions, so communities found to use traditional medicine as the first choice due to lack of formal health services (Ouma, 2020). Currently due to advancement of science and technology equipments and medicine are available each and everywhere, and presence of policy from world health organization (WHO) and Ministry of health plan to improve health services to villages. This plan makes majority to trust formal health services and reduces the reliance and usage of traditional medicine.

**Table 3**

*Frequency, Reliance and Purpose of Traditional Medicine Usage*

| **Usage** | **n** | | **%** |
|---|---|---|---|
| Yes | 214 | | 84.9% |
| No | 38 | | 15.1% |
| Total | 252US | | 100.0% |
| **Frequency of use** | **n** | | **%** |
| Daily | 20 | | 7.9% |
| Weekly | 16 | | 6.3% |
| Monthly | 17 | | 6.7% |
| Occasionally | 199 | | 79.0% |
| Total | 252 | | 100.0% |
| **Reliance on use** | **n** | | **%** |
| Not at all | 66 | | 26.2% |
| Rarely | 50 | | 19.8% |
| Neutral | 48 | | 19.0% |
| Reliance | 41 | | 16.3% |
| Completely Reliance | 47 | | 18.75% |
| Total | 252 | | 100.0% |
| **Purpose** | **n** | **Mean** | **Std. Deviation** |
| Trust | 252 | 2.1389 | 1.31212 |
| Fewer Side Effects | 252 | 2.8611 | 1.40025 |
| Dissatisfaction | 252 | 2.5595 | 1.33615 |
| Cultural Beliefs | 252 | 2.8016 | 1.43668 |
| Easy accessibility | 252 | 3.0992 | 1.42337 |
| Low Cost | 252 | 3.1389 | 1.52030 |
| Limited access to Modern Health Facilities | 252 | 2.6032 | 1.39195 |
| Effectiveness | 252 | 2.9048 | 1.49596 |
| Long History of use | 252 | 2.7421 | 1.46708 |
| Familiarity | 252 | 2.9484 | 1.45083 |

**Usage Of Traditional Medicine for Treating Diseases**

Use of traditional medicine to treat various diseases: This section shows how traditional medicine is used to treat various diseases. Table 6 presents how traditional medicine treats different categories of diseases. The study found that 120(47.6%) of respondents don't use traditional medicine in treating mental illness, followed by 118(46.8%) of respondents who indicate that they don't use traditional medicine for chronic diseases. Contrary to 58(23.0%) of respondents who indicate that they use traditional medicine for pain relief, followed by 52(20.6%) of respondents who

use it for wound and skin conditions. This indicates that the majority of respondents in Ludewa district do not use traditional medicine to treat chronic diseases, pregnancy, or respiratory diseases; rather, some use it as first aid, then seek further treatment in formal health care. This shows that traditional medicine is widely used in rural settings, where traditional healers stand as stakeholders and heroes in combating health-related problems. During emergencies, most communities use traditional medicine to facilitate body recovery. Although its use is not limited, others use it for both non-communicable and communicable diseases. During the interview, one of the traditional healers stated that

> *"I often attend to patients and provide medication based on emergency illnesses such as flu, cough, diarrhea, wounds, headaches, insect bites, vomiting, and fever". This medication is used by both genders, but especially by women and kids (*Traditional healers 4th February 2026).

This finding is consistent with studies by Bishonge et al., (2024) and Mashoto, (2024), who revealed that the potential of traditional medicine was recognized during the Coronavirus diseases 2019 (COVID-19) pandemic. The government highlighted the use of traditional herbs, especially for conditions such as flu, cough, respiratory infections, and fever. Even the government insists on the use of traditional medicine for COVID-19. But still there is no official mechanism that promote active usage of traditional medicine within the community rather government muchly insists on making environmental conservation. Furthermore, in rural communities who is located far from health facilities government should recommend the use of traditional medicine for combating emergency diseases while planning to visit hospital for further treatment. Similarly, a study done in Indonesia revealed that 73 species are predominantly used, followed by fruits, rhizomes, seeds, tubers, and other parts. The use of these medicinal plants includes the treatment of various diseases such as colds, fever, indigestion, hypertension, gout, diabetes, and urinary tract infections. This indicates that medicinal plants are not only used for quick health-related problems; they are also used for body care purposes, such as facilitating menstruation, strengthening vitality, maintaining healthy skin, and increasing immunity (Rosmi et al., 2023).

**Table 4**

*Usage of Traditional Medicine for Treating Different Diseases*

| Statement | Not at all | Rarely | Neutral | frequency | Very frequency |
|---|---|---|---|---|---|
| Common illness | 45(17.9%) | 77(30.6%) | 36(14.3%) | 47(18.7%) | 47(18.7%) |
| Pain relief | 47(18.7%) | 58(23.0%) | 41(16.3%) | 58(23.0%) | 48(19.0%) |
| Wound and skin condition | 56(22.2%) | 63(25.0%) | 48(19.0%) | 52(20.6%) | 33(13.1%) |
| Chronic diseases | 118(46.8%) | 51(20.2%) | 42(16.7%) | 23(9.1%) | 18(7.1%) |
| Childhood diseases | 77(30.6%) | 59(23.4%) | 45(17.9%) | 40(15.9%) | 31(12.3%) |
| Mental illness | 120(47.6%) | 44(17.5%) | 47(18.7%) | 20(7.9%) | 21(8.3%) |
| Pregnancy cases | 116(46.0%) | 41(16.3%) | 47(18.7%) | 29(11.5%) | 19(7.5%) |
| Respiratory cases | 95(37.7%) | 57(22.6%) | 35(13.9%) | 34(13.5%) | 31(12.3%) |

**Summary of Traditional Medicinal Knowledge Use**

Summary of traditional medicinal knowledge use in Ludewa district: This subsection presents a summary of traditional medicine use. Table 05 presents the summary for the indicators of traditional medicine use in Ludewa District. The results revealed that three indicators, such as frequency (mean=2.5045a), purpose (mean=2.6079a), and reliance (mean=2.6839a), have comparatively similar mean scores. Furthermore, even though their means differ slightly, the p-value = 0.055 is greater than 0.05, and all variables fall into the same homogeneous subset ("a"). This indicates that there is no statistically significant difference among indicators. This shows that there is no indicator that stands significantly more influential than the other in affecting traditional medicine use in Ludewa district. This indicates that traditional medicine is supported by a couple of interconnected indicators, such as frequency.

**Table 5**

*Indicators of Traditional Medicinal Use Ludewa District*

| Variable | n | Subset for alpha=0.05 |
|---|---|---|
| Frequency | 252 | 2.5045[a] |
| Purpose | 252 | 2.6079[a] |
| Reliance | 252 | 2.6839[a] |
| Sig. | | .055 |

**4.1.2 The Influence of Knowledge Sharing on the Use of Traditional Medicine in Ludewa District**

This subsection focuses on the influence of indigenous knowledge-sharing practices on the usage of traditional medicine. Table 8 presents these influences, including socio-demographic factors and other related factors. Multiple

linear regression was performed to examine the influence of socio-demographic factors and indigenous knowledge sharing practices on traditional medicine use in Ludewa district. The results showed that the variance Inflation factor (VIF) ranged from 1.052 to 1.990, which is less than 10, indicating that the data have no multicollinearity problems. In addition, the Durbin-Watson value was 1.542, which lies within the recommended range of 1.5 to 2.5, indicating that the data do not exhibit autocorrelation. Only one predictor of the outcome variable is statistically significant at the 5% level. Peer learning via social cultural events ($\beta = 0.111$, $p = 0.022$) statistically influence the use of traditional medicine. This indicates that greater exchange of traditional remedy stories at social events has a significant positive effect on the outcome. All other variables, including demographic factors such as ward, age, gender, education, occupation, years lived in the community and other indigenous knowledge-sharing practices, have p-values greater than 0.05, indicating they are not statistically significant predictors in this model. A few variables such as religion, elders sharing knowledge during gatherings, and education level show marginal effects (p-values slightly above 0.05), but these are not strong enough to be considered statistically significant. Notably, peer learning through social cultural events emerges as the strongest predictor ($\beta = 0.111$, $p = 0.022$). This denotes that dissemination and exchange of indigenous knowledge significantly enhance the use of traditional medicine. It highlights the critical role of cultural transmission mechanisms in sustaining traditional health practices. This suggests that the independent variables are not highly correlated and that the regression estimates are reliable. Overall, the results emphasize that indigenous knowledge-sharing practices, particularly peer learning, are the key determinants of traditional medicine in Ludewa District. This finding is consistent with the principles of social learning theory, which propose that people learn behaviors and practices by observing and interacting with others. Peer learning is complemented by the people who are closely related each other, this closeness makes people to share variety of information and health related information are one among them. This relationship bult confidence of people to express what he or she have concerning health related matters. Through sharing people recommend the best medicinal solution. This is similar to the study by Ouma (2022), who found that traditional medicinal knowledge is transmitted from one person to another through peer learning. This indicates that through mutual relationships and gatherings, communities share health-related matters. Health related issues are secrecy and privacy matters that needs to be shared regarding individual concern, though this concern people feel free to express what he or she have to their peers and relatives, through sharing of this experiences, insights, beliefs, wisdom and decision making facilitates communities to engage in using traditional medicine confidently. This statement is contrary to studies by Ombori (2026) and Chimukuche et al. (2022), which revealed that the use of traditional medicine is influenced more by public promotion, policy involvement, and health system integration than by active socialization. Although availability of policy and health related systems facilitates practices of traditional medicine to be formal but the practices of sharing remain on active socialization. This postulates that individuals acquire knowledge, beliefs, and experiences about the use of traditional medicine through interactions with friends, colleagues, family members, and community members. Through these social networks, information about the effectiveness, accessibility, and safety of traditional medicine is shared, increasing awareness and acceptance among individuals.

**Table 6:** *The Influence of Knowledge Sharing on the Use of Traditional Medicine in Ludewa District*

| **Coefficients[a]** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Collinearity Statistics | |
| | | B | Std. Error | Beta | | | Tolerance | VIF |
| 1 | (Constant) | 1.411 | .378 | | 3.736 | .000 | | |
| | Ward | .032 | .048 | .041 | .670 | .504 | .860 | 1.163 |
| | Years Lived in the Community | .050 | .053 | .081 | .949 | .344 | .447 | 2.237 |
| | Age | -.020 | .049 | -.033 | -.414 | .679 | .508 | 1.970 |
| | Gender | .096 | .096 | .059 | .998 | .319 | .951 | 1.052 |
| | Education Level | -.100 | .059 | -.106 | -1.693 | .092 | .832 | 1.202 |
| | Occupation | -.049 | .056 | -.054 | -.874 | .383 | .844 | 1.184 |
| | Religion | .242 | .124 | .117 | 1.946 | .053 | .910 | 1.099 |
| | Mentorship and Apprenticeship. | .087 | .048 | .146 | 1.822 | .070 | .509 | 1.965 |
| | Cultural practices and storytelling. | .010 | .051 | .015 | .191 | .849 | .502 | 1.990 |
| | Community of practices | .065 | .049 | .106 | 1.318 | .189 | .508 | 1.967 |
| | Peer learning via social cultural events | .111 | .048 | .173 | 2.297 | .022 | .580 | 1.723 |
| | Demonstration and practical training | .052 | .045 | .088 | 1.148 | .252 | .562 | 1.778 |

a. Dependent Variable: General_Index_for_indicators_of_knowledge_usage

**Table 7**

*Model Summary for Multiple Linear Regression Table*

| Model Summary | | | | | |
|---|---|---|---|---|---|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Durbin-Watson |
| 1 | .465[a] | .216 | .177 | .75247 | 1.542 |

a. Predictors: (Constant), Religion, Community of practices, Gender, Education Level, Ward, Age, Occupation, Peer learning via social cultural events, Mentorship and Apprenticeship. Demonstration and practical training., Cultural practices and storytelling., Years Lived in the Community

b. Dependent Variable: Total_usage_score

## V.CONCLUSION & RECOMMANDATIONS

### 5.1 Conclusion

Indigenous knowledge-sharing practices play a pivotal role in amplifying, growing, and improving the usage of traditional medicine. Findings revealed that indigenous knowledge-sharing practices, such as mentorship and apprenticeship, community of practice, and peer learning, have positively influenced traditional medicine use. However, peer learning is a key factor that significantly influences the usage of traditional medicine. Furthermore, the study emphasizes the importance of knowledge sharing among community members to enhance the usage of traditional medicine. Sharing of indigenous knowledge through social events empowers the community to use traditional medicine.

### 5.2 Recommendations

The use of traditional medicine is influenced primarily by informal modalities. Based on findings that indigenous knowledge-sharing practices, particularly through peer learning, significantly influence its use. The following recommendations are proposed. First, the Ministry of Culture, Arts and Sports should establish formal platforms and events that encourage the active sharing of medicinal knowledge rooted in Tanzania's tribes. This practice has been proven to have a meaningful effect on the use of traditional medicine. Second, the Ministry of Health, through the Traditional Medicine and Alternative Health Council, should establish formal mentorship programs that encourage knowledge transfer and proper impartation of medicinal knowledge to the new generation, and encourage the active use of traditional medicine. Third, Local government, community organizations, and other non-governmental organizations should encourage and organize regular social and cultural events where community members can share experiences and stories about effective traditional remedies. These platforms can strengthen knowledge transmission and increase confidence in the use of traditional medicine. Communities should encourage the participation of elders and experienced practitioners; these custodians should be actively involved in community gatherings. As key practitioners of indigenous knowledge, their participation will enhance the quality and credibility of the shared information.

### Declaration of Interest

The author declares that he doesn't have any known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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## REFERENCES

Ahmed, M. N., & Hughes, K. (2022). Role of ethno-phytomedicine knowledge in healthcare of COVID-19: Advances in traditional phytomedicine perspective. *Beni-Suef University Journal of Basic and Applied Sciences, 11*, Article 96. https://doi.org/10.1186/s43088-022-00277-1

Bell, E., Tremblay, C., Carodenuto, S., Downie, B., Dearden, P., Ole Kileli, E., & McDougall, S. (2025). Indigenous knowledge-bridging to support ecological stewardship in Canada and Tanzania. *People and Nature, 7*, 1139–1150. https://doi.org/10.1002/pan3.70034

Bi, S., Yuan, X., & Ni, W. (2025). Building sustainable and trustworthy Indigenous knowledge preservation ecosystem. *arXiv*. https://doi.org/10.48550/arXiv.2504.17281

Bishoge, O., Njee, R., Mbatia, Y., Msovela, J., Nyigo, V., Kafuye, M., Omolo, J., Mubyazi, G., Imeda, C., Peter, E., Kazyoba, P., Munga, M., Katani, S., Nguyamu, M., Gowelle, O., Omary, M., Sunguruma, R., Mdemu, A., &

Abdallah, A. (2024). Traditional medicine in Tanzania: A review of historical perspective, current practices and challenges. *History and Philosophy of Medicine, 6*(4), Article 16. https://doi.org/10.53388/HPM2024016

Carroll, D., Houndolo, M. M., Big George, A., & Redvers, N. (2025). Protecting repositories of Indigenous traditional ecological knowledges: A health-focused scoping review. *International Journal of Environmental Research and Public Health, 22*(6), Article 886. https://doi.org/10.3390/ijerph22060886

Chigwada, J., & Ngulube, P. (2024). Librarians' role in the preservation and dissemination of Indigenous knowledge. *IFLA Journal, 50*(2), 242–256. https://doi.org/10.1177/03400352231217270

Chimukuche, R. S., Ngwenya, N., Seeley, J., Nxumalo, P. S., Nxumalo, Z. P., Godongwana, M., Radebe, N., Myburgh, N., Adedini, S. A., & Cutland, C. (2022). Assessing community acceptance of maternal immunisation in rural KwaZulu-Natal, South Africa: A qualitative investigation. *Vaccines, 10*(3), Article 415. https://doi.org/10.3390/vaccines10030415

Diyamett, B. D., Thomas, H., Daniel, L., Liberio, J., & Aguirre-Bastos, C. (2016). The national innovation system in Tanzania and its relevance for development. In B. Göransson, C. Brundenius, & C. Aguirre-Bastos (Eds.), *Innovation systems for development: Making research and innovation in developing countries matter* (pp. 184–229). Edward Elgar Publishing.

Gwandure, C., & Lukhele-Olorunju, P. (2023). Women's use of indigenous knowledge in Africa. *Social Sciences & Humanities Open, 8*(1), Article 100741. https://doi.org/10.1016/j.ssaho.2023.100741

Ijatuyi, E. J., Lamm, A., Yessoufou, K., Suinyuy, T., & Patrick, H. O. (2025). Integration of indigenous knowledge with scientific knowledge: A systematic review. *Environmental Science & Policy, 170*, Article 104119. https://doi.org/10.1016/j.envsci.2025.104119

Iwata, J. J. (2024). Application of information and communication technology in traditional medicine and healing knowledge management: Stakeholders' perspectives from Tanzania. *University of Dar es Salaam Library Journal, 19*(2), 17–34.

Japhari, H. S., Rumisha, S. F., Nkoma, J. D., & Peter, E. L. (2025). Prevalence of herbal medicine use for maternal conditions in Tanzania: A systematic review and meta-analysis. *Frontiers in Pharmacology, 16*, Article 1637891. https://doi.org/10.3389/fphar.2025.1637891

Kasoki, L. M., Essouman, P. F. E., Musavandalo, C. M., Wamba, F. R., Makanua, I. D., Nguba, T. B., Mavakala, K., Mweru, J.-P. M., Tsakem, S. C., & Babale, M. (2025). Indigenous knowledge and sustainable management of forest resources in a socio-cultural upheaval of the Okapi Wildlife Reserve landscape in the Democratic Republic of the Congo. *Forests, 16*, Article 1523. https://doi.org/10.3390/f16101523

Katonge, J. H. (2025). Exploring the role of traditional remedies, cultural practices, and belief interventions in combating COVID-19 in Dodoma City, Tanzania. *Pharmacological Research – Natural Products, 7*, Article 100225. https://doi.org/10.1016/j.prenap.2025.100225

Kayombo, E. (2016). Commonly used plants for various health conditions in Mlangali Ward, Ludewa District, Tanzania. *Journal of Scientific Research and Reports, 9*(1), 1–16. https://doi.org/10.9734/jsrr/2016/10081

Kibonde, S. F. (2020). Indigenous knowledge and conservation of medicinal plants in Rungwe District, Tanzania. *OALib, 7*(7), 1–10. https://doi.org/10.4236/oalib.1106545

Kumar, D., Tahir, M., Tag, H., Ogundele, S. B., Henry, J., & Kumar, R. (2026). Systems ethnopharmacology and sustainable bioresources: From traditional knowledge to therapeutics—Cross-cultural ethnomedicine of fruit-bearing medicinal plants in Western Odisha, India. *Systems Ethnopharmacology and Sustainable Bioresources, 1*, Article 100009. https://doi.org/10.1016/j.sesb.2026.100009

Kurtkoti, M., Joshi, P., Commerce, D. Y. P. A., & Commerce, D. Y. P. A. (2024). Gender and tribal knowledge systems. *Women's College, Pimpri, Pune, 13*(Special Issue 1), 20–33.

Malekani, A. W. (2022). Indigenous knowledge acquisition and sharing on wild mushrooms among local communities in selected districts. *Journal of Indigenous Knowledge and Development Studies, 4*(2), 1–16.

Masango, C. A. (2020). Indigenous knowledge codification of African traditional medicine: Inhibited by status quo based on secrecy? *Information Development, 36*(3), 327–338. https://doi.org/10.1177/0266666919853007

Mgaya, E. (2020). *Traditional institutions' management of sacred forests in Tanzania: History, narratives, and evidence from Njombe Region, 1880s–2019* [Doctoral dissertation, Te Herenga Waka—Victoria University of Wellington].

Mujinja, P. G., & Saronga, H. P. (2022). Traditional and complementary medicine in Tanzania: Regulation awareness, adherence and challenges. *International Journal of Health Policy and Management, 11*(8), 1496–1504. https://doi.org/10.34172/ijhpm.2021.51

National Bureau of Statistics. (2024). *2022 population and housing census: Age and sex distribution report*. Ministry of Finance and Planning, United Republic of Tanzania.

Ngonyani, H., Gambo, B., Mourad, K. A., Rilwanu, T. Y., & Berndtsson, R. (2025). Indigenous knowledge in watershed management: The case of the Mara River Basin, Tanzania. *Water*, *17*(1), Article 63. https://doi.org/10.3390/w17010063

Odunlade, R. O., & Okiki, O. C. (2019). Exploring the role of information managers in knowledge transfer and preservation among the "Elewe Omos" (indigenous herbal medicine practitioners) of the Yorubas in Nigeria. *Information Impact: Journal of Information and Knowledge Management, 9*(4), 142. https://doi.org/10.4314/iijikm.v9i4.14

Ombori, T. L. (2026). Our medicine, our heritage: A systematic review of traditional and alternative medicine integration in Tanzania's health policy landscape. *Journal of Integrative and Complementary Medicine*. https://doi.org/10.1177/27683605261441032

Ouma, A. (2022). Intergenerational learning processes of traditional medicinal knowledge and socio-spatial transformation dynamics. *Frontiers in Sociology*, *7*, Article 661992. https://doi.org/10.3389/fsoc.2022.661992

Parvin, R. A., Hosne, M., & Begum, A. (2025). Integrating indigenous knowledge into biodiversity conservation strategies. *Varendra International Journal for Interdisciplinary Research*, *1*(1), 84–93.

Rosmi, R. F., Wartulas, S., Halimah, S. N., & Turrohmah, A. (2025). The use of ethnomedicine in South Brebes as the basis for the development of traditional medicine independence. *Jurnal Impresi Indonesia*, *4*(6), 2116–2124. https://doi.org/10.58344/jii.v4i6.6703

Sospeter, M. E., Mtega, W. P., & Malekani, A. W. (2026). Indigenous knowledge for climate change adaptation among Tanzanian smallholder farmers: A systematic review. *IFLA Journal*, *52*(1), 116–125. https://doi.org/10.1177/03400352251317997

Tugume, P., Ssenku, J. E., Asiimwe, S., Mustafa, A. S., & Walusansa, A. (2026). Indigenous knowledge on the uses and conservation of medicinal plants in Namutumba District, Eastern Uganda. *BMC Complementary Medicine and Therapies*, *26*(1), Article 93. https://doi.org/10.1186/s12906-025-05235-9

Zaman, T., Kulathuramaiyer, N., & Yeo, A. (2010). Formulating strategic directions for Indigenous Knowledge Management System. In *Proceedings of the 2nd Semantic Technology and Knowledge Engineering Conference (STAKE 2010)* (pp. 12–18). Universiti Malaysia Sarawak.