



ORIGINAL ARTICLE

Operations and Roles of Patent and Proprietary Medicine Vendors in Selected Rural Communities in Edu Local Government Area, Kwara State, North-Central Nigeria

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ABSTRACT

Background: Patent and Proprietary Medicine Vendors (PPMVs) are a ubiquitous feature of the informal health sector in many African countries including Nigeria. Little has been reported about the services they render. This study assessed the operations and role of PPMVs in selected rural communities of Edu LGA, Kwara State, Nigeria

Methods: This explorative study used a mixed method approach of data collection. In-depth interviews were conducted among 25 purposively selected PPMVs in three out of the five operational zones in the LGA. Enumeration and mapping of PPMVs shops was done to determine the number and location of the PPMVs in all the five operational zones in the LGA.

Results: PPMVs sell drugs with or without prescription and offer services like weight, blood pressure measurements. Products stocked align with the approved list of drugs, though some stock drugs outside the list. Their collaboration with the pharmacists is limited to drug purchasing. Collaboration with the formal health sector consists of training and patients' referrals. Membership of National Association of Patent and Proprietary Medicine Dealers (NAPPMED) is a 'sine qua non' for business. Enumeration of PPMVs shops in the five zones revealed 136 shops with Lafiagi having the highest and the GPS coordinates mapped on Google Earth Map showed the location and spread of the PPMVs

Conclusion: PPMVs can potentially bridge the gap in healthcare delivery in the study area and by extension to the State. Organizing capacity building workshops for the PPMVs can help strengthen their quality of health service and collaboration with other stakeholders.

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INTRODUCTION

Patent and Proprietary Medicine Vendors (PPMVs) are defined as "persons without formal training in pharmacy who sell

orthodox pharmaceutical products on a retail basis for profit."¹ They were established as a category of retailer by the Federal Ministry of Health to provide a source of medicine in communities with limited access to essential

health commodities.² There is no reliable estimate of the number of drug vendors in Nigeria or of their locations and the services they offer. This is partly because vendors often fail to register with the Pharmacists Council of Nigeria, the official regulatory and licensing body for pharmacies and patent and proprietary medicine vendors.^{2, 3} Rather, vendors prefer to register with their professional association, the National Association of Patent and Proprietary Medicine Dealers (NAPPMED) which has no regulatory mandate,^{4, 5} but provides support such as monitoring the types of products sold, facilitating education and training and giving business and financial assistance.^{6, 7} Nonetheless, records available showed that an estimated 200,000 PPMVs operated in the country as at 2005, far outnumbering the 2,639 retail pharmacies that were registered in the same year² and more than all other cadres of health worker in the country.⁸ PPMVs licensure does not require formal training in medicine or pharmacy.⁹ By convention, however, PPMVs are expected to have completed primary school^{1,6,10} and undergo an apprenticeship with a more senior PPMV before opening their own shop with prescribed regulations, but some (34.6%) do have medical training.¹⁰

The prescribed regulations permit PPMVs to sell a limited number of pre-packaged, over-the-counter medicines and medical products, but prohibit them from selling prescription medications (including antibiotics) or conducting invasive medical procedures (e.g. injections).¹¹ In the area of family planning, PPMVs are permitted to sell condoms and oral contraceptive pills, but are not allowed to prescribe or sell oral contraceptives to first-time contraceptive users or users experiencing complications.¹² PPMVs have operated legally in Nigeria for decades. However, only recently, have PPMVs been more formally

integrated into national health strategies and guidelines, with a particular focus on the delivery of essential child health services and commodities thereby impacting positively on the universal healthcare coverage.¹³⁻¹⁶

Universal health care services depend on the availability of well-trained healthcare workforce; and in sub-Saharan Africa this need is seldom met because of shortage of healthcare workers that is estimated to persist well into the future.¹⁷ The World Health Organization (WHO) has encouraged participation of formal and informal private providers, such as PPMVs, to implement government strategies for malaria control.¹⁸ Patent and Proprietary Medicine Vendors (PPMV) supply a large portion of the drugs used by the public in African countries to treat their illnesses. In an unpublished study in Nigeria by Janssen *et al*, it was found that two-thirds of health insured persons in Kwara State, Nigeria, visited drug vendors as first (or only) point of care when they experienced health problems.¹⁹

Also, other studies conducted in Nigeria showed that community healthcare workers and drug vendors provide the first and main point of care in many communities.^{6, 7, 20} Many people do not attend health facilities and choose self-medication through the often unregulated private retail market which are also consulted for advice and diagnosis. This is particularly prevalent among the poor, rural and marginalized people with limited access to formal health services. In a systematic review of 50 published articles on PPMV, Beyeler *et al* found that between 8% and 55% of sick under-five children obtained care from vendors while between 35% and 55% of adults suffering malaria seek care from these shops.²¹ Similarly, in a rural community in Jigawa, Nigeria, about 60% of mothers prefer to consult PPMVs rather than other providers for treatment of childhood malaria.²² Also, a study

conducted in Southern states of Ogun, Akwa Ibom and Enugu in 2010 in Nigeria, on the role of Patent Medicine Vendors in tuberculosis (TB) control revealed that patent medicine vendors and traditional healers, respectively constituted the first port of call for 48.4% and 12.2% of the persons with TB in the States studied.²³

A study in three southern states of Nigeria, concludes that PPMVs are regarded as a ubiquitous feature of the informal health sector in Nigeria and despite this, little has been reported about what actually transpires between PPMVs and their customers. Nevertheless, concerns have been raised about the quality of care and the potential for abuse of their position/practice.^{6, 23, 24} Brieger *et al* in a study in Igbo-ora and Ibadan, a rural and an urban community, respectively in Oyo State Nigeria, reported that PPMVs have both functional and legal dimensions to their practice.²⁵ The functional part involves the process of selling a product, while the legal component designates which products the PPMV can and should sell. Little is known about their clientele and how care is rendered by PPMVs for common illnesses. Hence, a greater understanding of the role of PPMVs and the quality of care they provide is needed in order to inform ongoing national health initiatives that aim to incorporate PPMVs as a health care delivery mechanism.^{26, 27} A previous study in Kwara State had recommended further research into the potential role PPMVs can play within the health insurance program. Therefore, this explorative study aimed to obtain a better understanding of the operations and role of the PPMVs; and also assess the distribution of the PPMV shops in Edu LGA, Kwara State with a view to generating information for policy makers and practitioners in order to strengthen the health system.

METHODOLOGY

Kwara State, with its capital in Ilorin, is located within the North Central geopolitical zone of Nigeria, commonly referred to as the Middle Belt. The primary ethnic group is Yoruba, with significant Nupe, Baruba, and Fulani minorities. The State has 16 Local Government Areas, one of which is Edu LGA. Edu LGA is predominantly rural and located in Kwara North Senatorial district. The LGA has a total of 10 political wards and its headquarter is at Lafiagi. It has an area of 2,542 km² and a ten-year (2006-2016) projected population of 276,061. The inhabitants are predominantly Nupe-speaking and Muslims. The primary occupation of the people is farming, but most households are also involved in activities such as trading and fishing. The people of the LGA have access to health insurance scheme (involving annual co-payment to "Hygeia", a Health Maintenance Organization) introduced in 2007. Despite the available health insurance, a number of the health insured patronize the PPMVs as first point of care before presenting at the hospital as seen in a result from a previous study in the locality.¹⁹ This role of the PPMVs was revealed in an earlier Financial and Health Diary study involving 120 households; conducted in 2012-2013 and aimed at understanding what predicts the uptake of health insurance and re-enrolment in two rural populations which had access to the Kwara State Health Insurance program since 2007.¹⁹

This explorative study, which was conducted between October and December 2016, used a mixed method approach with qualitative and quantitative components. The qualitative component involved in-depth interviews (IDI) among the PPMVs, conducted in three communities (Bacita, Lafiagi and Shonga) in Edu Local Government Area of Kwara state. These three study areas were purposively selected and correspond with the target area of

a Financial Diaries study conducted in the same area.¹⁹ For the quantitative component, enumeration and mapping of all the PPMV shops was done to determine the numerical strength, their geographical location and spread in all the five operational zones of PPMVs in Edu LGA which are: Bacita, Lafiagi, Shonga, Tsaragi and Gbugbu. These zones have varying population densities of PPMVs.

There were six interviewers in all. All the interviewers have diverse/vast experiences as moderators in qualitative data collection methods. Data collection was conducted with the use of an in-depth interview guide designed by the authors in line with the study objectives. One-day training on the use of the interview guide was conducted for the interviewers. Similarly, the enumerators were trained on the use of GPS machine where operational procedures/steps were passed across. For the qualitative component, a total of 25 PPMVs were purposely selected (Bacita-8, Shonga-8 and Lafiagi-9) from a list of PPMVs provided by the umbrella Association of PPMVs (National Association of Patent and Propriety Medicine Dealers - NAPPMED) in Kwara State. The Zonal Chairman of each of the purposely selected three zones were not involved in the selection of the PPMVs, but only helped in the location of the selected member of the PPMV for the conduct of the interview.

Interviewers used an interview/IDI guide which collected socio-demographic data (age, sex, religion, educational status) in addition to the core eight thematic areas: numerical strength of PPMVs in the study locations, accessibility of PPMV shops/locations, forms of healthcare services render, arrangement for purchase of drugs, range of products stocked, collaboration with formal health sector, training of PPMVs and PPMVs' affiliation with professional council. Sessions were conducted in both English and the local language (Nupe).

Nupe language was used in very few situations where the PPMV could not have a deep understanding of the questions posed in English. The interview sessions were audio-recorded, while notes were also taken; these were transcribed and coded for further analysis. The coding was done after data collection by two people for ease of comparison. The interview sessions were conducted in the PPMV shops/locations during business hours. There were no incidences of re-scheduled interview. Average duration of the interviews was an hour and all sessions were held up to saturation point when no additional response was gotten on all the concepts explored. .

The quantitative data used a purposely designed proforma with the following items: location/address of the PPMVs' shops, the GPS co-ordinates with both latitudes and longitudes recorded. The GPS machine used was "Geko 201™ personal navigator" with an accuracy of <15 metres (49 feet) Root Mean Square (RMS) and co-ordinates were measured in metrics unit. Multipath errors were mitigated by not taking the GPS co-ordinates of the identified location close to the structures/buildings so as to prevent the signals reflecting off. Also, for the quantitative component (mapping) a total of five appointed enumerators used a comprehensive list of NAPPMED with PPMV shops and their location to locate and map the shops. The enumerators were complemented with five mobilizers (one per zone) to enhance easy search and location of the PPMV shops. These mobilizers are villagers living in the respective communities who are familiar with the terrain. In order to get a full complement of the spread and location of the PPMVs, other shops where drugs are being sold were also mapped. These included PPMVs, not registered under the NAPPMED but have shops being used to sell drugs regardless of whether it was closed or

opened at the time of mapping. However, there were other locations which hitherto were used as PPMV shop, but which were no longer used as points for selling drugs or used for different function. Though, very few, these ones were not mapped.

For the qualitative aspect, thematic analysis was employed. The interviews were transcribed, coded and analyzed thematically using the objectives of the study and the topic guide of the study to structure the analysis process. For a robust content analysis, the analysis was conducted by two people. Certain quotes of PPMVs are presented to illustrate their views in their own words. The socio-demographic data were analyzed using univariate analysis and presented using a table. Similarly, the various categories of products stocked by the PPMVs were analyzed and presented using index table. The GPS coordinates of the enumerated PPMVs shops and location were subsequently plotted on Google Earth Map; and each co-ordinate represent point on the Google Earth Map. This helps to illustrate the geographical location/spread of the PPMVs in Edu LGA/Kwara State.

As this study was meant to be exploratory with the intent of scaling it up building on the findings of this study, pre-test of instruments was not done. However, content validity of the data tools was done by the researchers; in addition role play by the trained assistants also provided a window to adjust some of the ambiguous questions before actual field work began. Ethical Approval (Reference MOH/KS/EC/777/112) and permission for the study was sought and obtained from the Kwara State Ministry of Health Ethical Committee.

RESULTS

Socio-demographic characteristics of participants

Table 1 shows the socio-demographic characteristics of the selected PPMVs. The median age of the 25 selected PPMVs in the three study communities was found to be 40.0 years with an age range of 26-59 years. Of the three study areas, the average age of the PPMVs was found to be highest in Bacita. (Table 1) In the three study communities, there were both male and female PPMVs, though the majority were males. While the predominant religion among the respondents was mainly Christianity in Bacita it was predominantly Islam in Lafiagi. Shonga showed a mixed structure in terms of religion. Majority of the interviewed PPMVs in both Lafiagi and Shonga had tertiary education, while in Bacita this was secondary education.

Number of PPMVs/shops selling drugs

The number of registered PPMVs in all the five operational zones in Edu LGA ranged from 14-46 with an average of 28 PPMVs per zone. Lafiagi had the highest number of registered PPMVs (46). The respondents mentioned that most PPMV shop-owners were registered with the association though there were few exceptions. The PPMVs spoke negatively about unlicensed hawkers and also claimed that their drugs were poorly stored, expired and exposed.

“Anyone who opens a shop to sell drugs must be registered by the association. There are some hawkers or Hausas who are not registered or licensed drugs sellers. They are the people spoiling the market and are the ones selling fake drugs. Hawkers hawk drugs around town, on markets, and bring the drugs to people’s doorstep (people patronize hawkers for this).” (Participant 1, Shonga)

Table 1: Socio-demographic characteristics of the PPMVs

Variables	Bacita n=8	Lafiagi n=9	Shonga n=8
Median Age (years)	47.5	35.0	36.0
Age range	26-53	33-59	30-50
Sex (M/F)	3/5	7/2	7/1
Predominant Religion	Christianity	Islam	Mixed
Level of education			
Primary	1	-	-
Secondary	6	1	1
Tertiary	1	8	7
Other Jobs*			
Civil service	2	1	2
Farming/Fishing	2	1	3
Trading	2	-	2

*Difference represents those who are full time PPMVs

Collaboration with formal health sector

The common opinion expressed by the PPMVs in the three areas was that there was poor collaboration between them and the Pharmacists. The reason they gave was that the pharmacists had higher education so they feel superior to the PPMVs.

“Anybody can open a chemist [PPMV shop] as long as you have little knowledge on selling drugs,

but a pharmacy is run by a specialist. They feel superior.” (Participant 4, Shonga).

According to some PPMVs, pharmacies sell any type of drug while a PPMV has restrictions on the type of drug that can be sold, both in quantity and quality.

“They (Pharmacists) sell complex drugs.” (Participant 3, Shonga) (Figure 1)

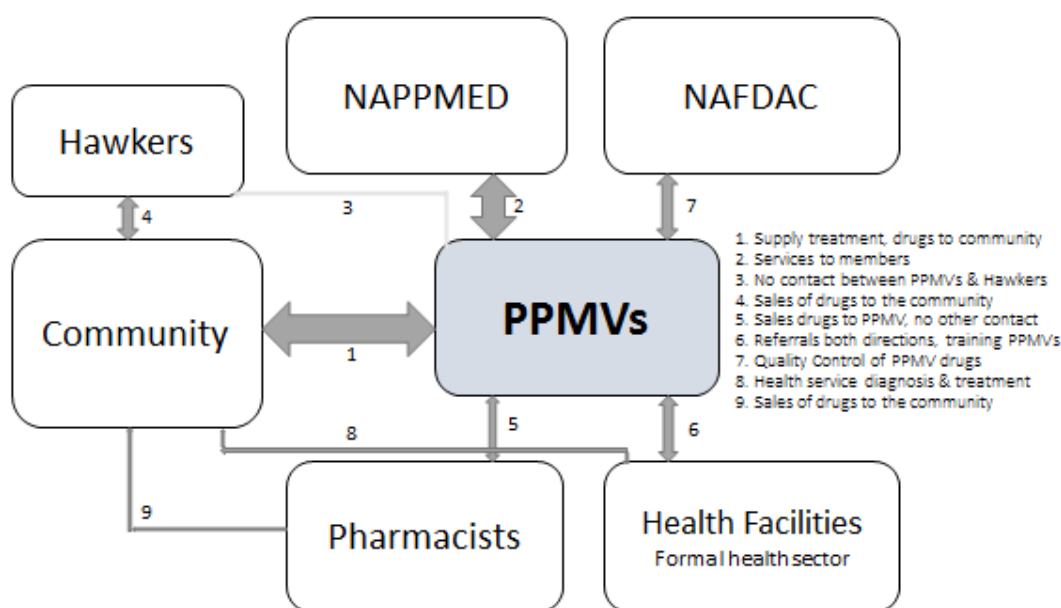


Figure 1: Relationship and Collaboration among stakeholders
(Note: The thickness of the arrows indicates the strength of the relationship)

While there exists no collaboration between the Pharmacists and the PPMVs, many of them obtained their drug supply from the Pharmacists. The respondents also reported that there exists informal collaboration among the PPMVs with some mutual benefits. They consult one another with respect to patient care, render financial assistance and lend drugs to one another. "...if anyone has a patient and does not understand the type of case or type of drug to give, we assist each other by telling him/her what type of drug to give the patient". (Participant 2, Lafiagi).

Experience with the government hospital is generally good as public hospitals in the study area sometimes refer patients to PPMV's to purchase drugs during stock-out in public/formal health facilities. PPMV's also refer patients to hospitals and other PPMVs as the need arises, especially for conditions they cannot manage. Another window of collaboration involves offering training for PPMV's and this is also one of the benefits of the partnership with hospitals. Other agencies like the National Drug Law Enforcement Agency (NDLEA) also provide training opportunities such as seminars where certificates are given. Officials from the Local Government and Ministry of Health also do come for inspection about once in a year. A participant in Bacita reported having negative experience with the Ministry of Health in obtaining license. The National Agency for Food, Drugs Administration and Control (NAFDAC) monitors the activities of PPMVs but some complained negatively about their "incessant" regulatory activity.

Accessibility of the PPMVs in the provision of Primary Healthcare services

Majority of the clients access the PPMV shops by foot, (preferred mode) with a walking time varying from 2-30 minutes (especially in Shonga, Bacita). Few people, living in border

communities of Shonga, Bacita and Lafiagi have to travel further (border villages 15 km). Cost of transportation by motorbike/car was about ₦60 - ₦500 (\$0.2 - 1.5 US Dollars) for a round trip. In Lafiagi, distances can be longer: "People from remote places take up to 1 hour to reach my shop because of swampy terrain and it can cost N1400 (to and from). Some villages are about 10km or more." (Participant 2, Lafiagi)

In general, most clients do not complain about location of the shop but some from remote villages do.

"Clients complain about my shop location most especially during the rainy season when the roads are in bad shape" or "the drug sourced for is cheaper [than in other places close to their village." (Participant 2, Lafiagi)

A respondent stated: "Complaints about location of my shop is not so frequent" (Participant 5, Shonga)

Shops open on daily basis for business in all areas from 7 am till 10 pm. However, all PPMVs open on Sundays and Fridays (for Jumat service) at limited hours due to prayers (3pm-10pm or 5pm-10.). After the shop has been closed, clients go to the PPMVs' houses. Sales from residence continue after closing hours even up to 1am. Phone numbers are on the wall of the shop for clients to call to access drugs after closing hours.

Nature and Scope of Primary Health care services rendered by the PPMVs

In all the three study areas, services rendered are those that focus on the most prevalent health problems in the environment. These services include consultation for minor ailments such as malaria, sale of drugs, weight and blood pressure measurements, wound dressing, first aid services, and administration of intramuscular drugs.

Payments by Clients

Generally, few clients complained about drug charges and payment is mostly by cash, but installment payments are acceptable. As a step to ensure clients pay fully, they are asked to come for a follow up visit during which the balance of payment for the drugs and services is collected. Payment in kind (with farm produce) is acceptable to some of the PPMVs and price differentiation between clients occurs occasionally. Some factors taken into consideration for price differentiation include: distance from the shop, appearance, and means of transportation (those with cars pay higher price). However, in Lafiagi, a respondent said: *“I can't increase the price for the rich, because if they find out that it is cheaper elsewhere I would lose them as customers”*. (Participant 4, Lafiagi)

Cost of Drugs

Generally, in the three study areas, the drug prices are determined by the NAPPMED and circulated to members. *“Cost of drugs is unstable and this affects the price, however all the PPMVs*

in Shonga have a price list which is fixed by the association; it is the association that determines the price of drugs”. (Participant 1, Shonga) Members can sell above the recommended price but never below as that will risk the attraction of a fine from the Association. Price determination is based on the cost of the drug, the cost of transportation, revenue dues, and association dues as well as the need to make a profit. However, due to the fluctuating market prices, the list is not strictly adhered to. The market cost of the drugs is a factor that determines which drugs are stocked.

Range of products stocked

More than 75% of the PPMVs interviewed stocked analgesics, antimalaria, family planning commodities, anti-helminthics, haematinics and ORS in the three study areas. *“The decision to stock a type of drug depends on clients' demands/requests as well as the prevalent illnesses in the environment.”* (Participant 3, Lafiagi) Table 2 summarizes the different categories of drugs stocked by the PPMVs in the different communities.

Table 2: Index Table of Drugs Stocked by the PPMVs in the Study Location

Drugs available	Bacita	Lafiagi	Shonga	Prescription allowed
Analgesics	++++	++++	++++	Yes
Antibiotics	++++	++++	++++	No
Antimalaria	++++	++++	++++	Yes
Antacids	++++	+++	++++	Yes
Antihistamines	+++	++++	+++	Yes
Antipsychotics	-	+	+	No
FP commodities	++++	++++	++++	Yes
Antiseptic	++++	++++	++++	Yes
Anti-diabetics	-	++	+	No
Anxiolytics	-	+	+	No
Anti-helminthics	++++	++++	++++	Yes
Anti-hypertensives	-	+++	++	No
Haematinics	++++	++++	++++	Yes
Herbal mixture	++	-	+++	No
Medical consumables	++++	+++	++++	Yes
IV fluids	-	+	+	No
Parenteral drugs	-	+	+	No
ORS	++++	++++	++++	Yes
Zinc	+++	++	++	Yes
Antitussives	++++	+++	++++	Yes

-Not stocked; +stocked by <25%; ++stocked by 25-50%; +++ stocked by >50%; ++++ stocked by >75%

Drug purchase arrangement by the PPMVs

Drugs for sale are largely bought from pharmacies in Ilorin, the State capital. However, some pharmacies also deliver drugs to the PPMV's directly on a weekly basis for an extra charge. In addition, drug distributors and representatives (mainly from Ilorin) come to Lafiagi to sell drugs to the PPMVs and quite a number of them patronize them, but not all the PPMVs buy from this channel. For those in Shonga, a large patent medicine store in another bigger town is another source of purchase as the shop sells wholesale price. In Lafiagi, some purchase from bigger PPMV, or, as one said: *"I also buy from the Chairman of the association when I have stock-out sometimes"* (Participant 5, Lafiagi).

Drugs not obtainable from the State capital) are sometimes ordered from Orange drugs in Idunmota, Lagos. As a precautionary measure, the PPMVs ensure that NAFDAC registration number, scratch panel, intact package and expiry dates are carefully checked before purchasing.

Training of the PPMVs

There exists both formal and informal training exposure. Most common formal training is 2-3 years training programme for community health workers at the School of Health Technology in Offa, Kwara State, Nigeria. A diploma is issued at graduation. During practical exposure, these trainees are being taught how to prescribe drugs, treat minor illnesses, and administer injections. Informal training involves learning as an apprentice in already established shops. Some had their apprenticeship in a health facility for several years (on the average 3-11years). Some had their training under a pharmacist. Some had the training in both pharmacy as well as in the hospital.

Some of them were trained by the Kwara State Ministry of Health where they were informed of the types of drugs to sell. This training is usually conducted before permission to join the association is granted. In Lafiagi, however, some of the PPMVs had no form of training or relevant certification prior to commencement of the trade.

Professional affiliation of the PPMVs

All the PPMVs who had shops in the three study areas were registered members of National Association of Patent and Propriety Medicine Dealers (NAPPMED), but none was licensed by the Pharmacist Council of Nigeria as there exists rivalry and lack of collaboration between them. *"The pharmacists feel superior to us and as such there is no cooperation between us"*. (Participant 6, Lafiagi).

"All the PPMVS in Lafiagi that I know are registered and I'm not aware of any patent medicine vendor that is not registered with our association." (Participant 4, Lafiagi).

The Association performs oversight functions especially in preventing illegal drug sellers and to monitor the sale of drugs by its members through a taskforce. Some of the PPMVs also belong to other associations like the Association of Community Health Practitioners.

Location/Enumeration of the PPMVs shops

Figure 2 shows the mapping of PPMV shops in and around Lafiagi while the GPS Co-ordinates, is shown in Table 3. All the sighted PPMVs shops in all the five operational zones in Edu LGA were taken. These co-ordinates were taken with nearest accuracy according to the GPS machine configuration. A total of 140 PPMV shops were sighted, however 136 shops were enumerated and GPS co-ordinates taken. The GPS co-ordinates of two of the shops

could not be taken as the village had been cut off due to erosion. There were two other locations which were hitherto used as a PPMV shop but no longer used as such. Mapping of PPMV shops in and around Lafiagi shows that shops are mainly clustered very near to roads and/or major locations like the mosque and the market. The distance between the shops is usually short.

DISCUSSION

This study aimed to get a better understanding of the operations and role of PPMV's in Nigeria. Our findings confirm the conclusions of Beyeler and Sieverding, showing that the PPMVs represent an important source of healthcare service provision in remote and rural areas helping to bridge the gap in service delivery.²⁶ From the outlook of the median age of the PPMVs across the three study areas (40.0years) which is similar to findings of Prachet et al,²⁷ the PPMVs represent a young, vibrant group that show interest in building their skills and improve service provision to strengthen healthcare delivery. In a study conducted in 12 states of Nigeria by Iheoma *et al* on impact of training on service delivery, approximately, 3.2% of the responding PPMVs had only primary education, 61.3% attended secondary school, while 35.5% had tertiary education.^[28] This is similar to the findings of this study where majority also had tertiary education. With the majority having tertiary education, there is likelihood to realize capacity building, improvement in service delivery by leveraging on their educational exposure.

The PPMVs reported that most of the clients do not complain about the financial accessibility of the services rendered by PPMVs, however, geographical access during the raining season when floods affect the access roads of some areas affect access to care. Though, the mapping of the PPMVs did not

overtly demonstrate geographical accessibility, this may have implications during dire emergencies. However, going by the numerical strength of the PPMVs, their geographical accessibility may be much easier than access to formal health care facilities. This delay in accessing care at those periods may worsen morbidity and contribute to mortality in the affected areas. There is therefore the need to address this issue of seasonal geographical inaccessibility to improve access at all times.

The daily and flexible opening hours of the PPMVs makes it easy for the clients to access their services even into the middle of the night during emergencies. This will go a long way to improve access to care even at odd hours and by extension contribute to attainment of universal health access. Apart from the sale of drugs, the PPMVs also render services like blood pressure measurement and wound dressing among others. For a rural farming community, wound dressing is key as farming activities could be associated with injuries and cuts. The cost of drugs is usually fixed by the association, but the flexibility of payment allowed by the PPMVs from the client will also be a leverage to improve patronage and access to health care by the community. This flexibility in payment will help to ease financial burden, enhance financial accessibility which in turn is central to attainment of universal health coverage. Drugs are largely sourced from recognized Pharmacies in Ilorin, the Kwara State capital and at times from Lagos. This helps to ensure that the medicines are safe and therefore will constitute no health risks to clients or patients patronizing them in the community. There is also a need for a deliberate intervention to strengthen collaboration between the PPMVs and the Pharmacists especially in the area of information and knowledge exchange.

The PPMVs have a range of permissible products that should be stocked by them. This study has shown that some of them stocked drugs that are outside the list. Although, stocking of drugs outside the approved list is wrong, this was found to be more common in Shonga and Lafiagi. Stocking drugs outside the approved list may lead to inappropriate prescription of these categories of drugs to the unsuspecting public patronizing the PPMVs leading to adverse consequences on their health status. Of the three study communities, Bacita is the smallest with the lowest number of PPMVs. Lafiagi is the headquarters of the LGA and has the highest number of PPMVs. While it is wrong to stock drugs outside the approved list, the demand from the large population was said to be driving the stocking and sale of those categories of drugs especially when the drugs are not available in formal health facilities in these communities. In addition to this, PPMVs with higher level of education are more in Lafiagi and Shonga and may also explain the stocking of drugs outside the approved list as they may erroneously see themselves as having the training to handle such drugs.

However, this is not so in some other researches, as PPMVs with formal health training tend to know their bounds by stocking in line with approved list and refer appropriately when need arises. In a study in Kwara and Kogi States by Treleaven *et al*¹⁰ on the management of Paediatric illnesses by the PPMVs in Nigeria, 57.0% of the PPMVs had some form of formal health training. In the study, among shop owners and workers with formal health training, over three-quarters (86.7% of doctors, 75.9% of nurses/midwives, 84.3 % of CHEWs, and 79.3 % of pharmacists) stocked amoxicillin, while only 68.2 % of PPMVs without formal health training did so.¹⁰

Collaboration with the formal health sector in the area of referral of cases to the public hospitals who in turn, after consultation directs patients to buy drugs (during stock-out) from the PPMVs will help to improve healthcare delivery and reduce morbidity and mortality in the community. By referring difficult cases, this shows that the PPMVs recognize the limit of their competence. Despite these findings, there is no presence of formal agreement or protocol supporting effective collaboration between the PPMV's and formal sector regarding referrals.

In terms of training exposure, not all the PPMVs passed through formal training as a number of them go through informal apprentice training. It is important to emphasize exposure to formal and certificated training in order to improve their knowledge and quality of services. Iheoma *et al*^[28,] in a study in 12 States (two per geo-political zone) of Nigeria, found that PPMVs participation in training several times appear to be correlated with improvement in the quality of healthcare services offered. Prach *et al*,²⁷ in a study conducted in Kwara and Kogi states in North-central Nigeria, reported that less than 20% of PPMVs have some form of formal medical training. To improve competence of PPMVs in drug sales and management of common ailment, it will be desirable to have formal training for this group of community based health care providers. Designing appropriate recognized certificated training for PPMVs will help in improving the quality of care they provide and enhance their role within the health system. In addition, capacity building for the PPMVs should be geared towards strengthening their services to do more in the area of diagnosis of minor illnesses and improve knowledge of pharmaceutical products. There is need for training and re-training of the PPMVs to know their limit

thereby improve their knowledge and practice of early referral.

Limitations

The study interviewed PPMVs and representatives of NAPPMED only. To obtain a more comprehensive picture on the operations, role and scope of work of PPMVs' other stakeholders should be interviewed as well, such as formal sector health workers, pharmacists and community members that use the services of the PPMVs. Although, the interviewers were well-trained health professionals and were asked to take cognizance of the importance of neutrality during the interaction with the PPMVs, there was a potential risk that power relations between formal and informal sector could have influenced responses. The small sample size used for the IDIs, which was in keeping with the qualitative nature of the study, may affect the generalizability and external validity of the findings. The mapping of the GPS coordinates of the PPMVs' shops was not done in relation to their geographical accessibility /population densities, or how close or distant they are from the formal health facility. This is recommended for future research.

Conclusion

This study found that most of the PPMVs are registered with their umbrella association as a pre-requisite before they can operate a shop in the locality. This is promising as this could be explored as a window for monitoring and strengthening the activities of the PPMVs. Even though, there were drug hawkers who are unregistered, the data-base provided through the membership registration can serve as a regulatory mechanism on the activities and operations of the PPMVs and also help to track the activities of the non-registered members who are perceived to be selling unwholesome drugs in the community.

While there was relatively strong collaboration among the PPMVs, there seems to be very limited cooperation or collaboration between the PPMVs and the Pharmacists. This will, no doubt, constitute a stumbling block to the mutual benefit in terms of knowledge update in service delivery and training opportunities that would have been possible. Similarly, this absence of collaboration may also have stemmed from perceived threat to business or business competition on the part of the trained Pharmacists.

Recommendations

In order to strengthen this important health service bridge, we recommend, as a stop-gap measure, that the government should strengthen the service rendered by the PPMVs and at the same time strive towards improving the health system in Nigeria by kick-starting a process that will bring about enhanced engagement of the PPMVs in the health sector to harness their capacity towards bringing healthcare nearer to the clients' homes. As part of this, we recommend a scale-up research that will map the location of these PPMVs in relation to geographical accessibility / population densities and how far or close they are to public / formal health facility in each community in order to establish ease of access or patronage. In the long term, the government should strengthen the health system to stem the tide of drug stock-outs in health facilities; improve geographical access and financial protection through Health Insurance Schemes in order to make functional health provision readily available in rural settings.

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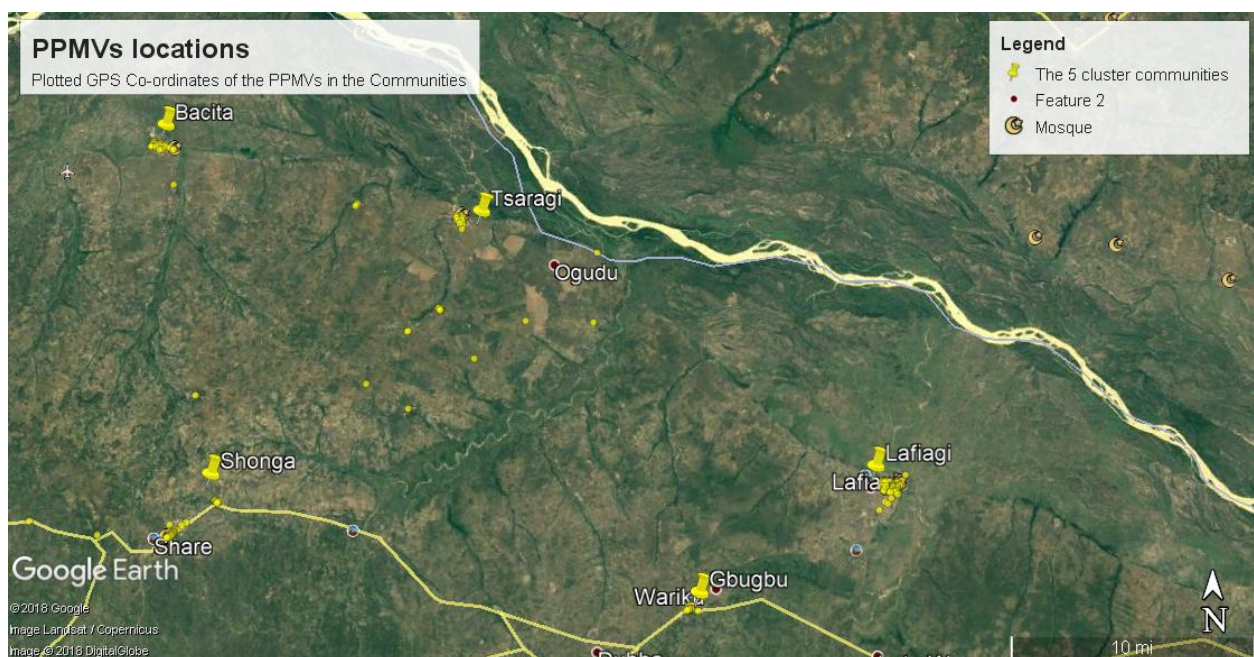


Figure 2: GPS location of the study areas/PPMV's shops as shown on Google Earth Map

Table 3: GPS Co-Ordinates of PPMV Shops in Edu LGA, Kwara State

Bacita N=22	Shonga N=29	Lafiagi N=42	Gbugbu N=14	Tsaragi N=29
N 9.06594 E 4.95501	N 09°00.746 E 005°09.098	N 08.85401 E 005.41794	N 08.78236 E 005.29425	N 08.82423 E 004.97714
N 9.06790 E 4.95475	N 09°01.203 E 005°09.074	N 08.85567 E 005.42033	N 08.78414 E 005.29474	N 08.82695 E 004.98017
N 09.06669 E 004.95993	N 09°01.254 E 005°09.054	N 08.84678 E 005.41683	N 08.78414 E 005.29396	N 08.82547 E 004.97885
N 9.06651, E4.95215	N 08°57.689 E 005°08.3447	N 08.85425 E 005.42185	N 08.78241 E 005.29486	N 08.82604 E 004.98004
N 09.06454 E004.96650	N 09°01.273 E 005°09.088	N 08.85379 E 005.41803	N 08.78220 E 005.29301	N08.82769 E 004.98016
N 09.06671 E 004.96116	N 09°01.198 E 005°09.141	N 08.85082 E 005.41648	N 08.78222 E 005.29363	N 08.82723 E 004.98027
N 9.06670 E 4.95817	N 09°00.972 E005°09.016	N 08.84342 E 005.41472	N 08.78437 E 005.29370	N 08.82843 E 004.98240
N 9.06609 E 4.95205	N 09°01.105 E 005°09.092	N 08.85625 E 005.41589	N 08.78249 E 005.29342	N 08.82668 E 004.98059
N 9.06663 E 4.95291	N 09°00.893 E 005°09.142	N 08.85309 E 005.41800	N 08.78228 E 005.29296	N 08.82490 E 004.97859
N 9.06415 E 4.95901	N 08°57.771 E 005°08.283	N 08.85373 E 005.41815	N 08.78147 E 005.29156	N 08.82738 E 004.97797
N 09.06534 E 004.96415	N 09°01.107 E 005°08.933	N 08.85404 E 005.41369	N 08.78371 E 005.29491	N08.82408 E 004.97658
N 9.06812 E 4.95782	N 09°01.242 E 005°09.046	N 08.85150 E 005.41492	N 08.78346 E 005.29264	N 08.83135 E 004.98514
N 09.06913 E 004.95365	N 09°01.217 E 005°08.895	N 08.85517 E 005.41823	N 08.78179 E 005.29240	N 08.82467 E 004.97778
N 9.06399 E 4.95754	N 08°57.780 E 005°08.323	N 08.85235 E 005.41763	N 08.78092 E 005.29839	N 08.82572 E 004.97949
N 9.04136 E 4.96798	N 09°01.024 E 005°09.113	N 08.85417 E 005.41802		N 08.82647 E 004.97916
N 09.06770 E 004.95690	N 08°57.723 E 005°08.358	N 08.85185 E 005.41226		N 08.84604 E005.00477
N 09.06788 E 004.95277	N 09°01.198 E 005°08.887	N 08.85630 E 005.41314		N 08.83177 E 004.97792
N 09.04063 E00496741	N 09°01.276 E 005°08.859	N 08.85673 E 005.41406		N08.84447 E 005.00615
N 9.06693 E 4.95557	N 08°55.889 E 005°09.668	N 08.83966 E 005.40938		N08.90937 E004.98932
N 9.06546 E4.96209	N 08°57.228 E 005°14.091	N 08.85287 E 005.42034		N08.84509 E005.00621
BACITA...CONT'D	SHONGA CONT'D	LAFIAGI...CONT'D		TSARAGI CONT'D
N 09.06403 E 004.96639	N 08°54.969 E 005°05.676	N 08.86057 E 005.42608		N08.84556 E005.00733
N 09.06723 E 004.95699	N 08°54.060 E 005°07.261	N 08.85409 E 005.41122		N08.82568 E004.93448
	N 08°59.852 E005°14.223	N 08.85690 E 005.41177		N08.83378 E004.89218
	N 08°56.924 E 005°07.185	N 08.85653 E 005.41662		N08.82738 E004.98112
	N 09°01.646 E 005°05.041	N 08.85016 E 005.41614		N08.82556 E004.97937
	N 09°01.157 E005°09.077	N 08.85664 E 005.41482		N08.83301 E004.98777
	N 08°57.287 E 005°11.563	N 08.84456 E 005.41293		N08.86305 E005.00064
	N 08°56.898 E 005°07.155	N 08.84902 E 005.42087		N08.86283 E005.00085
		N 08.85153 E 005.41666		
		N 08.85707 E 005.42317		
		N 08.85072 E 005.41926		
		N 08.85034 E 005.41888		
		N 08.85109 E 005.41981		
		N 08.85129 E 005.42034		
		N 08.85209 E 005.42025		
		N 08.85387 E 005.42032		
		N 08.85513 E 005.42328		
		N 08.85635 E 005.42109		
		N 08.85611 E 005.42062		
		N 08.85475 E 005.41798		
		N 08.85111 E 005.41237		