

Review Article

Integrating Traditional Medicine into Nigeria's National Healthcare System: A Literature Review

Olumayowa Adeleke Idowu* 

Department of Economics, Lagos State University, Lagos, Nigeria

Abstract

United Nations Sustainable Development Goal (SDG) number 3 is to “Ensure healthy lives and promote the well-being for all at all ages”. To achieve the SDGs by 2030, the United Nations expects all countries and stakeholders to act in a collaborative partnership to implement the action plan forward in 2015. However, the attitude, and actions of Nigerian policymakers and the decision makers in the healthcare sector, which contribute to poor state of the health sector and the continuous migration of Nigerian healthcare professionals, tend to show that this goal is not likely to be achieved in 2030 or the nearest future. Nigeria's healthcare system has been ailing for many decades and has consistently failed to adequately meet the healthcare needs of most Nigerians. The political leaders have failed to come up with effective policies to address the situation due largely to their non or low patronage of Nigerian hospitals for treatment. The World Health Organization (WHO) has provided Member States with general guidelines for methodologies on research and evaluation of traditional medicine and strategies for integrating it with orthodox medicine, and different countries have identified the important contributions of traditional medicine to the health and well-being of their citizens. The objective of this paper is to explore the influence and contributions of traditional medicine to the health and wellness of Nigerians and recommend how policymakers in Nigeria can develop policies and strategies to standardize and integrate traditional medicine into the healthcare system in Nigeria as part of the process of addressing healthcare problems and move towards the attainment of the SDGs. A scoping search method of Google Scholar and other websites for studies and reports on Nigeria's traditional medicine, orthodox medicine, healthcare system, healthcare infrastructure, integration of traditional and orthodox medicines, health policies, and global traditional medicine practices was conducted. A total of seventy-seven studies and reports that focused on these key search words were included, reviewed and analyzed. On traditional medicine usage, majority of participants in the thirteen studies that covered one or more of each of the six geopolitical zones in Nigeria showed that majority of Nigerians use traditional medicines. However, the results of studies on the development, standardization and integration of traditional medicine into Nigeria's healthcare system showed that the design and implementation of appropriate policies for research, evaluation of the safety and efficacy of traditional medicines, and its integration with orthodox medicine in Nigeria remains incoherent.

Keywords

Traditional Medicine, Orthodox Medicine, Healthcare Sector, Healthcare Infrastructure, Traditional and Orthodox Medicine Integration, Health Policies and Practices

*Corresponding author: peculiarmayor@yahoo.com (Olumayowa Adeleke Idowu)

Received: 29 March 2025; Accepted: 8 April 2025; Published: 29 April 2025



Copyright: © The Author(s), 2025. Published by Science Publishing Group. This is an **Open Access** article, distributed under the terms of the Creative Commons Attribution 4.0 License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution and reproduction in any medium, provided the original work is properly cited.

1. Introduction

Many countries continue to improve their healthcare delivery because a good healthcare system and a healthy labor force are parts of the prerequisites for a prosperous and sustainable economy and social progress. It is clear that a country cannot fulfill its fundamental responsibilities if its population is predominantly unwell. However, a careful look at Nigeria's healthcare system, shows a disturbing reality of insufficiencies or absence of the necessary resources to meet crucial healthcare needs [1]. The National Health Insurance Scheme (NHIS) launched by the federal government of Nigeria in 2005 has failed to achieve its objective of making healthcare available, accessible, and affordable to Nigerians. Poor legal framework, poor implementation, optional enrollment, lack of political will, and corruption are among the factors that have contributed to its failure. Less than 5% of over two hundred million Nigerians have coverage under the scheme, and these are majorly those in the formal sector. Households' out-of-pocket expenditure as a percentage of current health expenditure remains very high in 2020 at 74.68% despite the high level of poverty and unemployment in Nigeria [2-4].

It is a widely accepted fact that a healthy population is one of the prerequisites for economic growth and prosperity, but the Nigerian healthcare sector has been ailing for many decades, and the political elites have failed to come up with effective policies to address the situation due largely to their non or low patronage of Nigerian hospitals for treatment. As a matter of socioeconomic status and a clear demonstration of their lack of confidence in Nigeria's healthcare system and infrastructure, they and their families travel abroad for treatment. The neglect of the healthcare sector in Nigeria is largely a product of endemic corruption, which has continued to increase in scope, volume, and complexity. High levels of illiteracy and poverty, an inadequate number of skilled healthcare professionals, poor healthcare delivery, inadequate access to healthcare due to financial requirements, and distance to healthcare facilities are among the factors that affect individuals' health conditions in Nigeria [5-10].

The World Health Organization has provided Member states with general guidelines for methodologies on research and evaluation of traditional medicine and strategies for integrating traditional medicine with orthodox medicine. Like many other countries, Nigeria's healthcare landscape has long been characterized by diverse medical practices and belief systems. Traditional medicine, which encompasses indigenous healing methods, herbal remedies, and cultural practices, has played a significant role in addressing the health needs of millions of Nigeria throughout history. As the country strives for comprehensive and accessible healthcare for all its citizens, integrating traditional medicine into the mainstream medical system presents a promising pathway toward achieving a more holistic approach to healthcare delivery [11, 12].

Traditional medicine in Nigeria draws upon centuries-old knowledge passed down through generations, embedded

within the cultural fabrics of various ethnic groups. It encompasses a wide range of therapeutic practices, including the use of medicinal plants, spiritual healing, and traditional birth attendants. These practices have been relied upon to manage various health conditions, often offering an alternative or complementary approach to orthodox medicine. Integrating traditional medicine into the formal healthcare system holds immense potential for Nigeria. Recognizing this, the Nigerian government, in collaboration with international organizations and local stakeholders, has undertaken efforts to bridge the gap between traditional and modern medicine. One such example is the establishment of the National Institute for Pharmaceutical Research and Development (NIPRD), which has been actively involved in research, development, and validation of traditional herbal medicines. Additionally, the WHO has acknowledged the importance of traditional medicine and called for its integration into national healthcare systems, emphasizing the need for safety, efficacy, and quality control. This recognition has spurred initiatives aimed at regulation, standardization, and certification of traditional medicine practices in Nigeria, ensuring their compatibility with modern healthcare practices [13-16] (WHO, 1999, Raphael, 2011, Chukwuma, 2015, Akunna, 2023). However, the design and implementation of appropriate policies for research, evaluation, and integration of traditional medicine with orthodox medicine in Nigeria remain incoherent while the healthcare infrastructure and the health of the majority of Nigerians continue to deteriorate.

2. Literature Review

Nigeria's Orthodox Medicine Landscape

The bad economic situation in Nigeria and the poor state of Nigeria's health sector, incentivize healthcare professionals in Nigeria to migrate to developed countries like the US the UK, and Canada, and this continues to worsen the existing healthcare delivery challenges. Migration of health professionals in Nigeria is majorly driven by poor quality work-life, poor healthcare delivery, poor healthcare infrastructure, job dissatisfaction, inadequate remuneration and pay for health professionals, challenges of living in Nigeria, lack of government support, the reality of a knowledge gap, etc., coupled with shortages of medical personnel in developed countries, which create employment opportunities and better working conditions and pay for migrating health professionals [17-20]. Nigeria contributes the largest number of global obstetric and postpartum deaths due to factors such as poor antenatal care, low birth weight, and inadequate number of skilled birth attendants, and would most likely not attain the SDG number 3 by 2030 [21-23]. Overall, millions of Nigerians lack access to quality and affordable primary health care.

Global Traditional Medicine Landscape

However, research findings have shown consistently that

the traditional healthcare system continues to be widely utilized by most people in Africa and globally [24]. World Health Organization (WHO) defines Traditional Medicine (TM) as “the sum total of the knowledge, skills, and practices based on the theories, beliefs, and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health, as well as in the prevention, diagnosis, improvement or treatment of physical and mental illnesses” [25]. TM is an important part of the healthcare system but is often underestimated. The WHO is playing an important role in helping member state countries integrate their TM with orthodox medicine. WHO states that 88% of all countries, representing 170 out of the 194 Member States countries of the WHO, are estimated to use traditional medicines, acupuncture, yoga, indigenous therapies, etc., while about 80% of the world population is estimated to use traditional medicines. Before orthodox medicine emerged, traditional medicine held sway as the primary healthcare system accessible to millions in Africa, spanning both rural and urban areas. In other words, it served as the sole means of medical assistance for a significant portion of the population [26-28].

Traditional medicines have been used for centuries in Africa and have made significant contributions to health management by Africans with limited reports of adverse effects. In countries like Zambia, Mali, Ghana, and Nigeria, herbal medicine was reported to be the primary treatment approach for 60% of children experiencing high fever caused by malaria in early 2000 [29, 30]. The demand for traditional medicine in addressing infections, digestive system disorders and other diseases in Burkina Faso was also reported to be high while a large percentage of the population in Ghana, also use on traditional medicine [31-33]. Around 27 million South Africans, especially blacks South Africans, were reported to employ traditional medicine to treat various ailments while traditional healthcare was found to play a significant role in the treatment of malaria, chronic diseases and other in Northern Tanzania, with patients sometimes concurrently utilizing traditional and modern medicine or transitioning from modern medicine to TM to alleviate the suffering associated with diseases and illnesses [34-36].

In a related development, the growing demand for traditional medicine in Asia, Europe, and America has influenced treatment utilization. It was found that between 40% and 60% of the population in the Western Pacific Region uses traditional medicine to treat various illnesses [11]. For example, about 60% of Hong Kong has accessed traditional health practitioners. There are reports that traditional medicine was gaining widespread recognition in France, Canada, and Australia, with 49%, 70%, and 46% of the population reported using traditional medicine. Almost 40% of physicians in the United Kingdom often refer to alternative medications. In addition, it was found that 71% and 41% of Chile and Colombia's population used traditional medicine to treat various diseases [37-39].

The WHO has recognized and acknowledged the valuable

contributions of traditional medicine in healthcare provision, particularly in developing countries. According to WHO, traditional medicine has played a role in addressing a wide range of healthcare needs, including disease prevention, management of non-communicable diseases, and mental and gerontological health issues. Increasing evidence suggests that traditional medicine effectively manages chronic illness. [37, 40]. Several factors have contributed to the widespread use of traditional medicine and growing interest in assessing and evaluating its effectiveness globally. Research has demonstrated that various traditional medicines are significant and effective treatment approaches for managing various diseases, some of which orthodox medicines may not address [24].

Nigeria's Traditional Medicine Landscape

The federal government of Nigeria has recognized traditional medicine as an important element of the healthcare delivery system, most essentially at the primary care level [41]. The Nigeria government has established the Nigeria Natural Medicine Development Agency (NNMDA) to study, develop, collate, preserve, document, and promote Nigerian traditional medicine products and practices and, most importantly, to speed up the integration of traditional medicine into the mainstream of the modern health care system in relation with what is happening in India and China.

Studies indicate a high prevalence of traditional medicine usage in Nigeria, with a substantial portion of the population relying on traditional healers for their healthcare needs. Traditional medicine remains particularly relevant in rural areas, where access to modern healthcare may be limited. Integration of traditional medicine with orthodox medicine can offer a more comprehensive and patient-centred approach and improve healthcare accessibility, especially for underserved populations in rural areas. Traditional healers, with their deep-rooted connections to local communities, can provide culturally appropriate and accessible healthcare services. Synergies between both systems can harness the strengths of traditional medicine in disease prevention and wellness promotion, along with modern medicine's diagnostic and technological advancements. Factors such as lack of adequate medical facilities, poverty, affordability, accessibility, and trust in orthodox medicines continue to drive the use of traditional medicines among many Nigerians. Many find herbal medicines more affordable and accessible than orthodox medicine [42-45].

In Nigeria, traditional medicines continue to be a more affordable and accessible source of treatment for primary healthcare among the masses and contribute to their overall health management but largely still lack standardization and proper integration into the healthcare delivery system. However, compared to China or India, Nigeria has a long way to go in terms of the development, standardization, policy framework and integration of TM into the healthcare system. China's TMs are well integrated into the country's healthcare system and are popular globally. The establishment of the

Global Centre for Traditional Medicine in India in 2022 also indicates that India has developed effectively health policy framework that has enhanced the integration of TMs into the country's healthcare system, and that has also promoted the global usage of TMs.

3. Materials and Methods

A scoping search method of Google Scholar and other websites for studies and reports on Nigeria's traditional medicine, orthodox medicine, healthcare system, healthcare infrastructure, integration of traditional and orthodox medicines, health policies, and global traditional medicine practices was conducted. Hundreds or thousands of studies or reports were generated for different combinations of the search criteria, but seventy-seven among them that met the search criteria were included for review. In addition, for space, and time constraints, and to prevent redundancy, careful selections were made between studies or reports that covered the same or very similar issues. For instance, many studies that explored healthcare challenges in Nigeria or TMs in Nigeria have similar findings even though their methodology might differ. Reports were included because they are important sources of relevant qualitative information from practitioners, policymakers, bureaucrats, and other healthcare decision makers. Overall, the selected studies and media reports reflect the general themes, findings and perspectives of all the studies and reports on the key search criteria. The common themes include poor state of Nigeria's healthcare system, high out-of-pocket healthcare cost for low-income households, popularity and usage of traditional medicine, affordability of traditional medicine, lack of widely acceptable standards for the production of traditional medicine, lack of appropriate policy actions that effectively integrate traditional medicine with orthodox medicine, and progress in global development and usage of traditional medicine.

4. Results

Table 1. Overview of Nigeria and its Healthcare Expenditure.

Description	Value
Population (2024)	229,521,409
Urban Dwellers (2023)	54%
Health Expenditure % of GDP (2021)	4.08%
Health Expenditure Per Capital USD (2021)	\$83.84
Out-of-pocket Expenditure (% of Current Health Expenditure in 2021)	76.24

Source – [46-50]

Nigeria is the sixth largest country in the world by population and the most populous black country as shown by the 2024 world population figure in the table. The population provides Nigeria will abundant human resources that are capable of making the country great given its vast natural resources like petroleum, natural gas, tin, columbite, iron ore, coal, limestone, niobium, lead, zinc, and arable land great, but the majority of the population lacks adequate access to healthcare [51, 52]. Table 1 above shows that fifty-four percent of the population live in urban/metropolitan areas, meaning Forty-six percent live in rural areas. In general, 76.24 percent of current expenditure on health is out-of-pocket, and this makes overall access to healthcare difficult for Nigerians. Those who live in urban areas lack adequate access to healthcare, but the situation is worse for those in rural areas. The forty-six percent of rural dwellers represent 105,579,848, who experience a critical lack of access to physicians, nurses, and healthcare facilities and have poorer health indicators when compared to urban dwellers. [46-50, 53]. Based on WHO's health expenditure indicators and their consequences and implications, Nigeria's health expenditure as a percentage of Gross Domestic Product (GDP) and health expenditure per capita indicates that health, including nutrition, is not regarded as a priority by the Nigerian government [54].

Table 2. Nigeria's Health Indicator.

Description	Value
Life Expectancy (2023)	55
Neonatal Mortality Rate (2023)	35/1,000
Infant Mortality Rate (2017)	69/1,000
Under-5 Mortality Rate (2017)	128/1,000
Stillbirth Rate (2023)	22/1,000
Maternal Mortality Rate (2023)	1,047/100,000
Doctor-Patient Ratio (2019)	4/10,000
Nurse & Midwife-Patient Ratio (2019)	15/10,000
Hospital bed-Patient Ratio (2024)	2.2/1,000

Source – [55-57]

The different health indicators place Nigeria among the countries with the worst health outcomes in the world. Nigeria's life expectancy is one of the worst in the world, being among the five lowest. Nigeria has the third-highest maternal mortality rate and second-highest neonatal mortality rate in the world, while 64 percent of under-five deaths result from malaria, pneumonia, and diarrhea. The national average doctor-patient ratio of 4:10,000 (0.4:1,000), stands in contrast with the WHO estimate of a 17.2:10,000 (1.72:1,000) doctor-patient

ratio. The nurse & midwife-patient ratio of 15/10,000 (1.5:1,000) also stands in stark contrast with the WHO estimate of a 37.7:10,000 (3.77:1,000) nurse & midwife-patient ratio.

The global average of hospital beds per 1,000 patients in 2020 was 3.3, but Nigeria had only 2.2 hospital beds per 1,000 patients [58-60].

Table 3. Popularity and Prevalence of Traditional Medicine Usage in Nigeria.

Overview of the Popularity and Prevalence of Traditional Medicine Usage in Nigeria from Past Research Results			
Researchers	Number of Respondents	% of Respondents Who Use Herbal Medicines	Location
Ogunsola & Egbewale (2018) [45]	104	85%	Ibadan North Local Government, Oyo State, Nigeria
Oreagba et al (2011) [61]	388	66.80%	Lagos, Nigeria
Li et al (2020) [62]	748	81.60%	Ibadan, Oyo State, Nigeria
Amorha et al (2018) [63]	120	60%	Ogige Market, Nsukka, Anambra State, Nigeria
Aina et al (2020) [64]	1600	85%	Ekiti State, Nigeria
Maiyegun et al (2022) [65]	364	76.65%	Abubakar Tafawa Balewa University Teaching Hospital, Bauchi State, Nigeria
Nuhu et al (2019) [66]	306	78.40%	Northern Nigeria
Duru et al (2016) [67]	422	77.50%	Orlu, Imo State, Nigeria
Amaeze et al (2018) [68]	305	67.30%	Lagos, Nigeria
Aliyu et al (2017) [69]	240	66.30%	Usmanu Danfodiyo University Teaching Hospital, Sokoto State, Nigeria
Mbada et al (2015) [70]	216	75.50%	Oyo State, Nigeria
Ohemu et al (2021) [71]	300	83.70%	Jos Local Government, Plateau State, Nigeria
Adomi (2014) [72]	128	53.90%	Delta State University, Nigeria

The results above, obtained from the findings of 13 survey studies indicate that the majority of Nigerians are familiar with and use traditional medicine for the treatment of illnesses. The results are nationally representative because they cover the six geopolitical zones in Nigeria. Given the inadequacies in the healthcare delivery system in Nigeria in terms of personnel, infrastructure, cost, accessibility, investment, etc., and the popularity of the usage of traditional medicine among Nigerians, the integration of Traditional Medicine with orthodox medicine would help increase access to healthcare and improve the overall well-being of Nigerians.

5. Discussion

The establishment of the Global Centre for Traditional Medicine in India in 2022 through a collaborative agreement between the World Health Organization and the government of India is an indicator of the increasing importance of health and economic importance of traditional medicine. The World

Health Organization identified that traditional medicines play important roles in healthcare delivery, but these roles are often underestimated. In a bid to harness the potential of traditional medicines in improving people's health and wellness, the WHO, over the last two decades, has provided resources such as general guidelines for research and evaluation of traditional medicines and strategies for integrating traditional medicines with orthodox medicines. The WHO is playing an important role in helping member state countries integrate their TM with orthodox medicine. WHO states that 88% of all countries, representing 170 out of the 194 Member States countries of the WHO, are estimated to use traditional medicines, acupuncture, yoga, indigenous therapies, etc., while about 80% of the world population is estimated to use traditional medicines [26, 27].

The overview of Nigeria's healthcare system and the health indicators paints a grim picture of the past, present, and future of Nigeria's healthcare system and the health and well-being of the citizens if the Nigerian government and policymakers continue to pay lip service to healthcare, treat it as a

non-priority issue and fail to effectively integrate traditional medicine into the healthcare delivery system. According to the former Nigerian Minister of State for Health, Dr. Osagie Ehanire, “Nigeria has over 8,000 plant species with potential benefits in ethno-medicine or ethno-pharmacy and that up to 70% of Nigerians use Traditional Medicine, either wholly or in combined with modern drugs.” [73]. Indian traditional medicinal systems like Ayurveda, Siddha, and Unani are found to be effective, and the Indian government has taken concrete steps to promote and integrate them into clinical practice. Chinese traditional medicines such as acupuncture, tai chi, and herbal products have also been found to be effective in the treatment of some ailments, and Asian countries such as Korea, Singapore, China, and Vietnam are reported to have successfully integrated traditional medicine into their healthcare system [74-77]. The successful integration of traditional medicine with orthodox medicine in the healthcare delivery system by these countries shows that Nigeria could achieve this too. However, the attainment of the integration of TMs into Nigeria’s healthcare system depends a lot not only on the right policy designs but also on the effective implementation of the policies. This is true because a poorly designed policy will not produce good policy outcomes. In the same vein, a poorly implemented policy, no matter how well designed will not achieve the intended outcomes. Therefore, Nigeria’s health policy entrepreneurs and policy makers should adopt a policy diffusion strategy and learn from China and India on how they successfully designed and implemented their TM policies and adapt them into Nigeria’s context. If this done, it would help Nigeria to overcome the barriers of TM integration such as standardization of the process of making the TMs, efficacy of TMs, safety, and registration of TMs manufacturers. The integration will most likely be easy with little or no disruptions since majority of Nigerians already use TMs. The process must however include every important stakeholder like the Nigerian Medical Association, the association of Nigerian nurses and midwives, the Nigerian Bar Association, the association of traditional medicine makers, representatives from the mass media, healthcare investors, policymakers, community groups’ representatives, and others. These stakeholders must work collaboratively together with clearly defined terms of reference, through the coordination of Nigeria’s Federal Ministry of Health.

6. Conclusion

Access to quality healthcare is one of the social determinants of health and is connected to other social determinants of health – economic stability, access to quality education, neighborhood and built environment and social and community context. The achievement of the SDG number 3 specifically and all the SDGs generally, requires effective intersectoral policy coordination targeted at these determinants of health and other socioeconomic, political, technological outcomes. The Traditional Medicine Policy of 2007, the estab-

lishment of the Department of Traditional Medicine in 2018 at Nigeria’s Ministry of Health, and the approval of the bill to establish the Council for Traditional, Alternative, and Complementary Medicine Practice in Nigeria on 21 October 2020, are important steps towards improving the production, standardization, safety, and efficacy of TM in Nigeria. However, effective policy design and implementation remains a challenge in Nigeria. Policy process in Nigeria appears generally to lack wide consultation, orientation and collaborations among key stakeholders, while implementation generally appears weak with lack of key performance metrics. Nigeria’s policymakers, the Federal Ministry of Health, the National Agency for Food and Drug Administration and Control (NAFDAC) and other stakeholders must therefore show genuine commitment and will to make healthcare a priority, pursue the effective implementation of the existing policies or review and redesign them for effectiveness to address the challenges in the healthcare system, integrate traditional medicine with orthodox medicine, increase access to primary health care and improve the overall health of the citizens. Advocacy Coalitions of concerned stakeholders will also play important roles in the healthcare delivery system change Nigeria desperately needs. Future research on the integration of TMs into Nigeria’s healthcare system could explore content analysis of existing TM policies, the attitude or perception of healthcare professionals towards the integration of TMs into the healthcare system, the integration of TM into healthcare professionals’ curriculum, TM policy design process, and TM policy implementation process. This review reveals the weakness and gap in health and TM policy design and implementation in Nigeria, and how these could be improved.

Abbreviations

SDGs	Sustainable Development Goals
WHO	World Health Organization
TM	Traditional Medicine

Author Contributions

Olumayowa Adeleke Idowu is the sole author. The author read and approved the final manuscript.

Conflicts of Interest

The author declares no conflicts of interest.

References

- [1] Uche, O. A., Uche, I. B., & Okonkwo, C. (2023). Farmers-Herdsmen Conflicts and Sustainable Development Goals (SDGs) in Nigeria. *Bassey Andah Journal*, vol. 13.

- [2] Onyeji, E. (2019, July 2). How Usman Yusuf was dismissed as NHIS Executive Secretary. Premium Times. <https://www.premiumtimesng.com/news/top-news/338353-how-usman-yusuf-was-dismissed-as-nhis-executive-secretary.html?tztc=1>
- [3] Nevin, A., Akinnibosun, T., & Omomia, O. (2019). Sustainability of State Health Insurance Schemes in Nigeria: Beyond the launch. *Price Waterhouse Coopers Limited*.
- [4] Alawode, G. O., & Adewole, D. A. (2021). Assessment of the design and implementation challenges of the National Health Insurance Scheme in Nigeria: a qualitative study among sub-national level actors, healthcare and insurance providers. *BMC Public Health*, 21(1), 1-12.
- [5] Ijewereme, O. B. (2015). Anatomy of corruption in the Nigerian public sector: Theoretical perspectives and some empirical explanations. *Sage Open*, 5(2), 2158244015581188.
- [6] United Nations. (2016). Bibliography of Corruption in Nigeria. https://www.unodc.org/conig/uploads/documents/Corruption/Bibliography_of_Corruption_in_Nigeria_final.pdf
- [7] Tormusa, D. O., & Idom, A. M. (2016). The impediments of corruption on the efficiency of healthcare service delivery in Nigeria. *Online Journal of Health Ethics*, 12(1), 3.
- [8] Page, M. T. (2018). *A new taxonomy for corruption in Nigeria*. Carnegie Endowment for International Peace.
- [9] Page, M. T. (2020). *Dubai property: an oasis for Nigeria's corrupt political elites*. Carnegie Endowment for International Peace.
- [10] Abah, V. O. (2022). Poor Health Care Access in Nigeria: A Function of Fundamental Misconceptions and Misconstruction of the Health System. In *Healthcare Access-New Threats, New Approaches*. IntechOpen.
- [11] World Health Organization. (2000). General guidelines for methodologies on research and evaluation of traditional medicine. <https://www.who.int/publications/i/item/9789241506090>
- [12] Padilla, J. E., & Hudson, A. (2019). United nations development programme (UNDP) perspectives on Asian large marine ecosystems. *Deep Sea Research Part II: Topical Studies in Oceanography*, 163, 127-129.
- [13] World Health Organization. Regional Office for the Western Pacific. (1999). Traditional and Modern Medicine: Harmonizing the Two Approaches: a Report of the Consultation Meeting on Traditional and Modern Medicine: Harmonizing the Two Approaches, 22-26 November 1999, Beijing, China. WHO Regional Office for the Western Pacific. <https://iris.who.int/handle/10665/207162>
- [14] Raphael, E. C. (2011). Traditional medicine in Nigeria: current status and the future. *Research journal of pharmacology*, 5(6), 90-94.
- [15] Chukwuma, E. C., Soladoye, M. O., & Feyisola, R. T. (2015). Traditional medicine and the future of medicinal Plants in Nigeria. *Journal of Medicinal Plants Studies*, 3(4), 23-29.
- [16] Akunna, G. G., Lucyann, C. A., & Saalu, L. C. (2023). Rooted in tradition, thriving in the present: The future and sustainability of herbal medicine in Nigeria's healthcare landscape. *Journal of Innovations in Medical Research*, 2(11), 28-40.
- [17] Grignon, M., Owusu, Y., & Sweetman, A. (2013). The international migration of health professionals. In *International Handbook on the economics of migration* (pp. 75-97). Edward Elgar Publishing.
- [18] Imafidon, J. (2018). *One Way Traffic: Nigeria's Medical Brain Drain. A Challenge for Maternal Health and Public Health System in Nigeria?*. University of California, Los Angeles.
- [19] Osigbesan, O. T. (2021). *Medical Brain Drain and its Effect on the Nigerian Healthcare Sector* (Doctoral dissertation, Walden University).
- [20] Akinwale, O. E., & George, O. J. (2023). Personnel brain-drain syndrome and quality healthcare delivery among public healthcare workforce in Nigeria. *Arab Gulf Journal of Scientific Research*, 41(1), 18-39.
- [21] Sloan, N. L., Storey, A., Fasawe, O., Yakubu, J., McCrystal, K., Wiwa, O., ... & Grepstad, M. (2018). Advancing survival in Nigeria: a pre-post evaluation of an integrated maternal and neonatal health program. *Maternal and Child Health Journal*, 22(7), 986-997.
- [22] Ihua, B., & Nsofor, I. (2019). *Emigration of Nigerian Medical Doctors Survey Report*. Technical Report for NOI Polls and Nigeria Health Watch. Abuja, Nigeria. 2017.
- [23] Orjingen, O., Teryila, O., Baffoe, P., & Ojo, O. (2022). Factors Affecting Maternal and Neonatal Mortality in Northern Nigeria: A Multiple Linear Regression Analysis. *medRxiv*.
- [24] Abdullahi, A. A. (2011). Trends and challenges of traditional medicine in Africa. *African journal of traditional, complementary and alternative medicines*, 8(5S).
- [25] World Health Organization. (2025). Traditional, Complementary and Integrative Medicine. https://www.who.int/health-topics/traditional-complementary-and-integrative-medicine#tab=tab_1
- [26] World Health Organization. (2022). WHO establishes the global centre for traditional medicine in India. *World Health Organization. Tersedia*, 25.
- [27] World Health Organization. (2023). Catalysing Ancient Wisdom and Modern Science for the Health of People and the Planet. <https://www.who.int/initiatives/who-global-centre-for-traditional-medicine>
- [28] Mokgobi, M. G. (2014). Understanding traditional African healing. *African Journal for Physical Health Education, Recreation and Dance*, 20(sup-2), 24-34.
- [29] Ozioma, E. O. J., & Chinwe, O. A. N. (2019). Herbal medicines in African traditional medicine. In *Herbal medicine*. IntechOpen.
- [30] World Health Organization. (2002). *The world health report 2002: reducing risks, promoting healthy life*. World Health Organization.

- [31] Zizka, A., Thiombiano, A., Dressler, S., Nacoulma, B. M., Ouédraogo, A., Ouédraogo, I., ... & Schmidt, M. (2015). Traditional plant use in Burkina Faso (West Africa): a national-scale analysis with focus on traditional medicine. *Journal of Ethnobiology and Ethnomedicine*, 11, 1-10.
- [32] Kwame, A. (2021). Integrating traditional medicine and healing into the Ghanaian mainstream health system: voices from within. *Qualitative Health Research*, 31(10), 1847-1860.
- [33] Ampomah, I. G., Malau-Aduli, B. S., Seidu, A. A., Malau-Aduli, A. E., & Emeto, T. I. (2023). Integrating traditional medicine into the Ghanaian health system: perceptions and experiences of traditional medicine practitioners in the Ashanti region. *International health*, 15(4), 414-427.
- [34] Stanifer, J. W., Patel, U. D., Karia, F., Thielman, N., Maro, V., Shimbi, D., ... & Comprehensive Kidney Disease Assessment for Risk factors, epidemiology, Knowledge, and Attitudes (CKD AFRIKA) Study. (2015).
- [35] The determinants of traditional medicine use in northern Tanzania: a mixed-methods study. *PloS one*, 10(4), e0122638. McFarlane, C. (2015). South Africa: The rise of traditional medicine. *Insight on Africa*, 7(1), 60-70.
- [36] Hughes, G. D., Aboyade, O. M., Beauclair, R., Mbamalu, O. N., & Puoane, T. R. (2015). Characterizing herbal medicine use for noncommunicable diseases in urban South Africa. *Evidence - Based Complementary and Alternative Medicine*, 2015(1), 736074.
- [37] World Health Organization. (2000). *The world health report 2000: health systems: improving performance*. World Health Organization.
- [38] World Health Organization. (2023). Traditional Medicine. <https://www.who.int/news-room/questions-and-answers/item/traditional-medicine>
- [39] Amzat, J., & Abdullahi, A. A. (2008). Roles of traditional healers in the fight against HIV/AIDS. *Studies on Ethno-Medicine*, 2(2), 153-159.
- [40] Thörne, A., Lönqvist, F., Aelman, J., Hellers, G., & Arner, P. (2002). A pilot study of long-term effects of a novel obesity treatment: omentectomy in connection with adjustable gastric banding. *International journal of obesity*, 26(2), 193-199.
- [41] Omoruan, A. I., Bamidele, A. P., & Phillips, O. F. (2009). Social health insurance and sustainable healthcare reform in Nigeria. *Studies on Ethno-Medicine*, 3(2), 105-110.
- [42] Osemene, K. P., Ilori, M. O., Elujoba, A. A., & Erhun, W. O. (2011). Developing a framework for ethnomedicine innovation system in Nigeria. *Nigerian Journal of Natural Products and Medicine*, 15, 38-44.
- [43] Okoronkwo, N. C., Onyearugha, C. N., & Ohanenye, C. A. (2018). Pattern and outcomes of paediatric medical admissions at the Living Word Mission Hospital, Aba, South East Nigeria. *Pan African Medical Journal*, 30(1).
- [44] Fiveable. (2024, August 9). Traditional healing practices and their role in modern healthcare. <https://fiveable.me/hs-native-american-studies/unit-15/traditional-healing-practices-role-modern-healthcare/study-guide/oO9vrzL55ArR4Lk2>
- [45] Ogunsola, O. K., & Egbewale, S. O. (2018). Factors influencing the use of herbs and combination with orthodox medicine for healthcare management in Ibadan, Nigeria. *World News of Natural Sciences*, 17.
- [46] Statista. (2024, July 25). Population of Nigeria in selected years between 1950 and 2024. <https://www.statista.com/statistics/1122838/population-of-nigeria>
- [47] The World Bank. (2025). Out-of-Pocket-Expenditure (% of current health expenditure) - Nigeria. <https://data.worldbank.org/indicator/SH.XPD.OOPC.CH.ZS?locations=NG>
- [48] The World Bank. (2025). Urban population (% of total population) - Nigeria. <https://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS?locations=NG>
- [49] The World Bank. (2025). Current health expenditure (% of GDP) - Nigeria. <https://data.worldbank.org/indicator/SH.XPD.CHEX.GD.ZS?locations=NG>
- [50] The World Bank. (2025). Current health expenditure per capita (current US\$) - Nigeria. <https://data.worldbank.org/indicator/SH.XPD.CHEX.PC.CD?locations=NG>
- [51] WorldData. (2024). The Largest Countries of the World. <https://www.worlddata.info/the-largest-countries.php>
- [52] Organization of Petroleum Exporting Countries. (2023). Nigeria Facts and Figures. https://www.opec.org/opec_web/en/about_us/167.htm
- [53] Nwankwo, O. N., Ugwu, C. I., Nwankwo, G. I., Akpoke, M. A., Anyigor, C., Obi-Nwankwo, U., ... & Spicer, N. (2022). A qualitative inquiry of rural-urban inequalities in the distribution and retention of healthcare workers in southern Nigeria. *Plos one*, 17(3), e0266159.
- [54] World Health Organization (2023). Health Expenditure. <https://www.who.int/data/nutrition/nlis/info/health-expenditure>
- [55] Healthy Newborn Network. (2023, March 20). Nigeria: Maternal and Newborn Health Country Profile. <https://healthynewbornnetwork.org/resource/2023/nigeria-maternal-newborn-health-country-profile/>
- [56] United Nations International Children's Emergency Fund. (2017). Situation of women and children in Nigeria. <https://www.unicef.org/nigeria/situation-women-and-children-nigeria>
- [57] Statista. (2025, December). Health Indicators - Nigeria. <https://www.statista.com/outlook/co/health-indicators/nigeria>
- [58] World Health Organization. (2024, May 20). Density of physicians (per 10,000 population). <https://data.who.int/indicators/i/CCCEBB2/217795A>

- [59] World Health Organization. (2024, May 20). Density of nursing and midwifery personnel (per 10,000 population). <https://data.who.int/indicators/i/B54EB15/5C8435F>
- [60] The World Bank. (2025). Hospital beds (per 1,000 people). <https://data.worldbank.org/indicator/SH.MED.BEDS.ZS>
- [61] Oreagba, I. A., Oshikoya, K. A., & Amachree, M. (2011). Herbal medicine use among urban residents in Lagos, Nigeria. *BMC Complementary and Alternative medicine*, 11, 1-8.
- [62] Li, S., Odedina, S., Agwai, I., Ojengbede, O., Huo, D., & Olopade, O. I. (2020). Traditional medicine usage among adult women in Ibadan, Nigeria: a cross-sectional study. *BMC complementary medicine and therapies*, 20, 1-7.
- [63] Amorha, K. C., Nwabunike, I. A., Okwumuo, B. M., Ayogu, E. E., Nduka, S. O., & Okonta, M. J. (2018). Use of herbal medicines in a Nigerian community and their reported adverse effects: A pilot study. *Tropical Journal of Pharmaceutical Research*, 17(10), 2067-2072.
- [64] Aina, O., Gautam, L., Simkhada, P., & Hall, S. (2020). Prevalence, determinants and knowledge about herbal medicine and non-hospital utilisation in southwest Nigeria: a cross-sectional study. *BMJ open*, 10(9), e040769.
- [65] Maiyegun, A. A., Mutalub, Y. B., Muhammad, A. A. H., & Akangoziri, M. D. (2022). Prevalence and determinants of herbal medicine use among adults attending the national health insurance clinic of abubakar tafawa balewa university teaching hospital, Bauchi, Nigeria. *Nigerian Journal of Medicine*, 31(4), 417-423.
- [66] Nuhu, A., Ukwubile, C. A., Ayeni, E. A., Zakariya, A. M., Namadina, M. M., & Ibrahim, B. A. (2019). Perception Of Herbal Medicine Practice Among Students Of Tertiary Institutions In Northern, Nigeria. *Age (years)*, 16(3), 1-0.
- [67] Duru, C. B., Diwe, K. C., Uwakwe, K. A., Duru, C. A., Merenu, I. A., Iwu, A. C., ... & Ohanle, I. (2016). Combined orthodox and traditional medicine use among households in Orlu, Imo State, Nigeria: prevalence and determinants. *World Journal of Preventive Medicine*, 4(1), 5-11.
- [68] Amaeze, O. U., Aderemi-Williams, R. I., Ayo-Vaughan, M. A., Ogundemuren, D. A., Ogunmola, D. S., & Anyika, E. N. (2018). Herbal medicine use among type 2 diabetes mellitus patients in Nigeria: understanding the magnitude and predictors of use. *International Journal of Clinical Pharmacy*, 40, 580-588.
- [69] Aliyu, U. M., Awosan, K. J., Oche, M. O., Taiwo, A. O., Jimoh, A. O., & Okufo, E. C. (2017). Prevalence and correlates of complementary and alternative medicine use among cancer patients in usmanu danfodiyo university teaching hospital, Sokoto, Nigeria. *Nigerian journal of clinical practice*, 20(12), 1576-1583.
- [70] Mbada, C. E., Adeyemi, T. L., Adedoyin, R. A., Badmus, H. D., Awotidebe, T. O., Arije, O. O., & Omotosho, O. S. (2015). Prevalence and modes of complementary and alternative medicine use among peasant farmers with musculoskeletal pain in a rural community in South-Western Nigeria. *BMC complementary and alternative medicine*, 15(1), 1-7.
- [71] Ohemu, T. L., Shalkur, D., Ohemu, B. O., & Daniel, P. (2021). Knowledge, attitude and practice of traditional medicine among people of Jos South Local Government Area of Plateau State, Nigeria. *Journal of Pharmacy & Bioresources*, 18(2), 147-154.
- [72] Adomi, P. O. (2014). Herbal medicine usage by paramedical students of Delta State University Abraka, Nigeria. *Australian Journal of Herbal Medicine*, 26(3), 114-118.
- [73] World Health Organization. (2018). Minister of Health Assures Traditional Medicine Practitioners of Intellectual Property Rights. <https://www.afro.who.int/news/minister-health-assures-traditional-medicine-practitioners-intellectual-property-rights>
- [74] Sen, S., & Chakraborty, R. (2017). Revival, modernization and integration of Indian traditional herbal medicine in clinical practice: Importance, challenges and future. *Journal of traditional and complementary medicine*, 7(2), 234-244.
- [75] National Center for Complementary and Integrative Health. (2019). Traditional Chinese Medicine: What You Need To Know. <https://www.nccih.nih.gov/health/traditional-chinese-medicine-what-you-need-to-know>
- [76] Ryding, S. (2019, April 29). The Efficacy of Traditional Chinese Medicine. Medical Life Sciences News. <https://www.news-medical.net/health/The-Efficacy-of-Traditional-Chinese-Medicine.aspx>
- [77] Ampomah, I. G., Malau-Aduli, B. S., Seidu, A. A., Malau-Aduli, A. E., & Emeto, T. I. (2021). Perceptions and experiences of orthodox health practitioners and hospital administrators towards integrating traditional medicine into the Ghanaian health system. *International Journal of Environmental Research and Public Health*, 18(21), 11200.