

CHAPTER NINE

Patient's Expectation Factor on Drug Dispensing Pattern of Patent and Proprietary Medicine Vendors in Kwara State, Nigeria

**AL-AL-MUSTAPHA Sa'adat Ibrahim, ADEYEMI Motunrayo Omorola
& SAKA Mohammed Jimoh**

<https://doi.org/10.54908/iljs.cisp2026.10.01.009>

Abstract

This study assessed the effect of patient's expectation on drug dispensing pattern of PPMVs. The study was a cross-sectional study design among randomly selected 389 PPMVs. A mixed (quantitative & qualitative) method of data collection was used. Data were collected, collated and analysed using Statistical Product and Service Solutions (SPSS, version 28.0), and the level of significance was set at $p < 0.05$. The majority (89.5%) of respondents reported that patient expectations moderately influenced their dispensing habits, and only a small percentage 6.9% felt patient expectations had little to no influence on their dispensing pattern. This is further buttressed by the Key Informant Interview with some of the PPMVs. The study further revealed that patient demand, among other factors such as peer pressure, financial incentives and regulatory pressure, acts as a barrier to appropriate dispensing. The vast majority (85.1%) of respondents considered patient demand for a specific drug as a moderate barrier to a more rational dispensing. Therefore, this study showed that patient pressure is a significant factor influencing the drug dispensing pattern of PPMVs. The study recommended the creation of enlightenment programmes on rational drug use starting at the grassroots level, and encouragement of care-seeking and consultation.

Keywords: Patient's expectation, Drug dispensing Pattern, PPMVs, Kwara,

Introduction

In many low- and middle-income countries, the private sector provides a significant portion of healthcare services. In Sub-Saharan Africa, around half of all child health services are provided by private providers, which range

from traditional healers and informal providers to privately owned specialty hospitals. In particular, drug shops account for between 15% and 83% of all child health services and make up a sizeable portion (nearly 40%) of the region's private healthcare sector. Several countries in Sub-Saharan Africa have included private drug retailers in national health interventions to address the role of the retail drug sector.

A primary supply of medication for acute ailments in Nigeria is owner-operated drug retail businesses, often known as patent and proprietary medicine vendors (PPMVs). According to national studies, PPMVs treat between 8% and 55% of diseases in children under five as their primary care provider. Similar findings have been made by community- and state-level research on care-seeking behavior: PPMVs treat between 35% and 55% of adults seeking treatment for malaria and are the initial point of care for up to 55% of diseases affecting children under the age of five (Beyeler et al., 2015).

There is no formal training need for PPMV licensing in medicine or pharmacy. Instead, a lot of PPMVs do an apprenticeship under a more experienced PPMV before starting their own business, and they are often expected to have finished elementary school. The National rules allow PPMVs to provide a restricted range of pre-packaged, over-the-counter pharmaceuticals and medical supplies, but they are not allowed to perform invasive medical procedures (such as injections) or sell prescription drugs, including antibiotics.

In the context of patent and proprietary medicines vendors (PPMVs) in Nigeria, drug dispensing refers to the process by which these vendors, who are not licensed medical professionals, issue medications or drugs to patients.

Ensuring that everyone has access to high-quality healthcare services regardless of where they reside is known as Universal Health Coverage (UHC). Many nations, including Nigeria, have made achieving UHC a top goal. To do this, they must make the most of the material and human resources that the public and private sectors have to offer. The private sector is a major player in the delivery of health care in many resource-poor nations, such as Nigeria, where it serves a sizeable section of the populace.

For instance, the 2018 Nigeria Demographic and Health Survey (NDHS) revealed that 33% of women gave birth in an institution and 41% of users obtained contemporary contraception from the commercial sector. Treatment

for pediatric diseases was sought by 62.3% of children under five who had fever, 63.5% who had diarrhea, and 50.5% who had acute

The proprietary vendors, popularly referred to as patent and proprietary medicine vendors (PPMVs), is defined as "individuals without formal pharmacy training selling orthodox pharmaceutical products on a retail basis for profit," are notable members of Nigeria's private sector. An estimated 200,000 PPMVs exist in Nigeria. For most Nigerians, PPMVs serve as the first line of treatment, offering family planning, treatment for malaria, diarrhea, pneumonia, and other illnesses, and tending to both adults and children, particularly in rural areas.

The PPMVs also have many qualities that appeal to members of the community such as long opening hours, hospitability, and more consistent availability than public facilities that frequently experience service interruptions. Given their widespread presence, well-regulated and well-trained PPMVs could boost Nigeria's progress towards UHC by being more involved in promising health interventions such as integrated community case management (iCCM) (Oyeyemi et al., 2020).

The development of antibiotics has fundamentally changed healthcare delivery and reduced the global morbidity and mortality rate from infectious diseases. However, the global emergence of antimicrobial resistance organisms (AMRO) and the accompanying difficult-to-treat infections, prolonged hospital stays, higher healthcare costs, and worse health outcomes are the result of, among other factors, microbial evolution, antibiotic misuse, and inadequate infection control practices. Developing nations in Asia and Africa are most vulnerable to the growing global danger posed by antibiotic resistance. If nothing is done to stop the rising trend of antimicrobial resistance (AMR), it is predicted that by 2050, 10 million people worldwide each year—roughly 4 million in each of Asia and Africa—will pass away from AMR (Achi et al., 2021).

PPMVs are legally allowed to offer a restricted quantity of pre-packaged Over-The-Counter (OTC) medications. Although formal training in medicine or pharmacy is not necessary for a PPMV license, most PPMVs do an apprenticeship with a more experienced member of the profession before opening their store. Conventionally, the minimum educational level has been primary schools. Customer demand frequently determines the goods and

services offered by PPMV shops since their main purpose is retail sales rather than healthcare, which could result in PPMVs operating outside of their legal boundaries (Prach et al., 2015).

PPMV offer medications and services for a wide range of health needs, such as tuberculosis, respiratory infections, diarrhea, malaria, common colds, and reproductive health, but the quality of these treatments is poor, according to a recent comprehensive evaluation of PPMV practices.

Inappropriate drug prescription patterns can have negative consequences for patients, including adverse drug reactions, drug interactions, and increased healthcare costs. Therefore, it is important to promote appropriate drug prescription patterns and reduce inappropriate prescribing practices in healthcare facilities in Nigeria (Prach et al., 2015).

This is a controversial issue in Nigeria, as PPMVs are not legally authorised to dispense certain medications, but are often the primary source of healthcare for many people in rural areas. The quality and appropriateness of drug dispensed by PPMVs is a significant concern, as inappropriate drug use can lead to negative clinical and economic consequences (Kodaolu et al., 2020). Nigeria has one of the highest rates of irrational use of drugs in the world, often due to factors such as self-medication, over-the-counter access to antibiotics, and dispensing practices. Assessing the roles of PPMVs in this context is crucial.

Inappropriate drug use can lead to prolonged illnesses, increased healthcare costs, and adverse health outcomes. Improving dispensing practices can lead to cost savings for individuals and the healthcare system. Economic factors, patient expectations and demand among other factors may impact their dispensing habits. Understanding the economic motivations behind their dispensing pattern is crucial for designing effective interventions (Ogunleye et al., 2018). Hence, this study assessed the factors influencing drug dispensing pattern of PPMVs and the effect of patient expectation on their drug dispensing pattern.

Methodology

The study was conducted using a cross sectional design. Data were collected using both quantitative and qualitative (mixed) methods.

STUDY AREA:

The study area was Kwara State, which is the ninth-largest state by size among the 36 states in Nigeria. Geographically, Kwara State is divided into the Guinean forest-savanna mosaic ecoregion, occupying the majority of the state's interior, and the West Sudanian savanna in the west. Rivers are among the state's most notable geographical characteristics. The Awun, Asa, Aluko, and Oyun rivers run through the interior, while the Niger river flows along the state's northern border into Lake Jeba before continuing as a boundary (Kwara State Government, 2012).

Kwara State, which is situated in North Central Nigeria, has Ilorin as its capital. With 3,551,000 people living there as of the 2022 census, it was Nigeria's seventh-largest city in terms of population. The contemporary city is an industrial, economic, and educational hub surrounded by the ancient core area, which is made up of several mosques and typical red-mud single-story homes with thatched straw roofs that are all surrounded by a mud wall. (Kwara State Government, 2012).

To accommodate the demands of its citizens, Ilorin has a public transportation system that includes buses and taxis. In addition, the city has an airport that links it to other regions of Nigeria and the global community. The state's health policies and initiatives are developed and carried out by the Kwara State Ministry of Health. By offering high-quality healthcare services, encouraging healthy lifestyles, and avoiding illness, the ministry seeks to improve the health of the people of Kwara State (Fulani, 2011).

The city is home to foreigners and Nigerians, as well as members of the Yoruba, Fulani, Nupe, Bariba, Kanuri, Igbo, and Hausa ethnic groups. There are sizable communities of Muslims and Christians in the city, and several annual ceremonial events—the majority of which have religious overtones—take place there.

The respondents of this survey were Patent & Proprietary Medicines Vendors (PPMVs) who play a crucial role in delivering essential drugs to the communities in the Ilorin Metropolis.

This study included 400 respondents (trained PPMVs) although 389 questionnaires were retrieved across 2 selected LGAs in the state. For the

qualitative aspect of the study, the respondents were purposively selected from the study population.

A Multistage sampling technique was used.

Stage 1: Selection of Local government areas (LGAs): 2 LGAs were selected randomly from the 3 LGAs in Ilorin Metropolis using a simple random sampling technique by balloting.

Stage 2: Selection of PPMV Zones: In the two LGA selected (Ilorin South and Ilorin West), there are 28 zones (14 in each LGA); 8 zones were randomly selected from each LGA.

Stage 3: Selection of PPMV shops: from each of the zones selected, 25 PPMV shops were randomly selected

Stage 4: Selection of respondents: from each of the selected PPMVs shops, 1 PPMV was purposefully selected on whom the questionnaire was administered..

A convenient sampling was used to select three (3) key informants from each of the LGA, including the chairman. The interview was held at their various secretariats, and each session lasted for about 30 minutes. Permission was sought so that the information gotten from them was recorded and questions related to drugs dispensing and sales were asked.

The study main instrument, especially for the quantitative section of the study, was a semi-structured interviewer-administered questionnaire. Information was sought on the Drug Prescription Pattern of Patent and Proprietary Medicines Vendors (PPMV) in Ilorin metropolis

For the qualitative component of the study, the instrument was the key informant interviews guide. Certain key points of interest were itemized in the form of questions to aid and guide the discussion. A record (audiotape) of the discussion was taken to ensure that no piece of information was missed.

Four research assistants were recruited for the study. The recruited assistants were trained on data collection methods, using both the quantitative and the qualitative methods.

The validated questionnaire was interviewer-administered. The trained four research assistants also guided the key informant interview for the PPMVs, ensuring that a record (audiotape) of the discussion was well documented.

Questionnaires were checked for errors and omissions at the end of the data collection period to ensure the correctness and completeness of the data. The data collected were checked daily for correctness and completeness. It was coded and analysed using the Statistical Product and Service Solutions (SPSS version 28.0) based on a predetermined analysis plan and the results were presented using tables and charts. Chi-square was used for test of association at $p < 0.05$.

Qualitative data generated from KIIs with some PPMV owners were also analysed using transcript-based analysis. A copy of the proposal was submitted to the Ethical Review Committee of the University of Ilorin, Ilorin, Nigeria. The study was approved by the Committee with an approval number **UERC/ASN/2024/2777**. Informed consent was obtained from each participant after explaining the purpose of the study to them. Participants were interviewed after consent was granted for the study. To ensure confidentiality, no name was recorded on the questionnaire. However, codes by which selected PPMVs shops could be traced were generated for re-visiting. Study instruments were kept in a safe place and were only accessible to members of the research team.

Results

There were more females' respondents 289(74.3%) than male 100(25.7%). Most 204(52.4%) of the respondents had secondary and 177(45.5%) had tertiary education. While 2(.5%) had no formal Education, 6(1.5%) had primary. The age of the respondents indicated that 34(8.7%) were less than 25 years old, 238(61.2%) were between 25-40 years old, 108(27.8%) were between 41-55 years old, and 9(2.3%) were above 55 years old. The mean for age distributions was of 36.59 with 8.69 standard deviation.

Table 1: Factors Influencing Antibiotics Dispensing

Items	Responses	
	Frequency (N=389)	Percentage (%)
Patient demand	330	84.8
Diagnostic uncertainty	13	1.2

Globalising Education: Strategies, Challenges, and Sustainability

Economic incentives	44	4.1
Lack of access to diagnostic tools	291	27.3
Peer pressure	23	2.2
Insufficient training on antibiotic use	308	28.9
Lack of awareness about antibiotic resistance	34	3.2
Pharmaceutical marketing	7	0.7
Regulatory pressure	16	1.5

Multiple response

Table 1 above shows the factors influencing antibiotic dispensing. It shows the results of a survey on why respondents dispensed antibiotics. Respondents were allowed to choose multiple reasons. The most common reason reported by respondents was patient demand, with 84.8% of respondents saying this influenced their decision to dispense antibiotics. This means that more than a third of the time, respondents felt pressured by patients to dispense antibiotics.

Another common reason was lack of access to diagnostic tools, which was reported by 27% of respondents. This suggests that nearly a third of the time, respondents dispensed antibiotics because they couldn't accurately diagnose the illness.

Insufficient training on antibiotic use was another important factor, affecting 29% of drug sales. This means that almost a third of the time, respondents felt they may not have had enough training to know when antibiotics were truly necessary. Less common reasons for dispensing antibiotics included economic incentives (4%), peer pressure (2%), lack of awareness about antibiotic resistance (3%), pharmaceutical marketing (less than 1%), and regulatory pressure (1%).

Table 2: Influence of Patients' Expectations and Willingness of PPMVs to Participate in Trainings

Variables	Response	Frequency (N=389)	Percentage (%)
Do you think that the role of patient expectations has influence in your drug dispensing pattern?	Does not influence at all	9	2.3
	Slightly Influence	18	4.6
	Moderately Influence	348	89.5
	Strongly Influence	14	3.6
To what extent does patient demand for a drug act as a barrier to appropriate dispensing?	Not a Barrier at all	10	2.6
	Minor Barrier	46	11.8
	Moderate Barrier	331	85.1
	Significant Barrier	2	0.5
Would you be willing to participate in training programs aimed at improving antibiotic dispensing practices?	Yes	373	95.9
	No	16	4.1

Lastly, table 2 displays the respondents' willingness to participate in training programmes aimed at improving antibiotic dispensing practices. It revealed that a very high percentage (95.9%) of respondents expressed willingness to participate in training programmes to improve antibiotic dispensing practices. This highlights a strong desire among respondents to enhance their knowledge and effectiveness. Only a small number (4.1%) were not interested in such training.

Table 3: Common Conditions for Drug Dispensing

	Responses	
	Frequency	
	N=389	Percentage (%)
Typhoid fever (unconfirmed)	73	4.8
Common cold,	311	20.2

Diarrhoea (nonspecific),	37	2.4
Vaginal discharge (non-specific),	16	1.0
Fresh trauma wound,	14	0.9
Abdominal pain (non-specific),	16	1.0
Chest pain (non-specific)	26	1.7
Headache	357	23.2
Body pains/aches	354	23.0
Body itching	311	20.2
Body swellings (non-specific),	21	1.4

Multiple response

Table 3 shows the multiple-choice responses on conditions for drug dispensing. It revealed that the prominent conditions included headache (23.2%), Body pain/aches (23%), common cold, and body itching with 20.2% in both.

Table 4: Frequency of Specific Drug Requests, Availability and Dispensing of Antibiotics

Variables	Response	Frequency (N=389)	Percentage (%)
How often do customers request specific drugs or treatments?	Rarely	109	28.0
	Moderately	263	67.6
	Frequently	17	4.4
How often do you dispense antibiotics without a medical prescription?	Rarely	293	75.3
	Moderately	91	23.4
	Readily		
Antibiotics Availability	Available	54	13.9
	Not Readily Available	335	86.1

Table 4 shows the frequency of specific drug requests and dispensing of antibiotics. It indicated that more than two-thirds of the respondents, 263(67.6%) had a moderately frequent request for specific drugs, and 109(28%) rarely had such request. It also showed that about three-quarters, 293(75.3%) of the respondents rarely dispensed antibiotics.

Also on antibiotics availability, it indicated that the majority of the respondents 86.1% did not have it available, while only 13.9% had antibiotics readily available to them.

Key Informant Interview Report

Primary Products Typically Offered By the Patent and Proprietary Medicines Vendor

The PPMVs mainly procured and prescribed Over-the-Counter (OTC) drugs and common (old generation) antibiotics common to the people in every community. It was stated that 23 classes of drugs were approved for sale by the PPMVs. This was established in the statement made by 2 of the chairmen of the association

“The government has approved 23 classifications of drugs for us to sell (Key Informant A). The majority of the PPMV stated that “we mainly sell the OTC drugs i.e. those drugs that have gotten their prescription by the carton or the label (Key Informant A, B, D, E & F). Another key informant stated “we sell antacids, analgesics, aontraceptive pills and protection, antiemetics, anthelmintics, anti-malaria, etc.” (KII A),

Influence of Patient's Demand For Antibiotics on Choice of Drug Sales

The PPMVs activities and sales of drugs, especially antibiotics, are often influenced by patients' demand for antibiotics. This is because some patients are familiar with certain antibiotics for some health conditions, so they decline any other drug being prescribed for the complaint they make. This was established in the observation made by Informant B as follows:

“Yes, a patient's demand for antibiotics influences our choice of sales” (Key Informant B). The majority (90%) of the PPMVs stated that “Although antibiotics are not on our drug list, we sell the common ones as a form of assistance to the people in cases where they have come to request for a particular one they have been used to. For example, tetracycline – which the

community refers to as a red and yellow capsule. They come to buy it whenever they have diarrhea. So, sometimes, no matter the persuasion, they will decline any other product you may want to dispense”.

“Yes, some customers come to request antibiotics and they will not be willing to get any other drug” (Key Informant B). Some PPMVs stated that “some antibiotics are very common e.g Ampiclox. When customers come to ask for it and you don’t have it, they get disappointed and feel you are not competent. So to avoid that, we stock the common antibiotics” (Key Informant A)

Factors Influencing Drug dispensing

The PPMVs elucidated some of the factors that at one point or another influence their dispensing pattern. It emphasises the role of patient demand in their dispensing pattern. Other factors that influenced their dispensing pattern included poor training of some PPMVs, government policies, drugs on stock, socio-economic characteristics of the patient, and manufacturer’s factors. According to a majority of the informants:

“Part of the factors that influence our drug dispensing practice include patient’s demand (Key Informant A,C& D), lack of thorough training for some PPMVs (Key Informant A,B & E), patient poor knowledge about drugs (Key Informant B,D,F), government policies and drugs on stock” (Key Informant D,E &F).

Discussion

This study included 389 PPMVs from across two Local Government Areas in Ilorin Metropolis (Ilorin South and West). The study showed that the distribution of the PPMVs by sex had more female as compared to male. This study agreed with Abara et al.(2023) who stated that about two-thirds of PPMVs were in Abuja, FCT; and were women. About 61.2 % of the PPMVs fell within the age bracket of 25-40 years and this also aligned with Agha et al. (2022) and Abara et al.(), who equally stated that more than half of PPMVs were under 40 and about four-fifth belonged to the age group 29 years in Lagos and Abuja.

Also, this study established that 52.4% of the PPMVs had secondary education and 45.5 % had tertiary education. However, this is slightly lower and higher than Agha et al. (2022) who stated that most PPMVs (70%) in Lagos had secondary education and about one- fifth of PPMVs had greater

than secondary education. The result also supported Naomi et al. (2015), who stated that many PPMVs have elementary education levels that are greater than average. In Jigawa, the proportion of PPMVs with a university degree was 57%, whereas in Anambra state, it was 14%. Also, only 23.7% of the respondents had less than 5 years of experience. This is however in line with Abara et al. (2023) that stated that a majority of the PPMVs in Abuja had about 5 years of practice experience.

Beyeler et al. (2015) also stated that between 60-70% of PPMVs stock medications they are legally prohibited from selling, such as antibiotics, and provide diagnostic and treatment services that fall outside their legal scope of practice, such as administering injections. This indicates that PPMVs are responsive to customer demand rather than following guidelines, likely due to their lack of formal pharmaceutical training.

The factor that the majority of the PPMVs claimed to influence their antibiotics dispensing and sales was patient demand. This is, however, in line with Adamu Gadanya, Uthman, et al., (2020), who noted that PPMVs stock and sell medications with positive polarity because of the high demand for antibiotics from people in communities and the profit from sales. This highlights the fact that PPMVs is driven to stock and sell antibiotics due to both community demand for the drugs and sales revenue.

Iheoma et al. (2016) also stated that PPMVs may be motivated by financial incentives, such as the potential for higher profits from selling certain drugs, which can lead them to prescribe or dispense medications outside of their legal scope. In addition, weak regulatory enforcement and lack of consistent dispensing among PPMVs contribute to the widespread practice of selling prescription drugs, such as antibiotics, without proper authorisation.

The test of association indicated that there was no statistical significant association between drug dispensing patterns, and education level of PPMVs. It also indicated that there is no statistical significant association between compliance with drug dispensing guidelines and education level of PPMVs. ($\chi^2 = 1.314$, p-value = 0.726).

Conclusion

Therefore, this study showed that patient pressure is a significant factor influencing the drug dispensing pattern of PPMVs, insufficient training and

lack of access to diagnostic tools. Nearly a third of the time, respondents dispensed antibiotics because they couldn't accurately diagnose the illness. Less common reasons for dispensing drugs included economic incentives, peer pressure, lack of awareness about antibiotic resistance, pharmaceutical marketing and regulatory pressure.

Recommendations

It is recommended that there should be community engagement and education campaigns to inform the public about the services of PPMVs and their legal boundary. The use of local media and community leaders to disseminate information and enlightenment about the role of PPMVs in society is highly recommended. Regular training of PPMVs with support of simple diagnostic tool to facilitate appropriate dispensing must also be prioritised.

References

- Achi, C. R., Ayobami, O., Mark, G., Egwuenu, A., Ogbolu, D., & Kabir, J. (2021). Operationalising One Health in Nigeria: Reflections From a High-Level Expert Panel Discussion Commemorating the 2020 World Antibiotics Awareness Week. *Frontiers in Public Health*, 9(May), 1–7. <https://doi.org/10.3389/fpubh.2021.673504>
- Adamu, A. A., African, S., Gadanya, M., Jalo, R. I., & Uthman, O. (2020). *Factors influencing non-prescription sales of antibiotics among patent and proprietary medicine vendors in Kano , Nigeria : a cross-sectional study* Factors influencing non-prescription sales of antibiotics among patent and proprietary medicine vendors in Kano , Nigeria : a cross-sectional study. July 2021. <https://doi.org/10.1093/heapol/czaa052>
- Adda, D. K., John, O. T., Toge, P. B., & Ochu, C. (2023). *Antimicrobial Prescription Habits among Community Pharmacists and Patent and Proprietary Medicine Vendors in Nigeria : A Rational Use of Drugs Survey. VIII(2454)*. <https://doi.org/10.51584/IJRIAS>
- Agha, S., Ruiz-gaona, L. A., Friedman, J., Cheikh, N., & Gorgens, M. (2022). *Factors associated with the adoption of a digital health service by patent proprietary medicine vendors (PPMVs) in Lagos , Nigeria*. <https://doi.org/10.1177/20552076221142666>

- Akinyandenu, O., & Akinyandenu, A. (2014). *Irrational use and non-prescription sale of antibiotics in Nigeria : A need for change*. 3(2), 251–257.
- Althagafi, N. S., & Othman, S. S. (2022). *Knowledge , attitude , and practice of antibiotics use among primary healthcare physicians , Ministry of Health , Jeddah*. <https://doi.org/10.4103/jfmmpc.jfmmpc>
- Beyeler, N., Liu, J., & Sieverding, M. (2015). *A Systematic Review of the Role of Proprietary and Patent Medicine Vendors in Healthcare Provision in Nigeria*. January. <https://doi.org/10.1371/journal.pone.0117165>
- Burden, T. H. E. H., Developments, P., Of, A., & Action, F. (2022). *AN OVERVIEW OF ANTIMICROBIAL RESISTANCE THE HEALTH BURDEN , SCIENCE , SURVEILLANCE , POLICY DEVELOPMENTS AND AREAS OF FUTURE ACTION*. May.
- Coroon M, Kebede E, Spektor G, Speizer I. *Key Role of Drug Shops and Pharmacies for Family*; 2016. p. 1–16.
- Daini, B. O., Okafor, E., Baruwa, S., Adeyanju, O., & Diallo, R. (2021). Characterization and distribution of medicine vendors in 2 states in Nigeria: implications for scaling health workforce and family planning services. *Human Resources for Health*, 6, 1–12. <https://doi.org/10.1186/s12960-021-00602-2>
- Federal Ministry of Health. Task-shifting and task-sharing policy for essential health care services in Nigeria. 2014. Available from: [https://advancefamilyplanning.org/sites/default/files/resources/Nigeria a taskshifting policy- Aug2014 REVISED CLEAN _Approved October 2014.pdf](https://advancefamilyplanning.org/sites/default/files/resources/Nigeria%20a%20taskshifting%20policy-2014%20REVISED%20CLEAN%20Approved%20October%202014.pdf). Accessed 25 Feb 2020.
- Fulani, M. (2011). *Ilorin*. 2.
- Govindsamy, A., Hansraj, J., Hassan, R., Naidoo, G., Naidoo, P., Naidu, R., & Adikwu, M. U. (1996). *Sales practices of patent medicine sellers in Nigeria*. 11(2), 202–205.
- Ibrahim, M. M. (2022). *Assessment of the Capacity of Patent and Proprietary Medicine Vendors to Provide Contraceptive Services to Adolescents in Kaduna State , Nigeria*. 1–10.

<https://doi.org/10.21522/TIJAR.2014.09.03.Art001>

- Id, G. S., Id, P. A., Nafade, V., Id, G. G., Id, B. D., Id, A. D., Id, J. Das, Gandra, S., & Id, M. P. (2020). *PLOS MEDICINE Antibiotic prescription practices in primary care in low- and middle-income countries: A systematic review and meta-analysis*. 1–20. <https://doi.org/10.1371/journal.pmed.1003139>
- Iheoma, C., Daini, B., Lawal, S., Ijaiya, M., & Fajemisin, W. (2016). *Impact of Patent and Proprietary Medicine Vendors Training on the Delivery of Malaria , Diarrhoea , and Family Planning Services in Nigeria*. <https://doi.org/10.4236/oalib.1102404>
- Isah, A., Aina, A. B., Umeh, K. C. Ben, Onyekwum, C. A., Egbuemike, C. C., Ezechukwu, C. V, Umoru, D. O., & Nechi, R. N. (2023). Assessment of public knowledge and attitude toward antibiotics use and resistance : a community pharmacy - based survey. *Journal of Pharmaceutical Policy and Practice*, 1–13. <https://doi.org/10.1186/s40545-023-00619-z>
- Ka, D., Oa, B., Cj, F., & Tm, A. (2018). *COMMUNITY MEDICINE AND Operations and Roles of Patent and Proprietary Medicine Vendors in Selected Rural Communities in Edu Local Government Area , Kwara Keywords : Patent Proprietary vendors ,. 30(2), 75–89*.
- Kodaolu, M. Y., Fagbamigbe, A. F., & Ajayi, I. O. (2020). Stocking pattern for anti-malarial medications among proprietary patent medicine vendors in Akinyele Local Government Area, Ibadan, Nigeria. *Malaria Journal*, 19(1), 1–15. <https://doi.org/10.1186/s12936-020-03350-1>
- Kwara State Government, N. (2012). *Kwara State Diary*. 2.
- Manga, M. M., Mohammed, Y., & Suleiman, S. (2021). *Antibiotic prescribing habits among primary healthcare workers in Northern Nigeria : a concern for patient safety in the era of global antimicrobial resistance resistance*.
- Manga, M. M., Mohammed, Y., Suleiman, S., Fowotade, A., Yunusa-kaltungo, Z., Usman, M., Abulfathi, A., & Saddiq, M. I. (2021). *Antibiotic prescribing habits among primary healthcare workers in*

Northern Nigeria : a concern for patient safety in the era of global antimicrobial resistance.

- Mmaduekwe, H. N., Okeke, A., Anetoh, M. U., Umeh, I. B., Ejieh, L. I., & Nduka, J. I. (2022). *Original reports*. 1–11.
- Oyeyemi, A. S., Oladepo, O., Adeyemi, A. O., Titiloye, M. A., Burnett, S. M., & Apera, I. (2020). *The potential role of patent and proprietary medicine vendors ' associations in improving the quality of services in Nigeria ' s drug shops*. 1–12.
- Prach, L. M., Treleaven, E., Isiguzo, C., & Liu, J. (2015). Care-seeking at patent and proprietary medicine vendors in Nigeria. *BMC Health Services Research*, 1–12. <https://doi.org/10.1186/s12913-015-0895-z>
- WHO. World malaria report. Geneva, World Health Organization, 2017. https://www.who.int/malaria/publications/world_malaria-report-2017/en/. Accessed 20 Aug 2018.
- WHO. World malaria report. Geneva, World Health Organization, 2017. https://www.who.int/malaria/publications/world_malaria-report-2017/en/. Accessed 20 Aug 2018.
- World Health Organization. Health in 2015: from MDGs, Millennium Development Goals to SDGs, Sustainable Development Goals. 2015.
- World Health Organization. Health in 2015: from MDGs, Millennium Development Goals to SDGs, Sustainable Development Goals. 2015.
- Yao, L., Yin, J., Huo, R., Yang, D., Shen, L., Wen, S., & Sun, Q. (2020). *The effects of the primary health care providers ' prescription behavior interventions to improve the rational use of antibiotics : a systematic review*. 2.