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PHARMACY PRACTICE STANDARDS AND CHALLENGES IN NIGERIA: A COMPREHENSIVE ANALYSIS

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ABSTRACT

Pharmacy practice standards and challenges in Nigeria constitute a critical area of concern due to their profound impact on healthcare delivery and patient outcomes. This comprehensive analysis delves into the multifaceted landscape of pharmacy practice in Nigeria, highlighting prevailing standards and the array of challenges faced by pharmacists in their professional endeavors. Nigeria, like many other developing countries, grapples with a complex healthcare system marked by resource constraints, regulatory ambiguities, and evolving patient needs. Within this context, pharmacists play a pivotal role as frontline healthcare providers, responsible for ensuring safe and effective medication use. However, the absence of robust regulatory frameworks and standardized practices poses significant hurdles to the delivery of quality pharmaceutical care. This analysis examines the existing pharmacy practice standards in Nigeria, emphasizing the role of regulatory bodies such as the Pharmacists Council of Nigeria (PCN) in setting guidelines and enforcing compliance. It also scrutinizes the challenges encountered by pharmacists, including inadequate infrastructure, limited access to essential medicines, counterfeit drugs, and insufficient professional development opportunities.

Furthermore, the analysis explores the impact of socio-economic factors, cultural beliefs, and healthcare disparities on pharmacy practice in Nigeria. It underscores the need for collaborative efforts among stakeholders, including government agencies, healthcare institutions, pharmaceutical industry players, and professional associations, to address these challenges comprehensively. In conclusion, this study underscores the importance of enhancing pharmacy practice standards in Nigeria to promote patient safety, optimize medication therapy outcomes, and advance public health objectives. By addressing the identified challenges and fostering a supportive environment for pharmacists, Nigeria can harness the full potential of its pharmacy workforce to meet the healthcare needs of its population effectively.

Keywords: Pharmacy, Standards, Nigeria, Practices, Review.

INTRODUCTION

Pharmacy practice in Nigeria serves as a cornerstone of the nation's healthcare system, providing essential services ranging from dispensing medications to offering pharmaceutical care (Ogaji, and Ojabo, 2014; Alubo, et al., 2018). The profession is governed by regulatory bodies such as the Pharmacists Council of Nigeria (PCN) and is upheld by a dedicated cadre of pharmacists committed to ensuring the safe and effective use of medications. As with any healthcare system, Nigeria's pharmacy practice landscape is not without its challenges. These challenges, ranging from regulatory issues to resource constraints, have significant implications for patient care and public health outcomes. Therefore, a comprehensive analysis of pharmacy practice standards and challenges in Nigeria is imperative to understand the current state of affairs and chart a path toward improvement (Yakubu, et al., 2020; Balogun, 2021; AYODELE, 2017).

Analyzing pharmacy practice standards and challenges holds immense importance in the context of Nigeria's healthcare system. Firstly, it provides insights into the regulatory framework governing pharmacy practice, including the guidelines set forth by regulatory bodies and professional associations. Understanding these standards is crucial for ensuring the quality and safety of pharmaceutical care delivered to patients (Hepler, 2004; Berenguer, et al., 2004). Moreover, examining the challenges faced by pharmacists in Nigeria sheds light on systemic issues that hinder the provision of optimal healthcare services. These challenges encompass resource constraints, access to essential medicines, counterfeit drugs, and socio-economic factors influencing healthcare delivery. By identifying and understanding these challenges, stakeholders can develop targeted interventions to address underlying issues and improve pharmacy practice outcomes (Bishop, et al., 2019; Tan, et al., 2013; Bacci, et al., 2014).

The purpose of this analysis is to provide a comprehensive examination of pharmacy practice standards and challenges in Nigeria. By evaluating existing standards, regulatory frameworks, and the array of challenges encountered by pharmacists, this study aims to offer insights into the factors shaping pharmacy practice in Nigeria. Additionally, the scope of this analysis encompasses the impact of these standards and challenges on healthcare delivery, patient outcomes, and public health objectives, with the ultimate goal of informing strategies to enhance pharmacy practice in Nigeria.

Pharmacy Practice Standards in Nigeria

Pharmacy practice in Nigeria operates within a regulatory framework overseen primarily by the Pharmacists Council of Nigeria (PCN) along with other government agencies and professional

associations. The adherence to established standards ensures the delivery of safe, effective, and ethical pharmaceutical care to the Nigerian population.

The Pharmacists Council of Nigeria (PCN) serves as the primary regulatory body responsible for regulating the education, training, and practice of pharmacy in Nigeria. Established by the Pharmacy Act of 1964, the PCN has the authority to set and enforce standards for pharmacy education, registration, practice, and premises. It conducts inspections, issues licenses, and disciplines pharmacists who violate regulations (Showande, and Olaifa, 2012; Awaisu, et al., 2016).

In addition to the PCN, other governmental bodies such as the National Agency for Food and Drug Administration and Control (NAFDAC) play a crucial role in regulating the pharmaceutical sector, particularly in overseeing the registration and quality control of medicines (Derby, et al., 2020; Awele, et al., 2021).

The PCN, in collaboration with relevant stakeholders, has developed comprehensive pharmacy practice guidelines and standards to govern various aspects of pharmaceutical care delivery in Nigeria. These standards cover areas such as dispensing practices, compounding procedures, medication management, patient counseling, and pharmacy premises requirements. (Olatunji, 2014)

The guidelines set forth by the PCN are designed to ensure that pharmacists adhere to best practices and ethical principles in their professional conduct. They serve as a benchmark for pharmacists to maintain high standards of quality and safety in their practice, thereby safeguarding the health and well-being of patients (Oseni, 2019).

Furthermore, the PCN regularly reviews and updates these guidelines to align with advancements in pharmacy practice, emerging healthcare challenges, and international standards. This ongoing process of evaluation and revision reflects the commitment of regulatory authorities to promote excellence and innovation in pharmacy practice in Nigeria.

Professional associations such as the Pharmaceutical Society of Nigeria (PSN) also play a vital role in promoting pharmacy practice standards and advocating for the welfare of pharmacists. The PSN, as the umbrella body representing pharmacists in Nigeria, works collaboratively with the PCN and other stakeholders to uphold professional ethics, enhance professional development, and advocate for policies that support the practice of pharmacy (Osemene, et al., 2012; OSOKO, 2020).

Through continuing education programs, workshops, conferences, and publications, professional associations contribute to the dissemination of knowledge and best practices among pharmacists. They also provide platforms for networking, mentorship, and peer support, fostering a culture of excellence and continuous improvement within the profession (Awaisu, and Alsalimy, 2015; Rouse, 2004).

Moreover, professional associations engage in advocacy efforts to address issues affecting pharmacy practice, such as regulatory challenges, access to essential medicines, and healthcare financing. By amplifying the voices of pharmacists and advocating for policy reforms, these organizations contribute to the advancement of pharmacy practice standards and the overall quality of healthcare delivery in Nigeria.

In conclusion, pharmacy practice standards in Nigeria are governed by a regulatory framework led by the Pharmacists Council of Nigeria (PCN), supported by other governmental agencies and professional associations. Through the establishment of guidelines, standards, and

regulatory oversight, these bodies ensure the provision of high-quality pharmaceutical care to the Nigerian population. The collaboration between regulatory authorities and professional associations is instrumental in promoting adherence to standards, fostering professional development, and advocating for policies that enhance pharmacy practice in Nigeria.

Challenges Faced by Pharmacists in Nigeria

Pharmacists in Nigeria encounter a multitude of challenges in their professional practice, ranging from resource constraints to regulatory issues and socio-cultural factors. These challenges significantly impact the delivery of pharmaceutical care and pose obstacles to achieving optimal healthcare outcomes .

One of the primary challenges faced by pharmacists in Nigeria is the scarcity of resources and inadequacy of healthcare infrastructure. Many healthcare facilities lack essential equipment, medications, and personnel necessary for providing quality pharmaceutical care. Pharmacists often work in understaffed and poorly equipped environments, which hampers their ability to deliver comprehensive services and meet patient needs effectively (Omoleke, and Taleat, 2017). Furthermore, limited access to funding and investment in healthcare infrastructure exacerbates these challenges. The lack of modern facilities, technology, and logistical support impedes pharmacists' efforts to optimize medication management, ensure medication safety, and provide patient education (Oyibocho, et al., 2014; Adebisi, et al., 2022).

Access to essential medicines remains a significant challenge in Nigeria, particularly in rural and underserved areas. Supply chain inefficiencies, inadequate distribution networks, and procurement challenges contribute to medication shortages and stockouts, leaving patients without access to life-saving medications (Cogan, et al., 2018; John, and Khemani, 2023; Munedzimwe, 2018).

Moreover, disparities in healthcare infrastructure and geographical barriers further restrict access to pharmaceutical care services, including medication counseling, disease management, and preventive care. Pharmacists often struggle to reach remote communities and provide timely interventions due to transportation challenges and infrastructure limitations.

Counterfeit drugs pose a serious threat to public health in Nigeria, undermining the efficacy of pharmaceutical interventions and compromising patient safety. The proliferation of counterfeit medications, often of substandard quality, contributes to treatment failures, adverse drug reactions, and antimicrobial resistance. Weak regulatory enforcement and inadequate surveillance systems exacerbate the problem, allowing counterfeiters to operate with impunity. Pharmacists are tasked with identifying and mitigating the risks associated with counterfeit drugs, but they face significant challenges in distinguishing genuine medications from counterfeit ones due to limited resources and regulatory oversight (Aminu, et al., 2017; Richard, 2023; Yakubu, 2020).

Socio-economic factors, such as poverty, unemployment, and income inequality, exert profound influence on pharmacy practice in Nigeria. Many patients struggle to afford essential medications and healthcare services, leading to non-adherence, treatment delays, and reliance on traditional remedies. Additionally, the prevalence of informal healthcare providers and unregulated drug markets further complicates pharmacy practice, creating competition and undermining the integrity of the pharmaceutical supply chain. Pharmacists often find themselves navigating complex socio-economic dynamics while striving to uphold professional standards and ethical principles (Zarakpege, 2023; Odey, 2007; Monk, 2021; Krasting, 2021).

Cultural beliefs and practices influence healthcare-seeking behaviors and patient attitudes toward medication use in Nigeria. Traditional healers, spiritual remedies, and cultural taboos often intersect with modern healthcare practices, leading to misconceptions, distrust, and stigma surrounding pharmaceutical interventions (Emeka, 2011; Ochebo, 2022).

Moreover, healthcare disparities based on ethnicity, religion, gender, and socio-economic status contribute to unequal access to healthcare services and disparities in health outcomes. Pharmacists must navigate cultural sensitivities and tailor their interventions to address patients' unique cultural backgrounds and beliefs while promoting evidence-based practices and medication adherence (Usar, 2014; Ayandiran, 2016; Muhammad, and Awaisu, 2008).

Impact of Challenges on Healthcare Delivery

The challenges faced by pharmacists in Nigeria have far-reaching implications for healthcare delivery, patient outcomes, and public health objectives. These challenges not only compromise the quality and safety of pharmaceutical care but also hinder efforts to achieve equitable access to healthcare services and advance population health goals.

Resource constraints, medication shortages, and counterfeit drugs jeopardize patient safety and contribute to adverse medication events, treatment failures, and medication errors. Pharmacists must contend with suboptimal conditions and limited resources, increasing the risk of medication mismanagement and patient harm (Shukar, et al., 2021). Moreover, disparities in access to pharmaceutical care services and medication counseling exacerbate medication-related problems and undermine the effectiveness of treatment regimens (Gray, et al., 2022). Patients in underserved communities face barriers to accessing essential medications and may resort to self-medication or alternative remedies, further compromising their health outcomes. The challenges faced by pharmacists in Nigeria impede progress toward achieving public health objectives, such as disease prevention, health promotion, and universal healthcare coverage. Inadequate access to essential medicines and pharmaceutical care services hinders efforts to control infectious diseases, manage chronic conditions, and improve maternal and child health outcomes.

Furthermore, healthcare disparities based on socio-economic factors and geographical location exacerbate inequities in healthcare access and utilization, perpetuating disparities in health outcomes. Marginalized populations, including rural communities and underserved groups, bear the brunt of these disparities, facing barriers to accessing quality healthcare services and essential medications (Woolf, et al., 2011; Ezeneme, et al., 2023).

Inadequate pharmacy practice standards in Nigeria have significant economic and social ramifications, affecting healthcare expenditures, productivity, and societal well-being. Medication shortages, counterfeit drugs, and medication-related problems contribute to increased healthcare costs, as patients may incur expenses associated with ineffective treatments, hospitalizations, and complications (Isa, et al., 2020).

Moreover, suboptimal pharmacy practice standards undermine public trust in the healthcare system and erode confidence in pharmaceutical interventions, leading to decreased adherence to medications and healthcare recommendations. This lack of trust and confidence has broader implications for health-seeking behaviors, health literacy, and health outcomes, perpetuating cycles of poor health and socio-economic disparities.

In conclusion, the challenges faced by pharmacists in Nigeria have profound implications for healthcare delivery, patient outcomes, and public health objectives. Addressing these challenges

requires multi-sectoral collaboration, including government interventions, regulatory reforms, community engagement, and professional development initiatives. By addressing the root causes of these challenges and strengthening pharmacy practice standards, Nigeria can improve healthcare access, enhance patient safety, and advance public health goals for all its citizens.

Strategies for Addressing Challenges

Addressing the challenges faced by pharmacists in Nigeria requires a multifaceted approach involving regulatory reforms, professional development initiatives, and collaborative efforts among stakeholders. The following strategies can help mitigate the barriers to quality pharmaceutical care and improve healthcare delivery:

Implement stricter monitoring and evaluation mechanisms to ensure compliance with pharmacy practice standards and regulations, including stringent enforcement of licensing requirements and sanctions for non-compliance. Simplify administrative procedures for licensing, registration, and accreditation to facilitate easier access to essential medications and streamline supply chain management. Foster partnerships between regulatory agencies, professional associations, and industry stakeholders to coordinate efforts, share best practices, and address emerging challenges in pharmacy practice regulation (Ekeigwe, 2019).

Establish comprehensive training programs and continuing education initiatives to update pharmacists' knowledge and skills, particularly in areas such as pharmaceutical care, medication management, and patient counseling. Encourage pharmacists to pursue specialized training and certification in areas such as clinical pharmacy, pharmacotherapy, and pharmaceutical compounding to enhance their expertise and capacity to provide specialized services. Implement mentorship programs and career development pathways to support pharmacists' professional growth, provide guidance, and foster leadership skills within the profession (Auta, 2015).

Enhance distribution networks, logistics, and procurement systems to ensure consistent availability of quality medicines and healthcare products, particularly in underserved areas and remote communities. Invest in the development and upgrading of healthcare facilities, including pharmacies, clinics, and hospitals, to improve access to pharmaceutical care services and enhance patient outcomes. Implement strategies to promote rational medicine use, including medication adherence programs, antimicrobial stewardship initiatives, and public awareness campaigns on the safe and effective use of medications (Dhiman, et al., 2019).

Facilitate collaboration among government agencies, healthcare institutions, pharmaceutical manufacturers, and civil society organizations to develop and implement comprehensive strategies for improving pharmacy practice standards and healthcare delivery. Foster public-private partnerships to leverage resources, expertise, and innovation in addressing healthcare challenges, including initiatives to improve access to essential medicines, expand healthcare infrastructure, and enhance regulatory enforcement. Engage communities in healthcare decision-making processes, raise awareness about the importance of pharmacy practice standards, and empower patients to advocate for their healthcare needs and rights.

Future Outlook

The future of pharmacy practice in Nigeria holds promise for innovation, collaboration, and continuous improvement (Harnett, et al., 2023; Erhun, and Osemene, 2016; Berger, et al., 2016). By implementing the aforementioned strategies and embracing technological advancements, Nigeria can overcome existing challenges and enhance the quality, accessibility, and

affordability of pharmaceutical care for its population. Additionally, ongoing research and data collection efforts can provide valuable insights into emerging trends, healthcare needs, and opportunities for intervention in pharmacy practice (ONAFUWA, 2021; Omogbadegun, 2013).

RECOMMENDATIONS AND CONCLUSION

In conclusion, addressing the challenges faced by pharmacists in Nigeria is crucial for improving healthcare delivery, enhancing patient outcomes, and advancing public health objectives. Regulatory reforms, professional development initiatives, and collaborative partnerships are essential for strengthening pharmacy practice standards and overcoming barriers to quality pharmaceutical care.

Recapitulating the key findings regarding pharmacy practice standards and challenges underscores the urgent need for action to address systemic issues and promote excellence in pharmacy practice. By prioritizing the implementation of evidence-based strategies, investing in workforce development, and fostering partnerships among stakeholders, Nigeria can build a resilient and responsive healthcare system that meets the needs of its diverse population.

Recommendations for future actions include sustained advocacy for regulatory reforms, increased investment in healthcare infrastructure and workforce development, and enhanced collaboration among government, healthcare institutions, and industry stakeholders. Additionally, continued research and evaluation efforts are essential for monitoring progress, identifying areas for improvement, and informing evidence-based policy decisions in the field of pharmacy practice in Nigeria. Through collective action and commitment to excellence, Nigeria can realize its vision of a healthcare system that ensures equitable access to quality pharmaceutical care for all its citizens.

Reference

- Adebisi, Y.A., Nwogu, I.B., Alaran, A.J., Badmos, A.O., Bamgboye, A.O., Rufai, B.O., Okonji, O.C., Malik, M.O., Teibo, J.O., Abdalla, S.F., & Lucero-Prisno III, D.E. (2022). Revisiting the issue of access to medicines in Africa: challenges and recommendations. *Public Health Challenges*, 1(2), e9.
- Alubo, O.G.O.H., & Akintunde, T.E.M.I.T.O.P.E. (2018). Federalism and the Health System in Nigeria. *Federalism and Decentralization in Health Care*, 200-227.
- Aminu, N., Sha'aban, A., Abubakar, A., & Gwarzo, M.S. (2017). Unveiling the peril of substandard and falsified medicines to public health and safety in Africa: Need for all-out war to end the menace. *Medicine Access@ Point of Care*, 1, maapoc-0000023.
- Auta, A. (2015). *Facilitators and barriers to extending prescribing authority to pharmacists in Nigeria: a mixed methods study* (Doctoral dissertation, University of Leeds).
- Awaisu, A., & Alsalmiy, N. (2015). Pharmacists' involvement in and attitudes toward pharmacy practice research: A systematic review of the literature. *Research in Social and Administrative Pharmacy*, 11(6), 725-748.
- Awele, A.C. (2021). A comparative study of Regulatory systems and Quality management practices in the manufacturing process of different pharmaceutical companies in Nigeria.
- Ayandiran, E.O. (2016). *Facilitation of the development of blended e-learning model for nursing education in a resource-constrained educational setting in Nigeria* (Doctoral dissertation).

- Ayodele, M.A. (2017). Lecturers' perspectives of quality assurance of pharmacy education at Obafemi Awolowo University Ile-Ife (Doctoral dissertation, department of clinical pharmacy and pharmacy administration in partial fulfillment of the requirement for the award of bachelor of pharmacy (B. Pharm) degree under the supervision of prof. wo Erhun Faculty of Pharmacy, Obafemi Awolowo University, Ile-Ife).
- Bacci, J.L., McGrath, S.H., Pringle, J.L., Maguire, M.A., & McGivney, M.S. (2014). Implementation of targeted medication adherence interventions within a community chain pharmacy practice: The Pennsylvania Project. *Journal of the American Pharmacists Association*, 54(6), 584-593.
- Balogun, J.A. (2021). *Health professions in Nigeria: An interdisciplinary analysis*. Springer Singapore Pte. Limited.
- Berenguer, B., La Casa, C., de La Matta, M.J., & Martin-Calero, M.J. (2004). Pharmaceutical care: past, present and future. *Current pharmaceutical design*, 10(31), 3931-3946.
- Berger, M., Murugi, J., Buch, E., IJsselmuiden, C., Moran, M., Guzman, J., Devlin, M., & Kubata, B. (2016). Strengthening pharmaceutical innovation in Africa. Council on Health Research for Development (COHRED), New Partnership for Africa's Development (NEPAD) 2009. *2010 Council on Health Research for Development (COHRED) New Partnership for Africa's Development (NEPAD)*.
- Bishop, C., Yacoob, Z., Knobloch, M.J., & Safdar, N. (2019). Community pharmacy interventions to improve antibiotic stewardship and implications for pharmacy education: a narrative overview. *Research in Social and Administrative Pharmacy*, 15(6), 627-631.
- Cogan, D., Karrar, K., & Iyer, J.K. (2018). Shortages, stockouts and scarcity. *The issues facing the security of antibiotic supply and the role for pharmaceutical companies*. White Paper. Access to Medicine Foundation, 31.
- Derby, M. (2020). An analysis of the impact of NAFDAC (national agency for food and drugs administration and control) in drugs quality improvement in Nigeria. (2020).
- Dhiman, S.K., Gummadi, V., & Dureja, H. (2019). Partnership efforts—Their potential to reduce the challenges that confront regulators and pharmaceutical industry. *Applied Clinical Research, Clinical Trials and Regulatory Affairs*, 6(1), 7-17.
- Ekeigwe, A.A. (2019). Drug manufacturing and access to medicines: the West African story. A literature review of challenges and proposed remediation. *AAPS Open*, 5(1), 3.
- Emeka, C. (2011). *The impact of culture and religion on the healthcare seeking behavior amongst the residents of Anambra State, Nigeria with regards to malaria treatment* (Doctoral dissertation, Walden University).
- Ezeneme, E.V., Nwokike, C.E., Portion, U.C., & Nwanekezi, I.C. (2023). The influence of socioeconomic inequality on maternal and child health outcomes in Nigeria: A critical analysis. *GSJ*, 11(10).
- Gray, J., Hillman, L.A., Vivian, E., & St. Peter, W.L. (2022). Pharmacist's role in reducing medication-related racial disparities in African American patients with chronic kidney disease. *Journal of the American College of Clinical Pharmacy*, 5(8), 912-920.
- Harnett, J.E., & Ung, C.O.L. (2023). Towards defining and supporting pharmacists' professional role associated with traditional and complementary medicines—A

- systematic literature review. *Research in Social and Administrative Pharmacy*, 19(3), 356-413.
- Hepler, C.D., 2004. Clinical pharmacy, pharmaceutical care, and the quality of drug therapy. *Pharmacotherapy: The Journal of Human Pharmacology and Drug Therapy*, 24(11), 1491-1498.
- Hjelmsoe, M., Gaisford, S., & Gordon, W. (2013). *Pharmacy*.
- John & Khemani, S. (2023). *Best practices in procurement and supply chain management systems for medicines*.
- Krasting, N. (2021). *Fraudulent medicines in the shadow of the pandemic*.
- Monk, M. (2021). *Emergent trends in the Chinese counterfeit pharmaceutical supply chain and opportunities for public-private reform*.
- Muhammad, B.Y., & Awaisu, A. (2008). The need for enhancement of research, development, and commercialization of natural medicinal products in Nigeria: Lessons from the Malaysian experience. *African Journal of Traditional, Complementary, and Alternative Medicines*, 5(2), 120.
- Munedzimwe, F.E. (2018). *Medicine stock Management at primary health care facilities in one South African province* (Master's thesis, University of Cape Town).
- Ochepo, A. (2022). *Perceptions and attitudes to health-seeking delays for malaria treatment in Makurdi, Nigeria*.
- Odey, M.O. (2007). The Socio-Economic Implications of Ill-Health and Poverty-Trapon Human Development in Africa. *Journal of the Historical Society of Nigeria*, 17, 85-105.
- Ogaji, J.I., & Ojabo, C.E. (2014). Pharmacy education in Nigeria: The journey so far. *Archives of Pharmacy Practice*, 5(2).
- Olatunji, O.E. (2014). Pharmaceutical Regulation and Administration in Nigeria: The Traditional, Transitional and New. *Asian Journal of Research in Social Sciences and Humanities*, 4(8), 86-107.
- Omogbadegun, Z.O. (2013). Development of a framework for collaborative healthcare services delivery. *IJACSA) International Journal of Advanced Computer Science and Applications*, 30.
- Omoleke, I.I., & Taleat, B.A. (2017). Contemporary issues and challenges of health sector in Nigeria. *Research Journal of Health Sciences*, 5(4), 210-216.
- ONAFUWA, O.O. (2021). Effects of GMP trends on the pharmaceutical industry in Nigeria.
- Osemene, K.P., Ayeni, M.I., & Afolabi, M.O. (2012). The role of community pharmacists in monitoring adverse drug reactions in Nigeria. *Journal of Pharmaceutical Health Services Research*, 3(4), 197-204.
- Oseni, Y.O. (2019). Evaluation of pharmacy practice regulations in Nigeria: The pharmaceutical inspectors' perspective. *Tropical Journal of Pharmaceutical Research*, 18(6), 1353-1360.
- Osoko, M.O. (2020). An analysis of how collaboration between physicians and pharmacists might facilitate improved healthcare in Nigeria.
- Oyibocha, E.O.A., Irinoye, O.B., Sagua, E.O.C., Ogungide-Essien, O.T.D., Edeki, J.E.E., & Okome, O.L.F. (2014). Sustainable healthcare system in Nigeria: Vision, strategies and challenges. *Journal of Economics and Finance*, 5(2), 28-39.

- Richard, O.A. (2023). *Fraud, Corruption and Counterfeits in the Nigerian Pharmaceutical Industry* (Doctoral dissertation, University of Portsmouth).
- Rouse, M.J. (2004). Continuing professional development in pharmacy. *Journal of Pharmacy Technology*, 20(5), 303-306.
- Showande, S.J., & Olaifa, O.A. (2012). Community Pharmacists' Involvement in the Ordering and Interpretation of Laboratory tests in two South-western States in Nigeria. *Indian Journal of Pharmacy Practice*, 5(4).
- Shukar, S., Zahoor, F., Hayat, K., Saeed, A., Gillani, A.H., Omer, S., Hu, S., Babar, Z.U.D., Fang, Y., & Yang, C. (2021). Drug shortage: causes, impact, and mitigation strategies. *Frontiers in Pharmacology*, 12, 693426.
- Tan, E.C., Stewart, K., Elliott, R.A., & George, J. (2013). Stakeholder experiences with general practice pharmacist services: a qualitative study. *BMJ Open*, 3(9), e003214.
- Usar, J.I. (2014). *An economic analysis of retail pharmaceutical market In Nigeria: towards access expansion and policy* (Doctoral dissertation, Queen Margaret University).
- Woolf, S.H., & Braveman (2011). Where health disparities begin: the role of social and economic determinants—and why current policies may make matters worse. *Health Affairs*, 30(10), 1852-1859.
- Yakubu, O.P. (2020). *An Analysis of Loopholes in the Pharmaceutical Supply Chain, and Methods for Improving Control of Counterfeit Drugs in Nigeria* (Doctoral dissertation, Griffith College).
- Isa, A.M., Yakubu, R., Isa, A.M., Abubakar, I.J., Oreagba, I., & Awaisu, A. (2020). Drug safety in Nigeria. In *Drug Safety in Developing Countries* (pp. 525-556). Academic Press.
- Zarakpege, N.G. (2023). *Examination of the Association Between Poverty, Income, and Education Levels on Tuberculosis Prevalence in Nigeria: Rural Niger Delta Case Study* (Doctoral dissertation, Walden University).