



Review Article

An Appraisal of Technological Shifts and Digital Economy on Traditional Herbal Telemedicine

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Abstract: Traditional herbal medicine has long served as an accessible and culturally rooted healthcare option in Africa, particularly where modern medical facilities are limited. However, its use is often accompanied by stigma, especially among Christians and Muslims, who associate visiting herbalists with superstition or unfaithfulness to religious teachings. This perception has created shame for individuals who seek herbal remedies openly, leading to underutilization despite their potential benefits. With the advent of technological shifts and the growth of the digital economy, traditional herbal telemedicine is emerging as a transformative alternative. Digital platforms and telehealth applications now allow herbal consultations to be conducted remotely, offering patients confidentiality, reduced stigmatization, and improved accessibility. Furthermore, digitization provides opportunities for standardization, documentation, and integration of herbal medicine into formal health systems, thereby enhancing credibility and safety. By bridging tradition and innovation, technological adoption also supports entrepreneurship and contributes to economic development within the digital economy. This study appraises the role of technology in reshaping traditional herbal medicine delivery, with a focus on reducing stigma while ensuring inclusivity, cultural preservation, and sustainable healthcare solutions. The findings suggest that embracing digital herbal telemedicine can mitigate religious and social barriers, promote health equity, and position indigenous medicine within modern health frameworks.

Keywords: Technological Shifts, Digital Economy, Traditional Herbal Medicine, Telemedicine, Stigma

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Introduction

Traditional medicine and healing knowledge in the context of religion is a complex and multifaceted aspect of the cultural and healthcare landscape. Traditional healing practices, deeply rooted in local cultures and histories, have coexisted alongside religious beliefs for centuries. This coexistence, however, is not without tensions, as traditional healing practices are sometimes viewed through the lens of religious doctrines, leading to intricate relationships that impact healthcare system, societal perceptions, and the preservation of indigenous knowledge. Traditional medicine and healing practices have been a fundamental component of healthcare in Nigeria, playing a vital role in addressing various health conditions within local communities. This body of knowledge encompasses herbal remedies, rituals, and other traditional practices passed down through generations.

Alternative medicine as a whole is not rooted in any particular religious tradition, but some therapies are. A number of healing rituals and traditions are part of the Wiccan religion (also called “white witchcraft”). Eastern religions often view healing as dependent on the movement of “life energy” through nonphysical channels that coincide with the physical body. Native-American religion uses herbs as part of its healing rituals. In a number of nature religions, shamans contact spirit beings or guides to get advice on how to treat and heal those under their care.

A comprehensive healthcare system, African traditional medicine is divided into three degrees of specialization: divination, spiritualism, and herbalism. The traditional healer offers medical treatments in accordance with the predominant cultural and religious ideas, knowledge, and attitudes in his society. The belief that illness has both natural and supernatural origins necessitates its treatment via both physical and spiritual methods, including divination, incantations, animal sacrifice, exorcism, and the use of herbs and other natural remedies.

Researchers in Tanzania, including Moshi *et al.* (2017) conducted studies to explore the use of traditional medicine and its integration with modern healthcare. However, due to the colonial hangover, the traditional medicine and healing practices were subjected to witchcraft and were restricted by the colonial government and religion. Although witchcraft has its beauty and has been prevalent in both African and other civilisations; in pre-colonial Africa, witchcraft was used in a wide range of contexts, including politics, economy, and culture.

At the advent of Christianity in Africa, the missionaries condemned African culture in its entirety, including its traditional healing methods. To the missionaries, the condemnation was in accord with the purpose of the missionary enterprise, which was to convert Africans to

Christ from their heathen ways. African healing practices particularly contradict the missionary purpose in that they combine herbalism with spiritualism, thereby ostensibly involving the worship of multiple deities as well as ancestral and nature spirits. Hence, African traditional medicine was 'not in sync with Christian faith and morality' and was therefore branded 'as the devil's schema' (Omosor 2019). Nigerian Christians still stick to the missionary doctrine that the use of traditional medicine resonates with idolatry. For this reason, some profess that, instead of taking traditional medicine, Christians should rely on orthodox medicine and prayers for their health challenges. This position is further strengthened by the belief that traditional medicine is inseparable from witchcraft and sorcery.

The current interest in holistic healing includes concern for spirituality, the meaning of which can be whatever the individual wants it to mean. What is important, according to this approach, is that a person be on some spiritual path. Any therapy can be pursued for its potential healing benefits. All that matters is whether it works. And if others claim it works, it's worth a try. This leads to a strong emphasis on "personal experience" being the deciding factor.

For many Christians in Africa, being seen at a herbalist's place carries a deep sense of shame, rooted in both theological convictions and social stigma. Biblical teachings warn against sorcery and idolatry (Deut. 18:10–12), and herbalists are often associated with traditional spiritual practices beyond mere medicine. Within Christian communities especially Pentecostal and Evangelical circles seeking help from herbalists is viewed as a sign of weak faith or hypocrisy, leading to gossip and judgment. Consequently, many Christians who use herbal remedies do so secretly, reflecting the tension between cultural health practices and Christian religious identity (Okeke, 2019).

The holy books associated with these religions (Christianity and Islam) may contain descriptions of traditional healing practices, creating a potential intersection between religious teachings and indigenous medicinal knowledge. Despite this, the active involvement of religious leaders in the management and regulation of traditional medicine and healing practices remains limited. The negative associations between traditional healing and witchcraft, found in various societies, often stem from misunderstandings and societal biases influenced by religious perspectives. These negative perceptions hinder the acknowledgment and acceptance of traditional medicine and healing within broader healthcare systems, irrespective of its long history of use.

It was also a key tenet of the social order in many communities. However, colonial and postcolonial governments in Africa put a lot of effort into reducing the harm of witchcraft by enacting anti-witchcraft legislation, disseminating anti-witchcraft propaganda, enhancing

and expanding health services, fostering mass education, and waging religious campaigns against it.

According to Iwata and Hoskins (2017), Chirangi (2013), and Stangeland *et al.*, (2008) missionaries and colonialists' teachings were against the practices of traditional medicine and associated such practices with witchcraft. Thus, people with such knowledge and skills who wanted to associate with any of these religions (Christianity or Islam) had to choose one either abandon religious associations or continue with the traditional healing practices which were then considered by colonial governments and religious preachers as witch practices.

Nigeria is experiencing rapid growth in the use of digital technologies in healthcare. Digital health innovations such as mobile health (mHealth) applications, telemedicine, electronic health records (EHRs), and artificial intelligence are improving access to care, expediting diagnoses, and strengthening health data management. These technologies offer an opportunity to better connect traditional and modern health systems, allowing for improved regulation, documentation, and integration of traditional medicine practices into the national health framework.

Due to the prejudice against African Traditional Religion as a satanic religion, traditional medical practice which is a corollary of the former is relegated to the background; thus, many Christians dogmatically approach spiritual dimensions of health only through prayers (The Bravewell Collaborative 2015) which may undermine the etiological principles of healthcare in African context.

Omonzejele and Adebisi (2015) argue that traditional medicine has a role to play in addressing the healthcare needs of many African countries, where access to Western medical treatments is limited. They note that traditional healers are often trusted by their communities and that their practices are effective in treating a range of illnesses. Similarly, Amankwaa *et al.*, (2017) suggest that traditional medicine could be integrated into Western healthcare systems to improve access to healthcare services for marginalised populations.

Traditional herbal medicine has historically played a vital role in meeting the health needs of communities, especially where access to modern healthcare is limited. With advancements in digital technologies, herbal practitioners can now provide consultations and services through telemedicine, thereby expanding healthcare access to remote and underserved populations.

Traditionally, being seen at a herbalist's place is associated with superstition or unchristian practices, leading to shame and social judgment. However, digital platforms and telemedicine create discreet and dignified access to herbal healthcare, reducing physical

exposure and associated stigma. However, it's imperative to appraise the impact of technological shifts and digital economy on traditional herbal telemedicine

Literature Review

Conceptual Understanding of African Traditional Medicine

The conceptualisation of African Traditional Medicine is something that should be holistic. It embraces all approaches to the therapeutic and prophylactic management of human psychosomatic and spiritual health conditions. It includes ordinary herbal treatment, spiritual inquiry, manipulation of supernatural forces and mystical practices sometime regarded as magic. Even midwifery is a prominent aspect of African Traditional Medicine (Helwig, 2005). Medicine is essentially religious and mystical among Africans.

Medicine is generally understood to be the science and art which enable man to diagnose, treat and cure as well as prevent diseases or afflictions. In this case, a medicine-man is he who possesses the operational knowledge and the skill of making use of resources of plant and animal and manipulating natural forces to handle various forms of health disorders. Medicine in all its ramifications is diagnostic, prophylactic and therapeutic (Morekwa, 2004). A medicine-man may have the ability to use magical technique as well. Magic entails the skill of tapping into and controlling invisible forces to achieve desired ends. When a medicine-man has no knowledge and skill of manipulating supernatural forces for the treatment, cure and preservation of health, he is simply an herbalist. An herbalist is one who is knowledgeable in the act of extracting the medical properties of leaves, roots, barks, plants and animals substances and combining them for the treatment and preservation of human health.

It is obvious that there is a tenuous line separating medicine-man, magician and herbalist from one another. In Africa, however, there has been the tendency to use them interchangeably because their functions certainly overlap in most cases. Some cultures use the same term to refer to all three categories. For example, any of them is called *Onisegun* among the Yorubas, *Amawato* among the Fon people, *Sumankwafo* among the Twi (Awolalu and Dopamu, 1979), and *Dibie* or *Ogbuebunu* among the Ukwuani people of Delta State. The Urhobo People of Delta State also call it *Obo* (Adogbo, 2010). One important thing to note is that the three aspects are generally embedded in African Traditional Medicine. Divination is also an integral part of African Traditional Medicine. A diviner probes the cause(s) of the ill health especially when the condition defies all conventional medical application.

Herbal Medicine and Modern Technology

Herbal medicine, a practice with roots stretching back thousands of years, has been central to human health and wellness across various cultures and civilizations. The reliance on plant-

based substances for therapeutic purposes is well-documented in ancient texts, such as the Ebers Papyrus from Egypt, the Charaka Samhita from India, and the Materia Medica from China. These traditional practices laid the groundwork for modern herbal medicine, emphasizing the importance of a holistic approach to health, which integrates mind, body, and spirit (Dash, 2009).

The field of herbal medicine has undergone a significant transformation with the advent of modern technology. The integration of advanced extraction methods, sophisticated analytical tools, and innovative formulation technologies has revolutionized the way herbal medicines are researched, developed, and utilized. These technological advancements have not only enhanced the efficacy and safety of herbal remedies but also addressed many historical challenges associated with the consistency and standardization of herbal products (Heinrich and Bremner, 2012).

Historically, the preparation and use of herbal medicines were based largely on empirical knowledge passed down through generations. While these methods were effective to some extent, they often lacked the precision required to meet contemporary therapeutic standards. The development of sophisticated technologies, such as supercritical fluid extraction (SFE), pressurized liquid extraction (PLE), and microwave-assisted extraction (MAE), has significantly improved the efficiency, selectivity, and purity of herbal extracts. These advancements have enabled the production of high-quality herbal products that meet rigorous regulatory and scientific criteria (Sekhon, 2011).

Herbal medicine has gained popularity since the development of modern science and technology. Thanks to methods like mass spectrometry, chromatography, and molecular biology, the identification and measurement of active plant chemicals may now be done with greater accuracy. Standardized extracts and formulations have enhanced herbal remedies' safety, effectiveness, and uniformity (Heinrich and Bremner, 2012).

Global and Local Perspectives on Traditional Medicine

Traditional medicine plays a vital role in healthcare systems globally, particularly in low- and middle-income countries. In many parts of Asia and Africa, it remains the primary source of healthcare for a significant portion of the population. Countries such as China and India have successfully integrated their traditional systems, Traditional Chinese Medicine (TCM) and Ayurveda, into mainstream healthcare through national legislation, research institutions, and digital platforms. These examples confirm the potential for traditional systems to coexist with and complement modern biomedical practices.

In Nigeria, traditional medicine encompasses herbal remedies, spiritual healing, bone-setting, and indigenous therapeutic rituals. It is widely accepted and utilized by over 70% of

the population, especially in rural areas where access to conventional medical facilities is limited (Adefolaju, 2014). Despite its popularity and cultural significance, traditional medicine in Nigeria remains underdeveloped in terms of documentation, regulation, and integration into the national health system. The practice is largely informal, with knowledge transfer occurring primarily through oral traditions, raising concerns about safety, efficacy, and long-term preservation.

Healthcare delivery in Nigeria, like in most Sub-Saharan African countries, has long faced significant challenges. Nigeria, the largest country in Africa with a population exceeding 200 million, has over 60% of its people living in remote rural areas, often without access to adequate healthcare services (Adebayo et al. 2020). This necessitates urgent innovation. Telemedicine, a method that utilizes information and communication technology to deliver healthcare services remotely, including telecommunication security support, has emerged as an innovative solution to improve healthcare delivery in Nigeria (Mbunge et al. 2022).

The problems plaguing Nigeria's healthcare system are numerous and deeply entrenched, affecting not only various levels of the healthcare structure but also service delivery across multiple sectors (Manyati et al. 2021). A key issue is the limited availability of healthcare services, particularly for rural and underserved populations (Khan, 2022). This issue is compounded by the unequal distribution of healthcare professionals, with most medical staff concentrated in urban areas, leaving rural communities underserved (Adeloye et al. 2017). In addition, Nigeria's healthcare infrastructure is severely lacking. Many healthcare centers are without essential equipment, reliable electricity, and basic facilities needed to provide effective care. Another pressing concern is the high cost of healthcare services.

Telemedicine stands as a beacon of hope in addressing Nigeria's persistent healthcare challenges, offering numerous benefits as a potential solution. By improving access to healthcare services for patients in rural and underserved areas, telemedicine connects remote networks and provides a problem-solving approach that facilitates long-distance patient care using appropriate technology. This effectively bridges the gap between urban and rural healthcare services (Babalola, et al., 2021). It is also a cost-effective solution, reducing the need for extensive physical infrastructure and eliminating the need for travel, resulting in savings on healthcare costs for both patients and providers. Most importantly, telemedicine breaks down geographic barriers, providing access to specialized expertise that may not be available in rural areas (Khan, 2022). Additionally, telemedicine ensures the optimal use of healthcare resources, reducing the strain on Nigeria's limited medical workforce and enabling physicians to be utilized more efficiently (Mbunge et al. 2022).

In Nigeria, most health systems lack mechanisms to process telemedicine claims, making it difficult to scale these services (Monaghesh and Hajizadeh, 2020). These barriers illustrate the complexity of the challenges facing telemedicine adoption in Nigeria, highlighting the need for a multifaceted approach to address them. To accelerate the uptake of telemedicine and mitigate its implementation challenges, concrete actions are required on multiple fronts. Developing a supportive legal and policy framework is crucial, as is investing in digital infrastructure, such as ensuring access to reliable internet connectivity and power supply (Manyati et al. 2021).

Patterns of telemedicine utilization in Nigeria

Telepsychiatry, teleradiology, tele-dermatology, tele-neurology are all various forms of telemedicine or rather, a reflection of the various areas of medical practice to which telemedicine has been deployed (Adebayo et al. 2020). Irrespective of the form in which telemedicine is practiced, or the area of medicine to which it is deployed, telemedicine can be, and has been broadly classified into four types. They are teleconsultation, tele-education, tele-monitoring and telesurgery. Medical consultation is at the heart of clinical practice (Monaghesh and Hajizadeh, 2020). Not surprisingly, therefore, teleconsultation to support clinical decision making is the most frequent example of telemedical procedures (Monaghesh and Hajizadeh, 2020). A teleconsultation can take place between one or more care-givers and a patient (Mbunge et al. 2022). The simplest example is a telephone conversation between two physicians to obtain a second opinion. The physicians may be in different rooms in the same building or in different countries over a satellite link. The most frequent image of a teleconsultation, however, is of a patient and his or her doctor communicating via a videoconferencing link (Monaghesh and Hajizadeh, 2020).

The Impact of Telemedicine on Healthcare Outcomes in Nigeria

Implementing telemedicine in Nigeria holds immense potential for improving healthcare outcomes, particularly in rural and underserved areas. By enabling remote consultations and overcoming geographical barriers, telemedicine facilitates access to specialist care for populations that would otherwise face significant challenges in accessing quality healthcare services (Mustafa et al., 2022). Through high-resolution video consultations and remote diagnostic capabilities, telemedicine empowers rural clinics to provide examinations, monitor patients, and receive expert guidance from urban medical professionals on diagnoses and treatment plans tailored to their available facilities (Elendu et al., 2023). This shift in healthcare delivery moves critical functions closer to rural communities, enhancing patient empowerment and involvement in their care.

The impact of telemedicine on healthcare outcomes in Nigeria extends beyond improved accessibility. By enabling timely diagnosis and intervention, telemedicine can significantly reduce mortality and morbidity rates associated with both communicable and non-communicable diseases (Lindenfeld et al., 2023). Early detection and preventive care facilitated by telemedicine can prevent conditions from worsening, leading to better health outcomes and reduced disease burden at the national level (Olatunji et al., 2023). Moreover, telemedicine provides a cost-effective solution, reducing the need for expensive emergency evacuations and optimizing resource allocation within the healthcare system (Abdulquadri et al., 2021). However, maximizing these potential benefits requires ensuring the quality and reliability of telemedicine services, particularly in rural areas, through precise medical devices, clear diagnostic imaging, and robust network and electricity infrastructure.

Healing Systems in Yoruba Traditional Herbal Medicine

Nigeria is inhabited by about three hundred ethnic groups of which three are very large, namely; the Yoruba, Hausa and Igbo, all of which are religious communities, upholding various religious beliefs. Most prominent among of them are Islam, Christianity and traditional religion. The Yoruba people are based in South Western Nigeria.vii The various region that came together to form Nigeria came in contact with Islam at different periods. The period being referred to as 'Traditional Nigeria' was therefore, a period before the advent of Islam and Christianity in Nigeria. In the Yoruba traditional medicine, there are specialists in the healing method known as herbalists and medicine men (*Babalawo*). An herbalist is one who makes use of plants whose leaves, roots and bark are recognized to possess medicinal properties for medicine, that is curative and preventive. Medicine man on the other hand has the working knowledge of making use of plant and animal substances, as well as supernatural forces to prevent or cure diseases. From our explanation above, it means that a medicine man is different from an herbalist, though a single man can function in both capacities.

A medicine man (*Babalawo*), in addition to the use of herbal medicine, has the ability to appeal to the supernatural forces to aid the healing process of his patient. But a true herbalist uses only herbal medicine obtained from trees, bushes and herbs. This kind of herbal remedy is also known to others besides the herbalist and can be used by anyone who searches for the herb and prepares it for himself. An example of such herbs includes 'bitter leaf' (*Ewuro*) which is used for food and also for local medicine to cure or prevent piles, hypertension and chewing its stem to remove lost of appetite. Pineapple is used for digestion when taken after meals; the root is also good for medicinal preparation in the treatment of dizziness and asthmatic problems. The root can also be soaked in water for a few days and later boiled to 100 degree (oC) and drunk to give energy to the body. When the skin of the

pineapple is cooked with tea-leaf and water, it is used for curing malaria. 'Curry leaf' (*Efinrin*) is also good for cure malaria, piles, chronic cough and high blood pressure ix among others.

Healing Systems in Contemporary Nigeria: Western, Yoruba and Islamic Medicines

The inception of Christianity in Nigeria came with the Western orthodox medicine. The missionaries established hospitals as one of the baits for drawing the attention of Nigerians to Christianity, which eventually led to conversion. Coupled with this was the introduction of Western education that enabled the people to know the art of reading and writing. During this period, the Yoruba people were breaking away little by little from the traditional herbal medicine and settling for Western orthodox medicine. The traditional herbal system was pushed to the background on a number of reasons. First was non-disclosure of the components of the traditional concoction on the part of the herbalist or medicine man. Secondly, the components were not subjected to laboratory verification. Thirdly, there was no accurate measurement for traditional medicine.

However, many of the allegations charged against traditional herbal medicines have been taken care of. The allegation of unhygienic nature of the mode of production had been overcome through some of the renowned traditional herbal practitioners in Nigeria are now building modern herbal clinics like the orthodox hospitals with laboratories for testing their herbal components and qualified doctors were employed there. This gave them the opportunity of carrying out proper research on the medicinal value of leaves, roots and bark of trees they were making use of.

The era of asking their clients to make sacrifices is gradually disappearing as most of their products have been prepared and sealed either in bottles or in sachets and given names according to the functions they perform. Even some traditional medicine men claimed to have cured or have cure for some of the incurable diseases, xv such as SARS (Severe Acute Respiratory Syndrome), AIDS (Acquired Immune Deficiency Syndrome), asthma, epilepsy, hypertension, diabetes and cancers. All these show the embrace of scientific methods and efficacy of traditional herbal medicine. However, this is not to totally absolve traditional medicine from the element of divinity and consultation with supernatural forces.

Telemedicine presents a promising solution to expand accessible, affordable, quality care in rural Nigeria by leveraging information and communication technologies to remotely diagnose, monitor, treat patients, and provide health education (Rahman et al., 2022). Building on pre-internet telehealth projects from the 1960s, contemporary telemedicine harnesses digital consultations, mHealth, remote monitoring devices, and mobile money to catalyze last-mile care (Garavand et al., 2022). Virtual expertise sharing transcends

geographical barriers, enabling specialized care to penetrate isolated areas traditionally unviable for hospitals through tools like telesurgery suites and diagnostic support algorithms. Large-scale national telemedicine programs integrated with public health systems in countries like India and South Africa offer valuable learnings on teleconsultation models and impact data (Okeke et al., 2022).

In Nigeria, pilot programs over the past decade have validated the viability of remote patient management for chronic conditions like HIV/AIDS via SMS systems and targeted telepsychiatry counseling efforts (Okeke et al., 2022). However, comprehensive telemedicine adoption remains constrained by connectivity gaps, resistance to change, and unaligned regulations despite a national eHealth strategy, fledgling medical training, and municipal telehealth schemes (El-Sherif et al., 2022). Nonetheless, with mobile penetration reaching over 85% of Nigerians, platform-enabled telemedicine services present unprecedented opportunities to bridge healthcare access gaps not addressable through traditional brick-and-mortar means alone. Lessons from neighboring countries like Ghana highlight telemedicine's value proposition for boosting access and local capacity. While contextualizing solutions to local dynamics is vital, global best practices offer Nigeria adaptable models to leapfrog its health system deficits via technology.

The Digital Transformation of Healthcare in the Digital Economy

The current public health priorities revolve around four significant components, namely, human capital, economy, infrastructure, and modern technologies. Among these components, the digital economy is considered a vital factor in promoting financial and economic development at the national level. It has the potential to transform existing economic relations and business models and is closely linked to the digitization of healthcare and other economic sectors. The digital economy program is aimed at improving people's quality of life by producing high-quality goods and services using the latest digital technologies. Therefore, the health sector is an essential area of focus for the program's objectives, given its critical role in promoting public health and well-being (Ter-Akopov et al., 2019). Furthermore, technology is advancing rapidly across various sectors, making businesses and services more accessible, efficient, and consumer-friendly. The healthcare industry is a prime example of this transformation. The COVID-19 pandemic has accelerated this trend, resulting in more physicians and clinicians utilizing technology to meet the evolving needs of patients in ways that enhance outcomes, access, equity, efficiency, and affordability. Telehealth technology is one such innovation that enables healthcare organizations to provide individualized care to patients, leading to a personalized experience that fosters better health outcomes for individuals and populations. In today's world, people are increasingly demanding tailored

experiences, not just in healthcare but across all aspects of their lives. Telehealth and other technological advancements enable health systems to extend clinician visits and services seamlessly to more communities, reducing the amount of unpaid time that people take away from work to see a doctor. This shift could make a significant difference in people's lives by allowing them to receive necessary care while still meeting their daily needs (Davidoff, 2023). The ongoing digital revolution ushers in a new era of healthcare delivery. Traditional, hierarchical face-to-face healthcare is currently being transformed by associated structural and ideological changes, as well as patient empowerment (Wernhar et al., 2019).

Cultural Significance and Societal Attitudes

The cultural significance of traditional medicine is a key factor influencing its integration into mainstream healthcare systems. In many cultures, traditional medicine is deeply rooted in local customs and beliefs, often serving as the first line of treatment for various ailments. This cultural relevance can facilitate the acceptance of traditional practices within healthcare systems, as they resonate with the values and experiences of the community.

However, in societies where modern medicine predominates, traditional practices may be marginalized. The literature reveals that societal attitudes towards traditional medicine can vary widely, with some communities valuing traditional practices as essential components of their identity, while others may view them as outdated or inferior. This disparity in societal attitudes can create challenges for integration, as healthcare providers may struggle to navigate the differing perceptions of their patients.

To effectively integrate traditional medicine, it is crucial for healthcare systems to recognize and respect the cultural significance of these practices. This recognition can be achieved through community engagement and collaboration with traditional practitioners, ensuring that the integration process is culturally sensitive and inclusive. By involving community members in discussions about healthcare options, healthcare systems can foster a sense of ownership and empowerment, ultimately leading to greater acceptance of integrated care.

Furthermore, educational initiatives aimed at the general public can help shift societal attitudes towards traditional medicine. By providing accurate information about the benefits and limitations of traditional practices, healthcare systems can promote informed decision-making among patients. This approach can help bridge the gap between traditional and modern medicine, encouraging patients to consider a more holistic approach to their health.

Methodology

To summarize and explain the findings of a systematic review that relies heavily on words and text, narrative synthesis is the method of conducting a systematic review and synthesis of the results from multiple studies (Siripipatthanakul et al., 2022). A systematic review of the literature was conducted to identify studies that investigated the impact of smart education on learning outcomes. This systematic review made use of a number of databases, including Google Scholar, Scopus, Web of Science, and ScienceDirect. The search terms used included “digital transformation in herbal medicine,” “electronic health (eHealth),” “digital healthcare,” “technology in traditional medicine,” and “telemedicine.”

Discussion

Traditional medicine has historically been central to healthcare in African societies, providing remedies and spiritual healing where access to modern medicine was limited. This practice is holistic, encompassing herbalism, divination, and spiritualism, reflecting a worldview where illness is seen as both physical and spiritual. However, colonialism and missionary activities marginalized these practices, branding them as witchcraft or idolatry, especially within Christian communities. This legacy persists, as many Christians view visiting herbalists as shameful or unchristian, despite the continued reliance on herbal remedies in secret.

Religious perspectives strongly shape attitudes toward traditional medicine. Christianity often discourages engagement with herbalists, associating them with sorcery and idolatry, while traditional African religions and indigenous practices see healing as deeply spiritual. This tension contributes to stigma and restricts integration of traditional medicine into formal healthcare systems, even though it remains widely used and trusted by local populations.

Societal and cultural attitudes toward traditional medicine are complex and ambivalent. While it carries deep cultural significance and remains the first line of treatment for many communities, it also faces marginalization due to colonial legacies, modernization, and the dominance of biomedicine. This duality creates barriers to regulation, documentation, and full acceptance of traditional practices within national health frameworks.

Technological shifts and the digital economy present a new opportunity to reconcile these tensions. Innovations like telemedicine, mHealth, and digital platforms can reduce stigma by allowing discreet access to herbal healthcare, while also providing mechanisms for documentation, standardization, and regulation. These technologies bridge gaps between modern and traditional systems, potentially legitimizing herbal medicine and expanding its reach to underserved rural populations.

The literature suggests that integration of traditional medicine into healthcare systems requires cultural sensitivity, community engagement, and policy support. Recognizing the value of indigenous knowledge while addressing safety, efficacy, and standardization challenges is critical. Digital health technologies offer a practical pathway to achieve this, creating a space where traditional healing can coexist with modern medicine without the stigma that religious or colonial biases imposed.

Conclusion and Recommendation

This study concluded that traditional herbal medicine remains a vital aspect of healthcare in Africa, particularly Nigeria, due to its accessibility, cultural acceptance, and perceived effectiveness. However, religious beliefs, especially among Christians, contribute to stigma and shame associated with openly seeking care from herbal practitioners. This stigma has roots in colonial and missionary influences that framed indigenous practices as unchristian or un-Islamic. Despite these challenges, technological shifts and the rise of the digital economy present new opportunities for the evolution of herbal telemedicine. Through digital platforms, herbal practices can be documented, standardized, and accessed discreetly, thereby reducing stigma while improving regulation, safety, and acceptance. Such innovations bridge traditional healing with modern healthcare systems, ensuring inclusivity, cultural preservation, and wider access to affordable healthcare. Therefore, it was recommended that, training herbal practitioners on digital literacy and medical ethics will enhance their ability to use telemedicine platforms effectively.

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