Original Article

Knowledge, Attitude, and Practice of Patient Referral among Patent and Proprietary Medicine Vendors in Obio-Akpor, Rivers State

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Abstract

Background: With the limited number of trained health care providers in Nigeria, PPMVs are inevitable, especially in rural areas for the supply of drugs, and integration through appropriate referral practices is quintessential. This study assessed the knowledge, attitude, and practice of patient referral among PPMVs in a setting with limited hospital infrastructure.

Methodology: This cross-sectional descriptive survey was conducted in Obio-Akpor, Rivers State using a structured questionnaire that measured the participants' socio-demographic characteristics as well as knowledge, attitude, and practice of patient referral. Descriptive and inferential analyses were conducted with SPSS version 25 and a p-value ≤0.05 was considered significant.

Results: Most of the respondents reported moderate knowledge, attitude, and practice (62.4%, 73.4%, and 58% respectively) of patient referral. Multivariate analysis showed statistically significant inverse relationships between years of experience and odds of their knowledge, attitude, and practice of referral. PPMVs with 3 years of experience reported significantly higher odds of adequate knowledge (AOR = 178.96; 95%CI: 60.15 – 532.49; p-value <0.005), attitude (AOR = 7.38;95%CI: (3.78 – 14.40; P-value <0.005) and practice (AOR = 131.56; 95%CI: 53.50 – 323.51; p-value <0.005) than those with above 10 years of experience after controlling for the effects of other variables. The most frequently reported barrier to referral was fear of losing clients while most referrals were for laboratory investigations.

Conclusion: Most PPMVs reported moderate knowledge, attitude, and practice of patient referral. PPMVs were aware of the benefits of referrals but concerned about losing their clients to formal healthcare facilities.

Keywords: Attitude; Barriers; Facilitators; Knowledge; Patent Medicine Vendor; Practice, Referral.

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Quick Response Code:

Introduction

Universal Health Coverage (UHC) is at the core of current global healthcare delivery debates and agendas[1]. UHC means that individuals receive the health care they require, when and where it is required, with care provided in user-friendly ways[2], and embeds the mobilization of adequate resources for health[3,4]. The quest to address the barriers to UHC in Nigeria through the series of health sector reforms at national and subnational levels has been since the 1980s. About 70% of health services in Nigeria are provided by the private sector, which also accounts for 65% of all health expenditures in the nation[5].

Patent and Proprietary Medicine Vendors (PPMVs) play vital roles in the provision of health services especially for underserved populations in low- and middle-income countries[6] but there are indications of poor linkage with formal health services. PPMVs are operators of drug retail outlets selling over the counter (OTC) medicines as well as prescription drugs but do not have formal training as pharmacists[6]. Because they provide access to affordable drugs and medical advice to the local population, there is a growing interest in working with these informal healthcare providers to improve the coverage of care for common medical disorders. Their strategic location in neighborhoods enables the quick distribution of medications and healthcare information, aiding in the control of communicable and non-communicable diseases in the community[6,7].

Based on their accessibility, affordability, and convenience, PPMVs play a critical role in providing access to care for common health issues. Thus, serving as critical allies in extending healthcare access to hard-to-reach and underserved population groups, especially in countries in transition[8]. However, limited training, quackery, involvement with counterfeit medicines, and irrational uses of medicine especially antibiotics and injections among PPMVs pose great challenges. To enhance the accessibility and quality of healthcare services in resource-constrained settings, collaboration among the health regulatory bodies, formal healthcare providers, and PMVs within the broader strategy of task-shifting becomes imperative[9].

A referral is a process in which a health care provider at a lower level of the health service seeks assistance or requests a takeover of the management of a medical case by a more equipped and/or specially trained person with better resources operating at a higher level[10,11]. The success of a community's referral system is influenced by the clients/community members who use it, the informal healthcare providers, and facility-based healthcare staff[12,13]. PPMVs are expected to have adequate knowledge, positive attitudes, and competence in undertaking referrals to formal care facilities. Recognizing their crucial role in bridging gaps in health service delivery, and improving access to essential medicines, it is crucial to strengthen linkages through appropriate referral mechanisms as well as address challenges bedeviling the operations of PPMVs for a more equitable and efficient healthcare system.

As a result of their dominance across the community, well-trained and regulated PPMVs could support Nigeria's accelerated journey toward attaining UHC. The task-shifting policies Nigeria implemented in 2014/2015 place higher demands on PPMVs to serve as community-oriented resource persons (CORPs), assisting in the treatment of HIV/AIDS, TB, malaria, and maternity and child health[14]. For example, the National Malaria Elimination Programme (NMEP) modified its policy in 2015 to accommodate the conduct of RDTs for malaria case management by PPMVs[15].

PPMV's operations within the community require regulation and supportive supervision to ensure the delivery of equitable quality and safe care in their rapidly expanding roles under a task-shifting regime. Adequate linkage to the formal healthcare providers through the process of referral is a sine qua non in ensuring that patients receive comprehensive, safe, and prompt care. Limited studies on patient referral practices among PPMVs are in relation to specific populations/disease conditions (children under 5 years, malaria testing and treatment, oral contraceptive pill use)[16]. This study assessed the knowledge, attitude, and patient referral practices among PPMVs in Obio-Akpor LGA as well as investigated barriers and facilitators of patient referral among these PPMVs.

Methodology

Study design

This descriptive cross-sectional study design conducted in Obio-Akpor LGA of Rivers State was used to measure the participants' knowledge, attitude, and practice of patient referral, as well as possible associations of their characteristics with the patient referral.

Study Area

This study was conducted in the Obio/Akpor Local Government Area (LGA) of Rivers State. Obio-Akpor LGA covers 260 km[17]with a 2006 Census population of 464,789[18]. The main languages are English and Ikwerre and the prominent religion is Christianity. There are 17 Political Wards in Obio/Akpor LGA withone to four communities making up each ward[17].

Study Population

The Obio-Akpor branch of the National Association of Patent and Proprietary Medicine Vendors (NAPPMED) is divided into two administrative units that independently report to the National Association. All PPMVs registered with the Rivers State branch of NAPPMED in Obio/Akpor LGA (Units 1 and 2) made up the research population. Although found in all areas of the LGA, the PPMVs are more concentrated in and around interior settlements and close to the marketplaces.

Eligibility criteria

All PPMVs registered with their association (NAPPMED) in both units of Obio-Akpor LGA were included in the study if they consented.

Sample size

The sample size was determined using Cochran's formula for descriptive cross-sectional surveys we used the formula for descriptive studies (19)

Sample size (n) = $(Z_{(1-\alpha/2)})^2 * P(1-P)/d^2$ where:

$Z_{(1-\alpha/2)}$ = Standard normal variate (at 5% type 1 error which is 1.96); P is 0.5 (on the assumption that 50% of PPMVs had adequate knowledge of referral) and d which is the precision is 0.05. A 10% non-response rate was factored in, giving us a final sample size of 346.

Sampling technique

A stratified random sampling technique was deployed to ensure that each administrative unit in the LGA was adequately represented. The LGA has two administrative units, and simple random sampling was used to select an equal number of PPMVs from each stratum of the LGA. The list of registered PPMVs in the administrative areas under the LGA was used as the sampling frame. The total sample size of 346 questionnaires was divided equally into the two administrative areas with each allocated a sample of 173.

Study tool

Data was collected using an interviewer-administered semi-structured questionnaire. The questionnaire was developed by the researchers following a review of the literature. It had two sections; Section A captured the independent variables while Section B had the dependent variables. The independent variables included demographic data (age, sex, marital status, degree of education, occupation), prior patient referral training, and exposure to health education, whereas the dependent variables were knowledge, attitude, practice levels, facilitators, and barriers to patient referral. All the questions were close-ended, and respondents were expected to select just one answer per question.

Validity and reliability of the study tool

By first employing a pre-tested questionnaire, measurement bias was reduced. Scale internal consistency reliability was measured by the Cronbach's alpha coefficient and estimates >0.7 were considered acceptable. The Cronbach's alpha for knowledge, attitude, and practice were 0.8, 0.85, and 0.87 respectively. To enhance comprehensibility and minimize errors in data collection, the questionnaire was created to be straightforward, concise, and properly formatted.

Data Collection

An interviewer-administered semi-structured questionnaire was used to collect data. Patent medicine vendor demographics, knowledge of patient referral, attitude, self-reported patient referral behaviors, facilitators, and barriers to referral were collected.

Data Analysis

The questionnaires were reviewed for random and systematic errors and corrections made. Questionnaires were manually sorted out, data cleaned and then coded before entry into the computer. IBM SPSS software, version 25 for Windows, was used to analyze the data. Each question was scored on a 5-point response scale which was transformed into percentages, items measuring each of the main constructs that represent the dependent variables were summated and thresholds were determined for adequate score (>75%), moderate (50-75%) and poor score (< 50%). Results from descriptive analysis were presented in frequency tables while inferential analysis and bivariate and multivariate ordinal logistics regressions were conducted to examine factors associated with the level of knowledge, attitude, and practice of referrals among PPMVs. Ordinal logistics functions of the generalized linear model with a multinomial probability distribution and cumulative logic-linked functions were carried out. This was done using SPSS because the dependent variable was ordinal, and the independent variables were categorical.

Ethical considerations

Approval for this study was obtained from the Ethics Committee of the University of Port Harcourt (Ref: UPH/R&D/REC/EXEC/049 dated 12th September 2023). The point of entry to the patent and proprietary medicine vendors was through the chairpersons of the two NAPPMED units that comprise NAPPMEDObio/Akpor LGA. Prior to the survey's launch, a signed consent approval was obtained. The informed consent form and participant information sheet were distributed to each PPMV taking part in the trial. Furthermore, it was made clear that participation was entirely voluntary, that the study would not entail any dangerous procedures, and that participants were allowed to leave the process at any time, even after providing their initial assent. Additionally, they received assurances on the privacy of the data they gave because it was given in aggregate form and could not be linked to any specific individuals or locations.

Results

This section presents the results of knowledge, attitude, and patient referral practices of patent and proprietary medicine vendors in Obio-Akpor LGA of Rivers State.

Table 1 below shows the respondents' socio-demographic characteristics. A response rate of 97.7% was achieved with 338 of the 346 questionnaires that were distributed being adequately filled out and deemed appropriate for analysis. Of the 338 respondents, 50.6% were male and 49.4% were female. Furthermore, the majority (27.8%) of the respondents were within the age range of 30-39 years, while 24.3% each were within the age range of 20- 39 years and over 50 years old. More so, a larger proportion (20.4%) of the respondents had tertiary or other forms of education. The experience evaluation revealed that 30.2% of the respondents had less than 3years of experience, 28.7% had 4-10 years of experience and 41.1% had more than 10 years of experience with patent and proprietary medicine vendors.

Table 1: Socio-demographic characteristics of the respondents

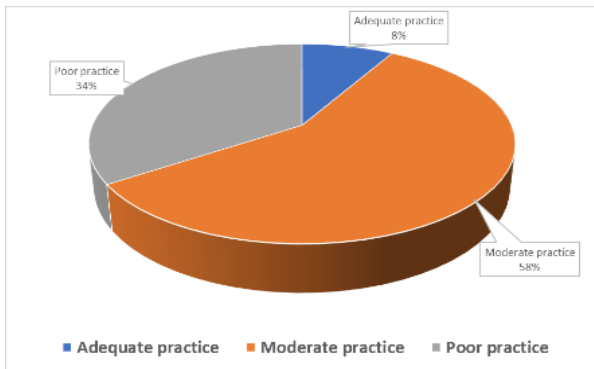| Variable	Frequency	Percentage
Gender		
Male	171	50.6
Female	167	49.4
Age		
20-29years	82	24.3
30-39years	94	27.8
40-49years	80	23.6
>50years	82	24.3
Education		
Non-formal education	67	19.8
Primary	67	19.8
Secondary	66	19.5
Tertiary	69	20.4
Others	69	20.4
Years in practice (Experience)		
<3years	102	30.2
4-10years	97	28.7
>10years	139	41.1
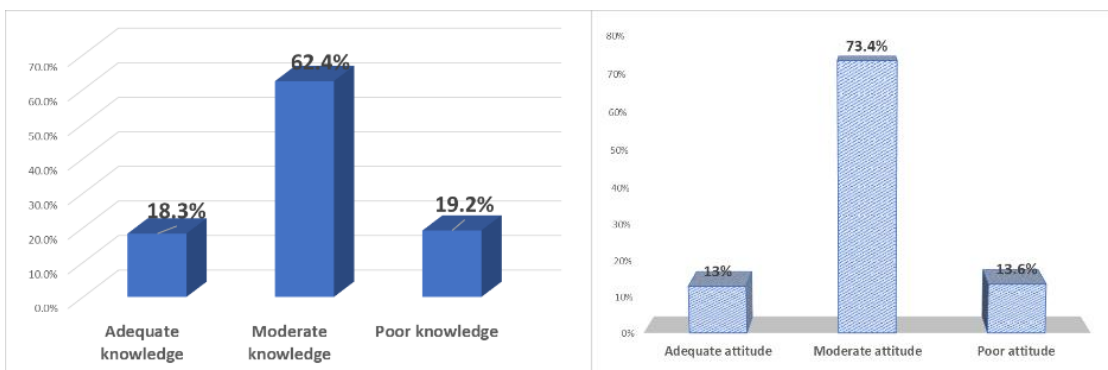
Fig 1: Knowledge, attitude, and practice score of the respondents

Knowledge of client referral of patent and proprietary medicine vendors (PPMVs) in Obio/Akpor LGA of Rivers State is presented above, it indicates that 18.3% had adequate knowledge, 62.4% had moderate knowledge and 19.2% had poor knowledge. The attitude of patent and proprietary medicine vendors (PPMVs) in Obio/Akpor LGA of Rivers State towards client referral presented above, shows that 13% had an adequate attitude, 73.4% had a moderate attitude and 13.6% had a poor attitude. While the practice of client referral by the patent and proprietary medicine vendors (PPMVs) in Obio/Akpor, Rivers State is shown in the pie chart in Figure 1 above, it indicates that 8% of the respondents had adequate practice, 58% had moderate practice although 34% of the respondents had poor practice.

Table 2: Relationship between PPMV background characteristics and level of knowledge, attitude, and practice of patient referral

		Level of knowledge			
Variables	Categories	Bivariate analysis		Multivariate analysis	
		OR (95%CI)	p-value	AOR (95%CI)	p-value
Gender	Male	0.98 (0.64 – 1.50)	0.923	0.94 (0.59 – 1.52)	0.814
	Female	1		1	
Age	20 – 29	1.63 (0.88 – 3.03)	0.123	1.32 (0.67 – 2.63)	0.423
	30 – 39	1.21 (0.67, 2.21)	1.212	0.87 (0.45 – 1.68)	0.688
	40 – 49	0.92 (0.50 – 1.71)	0.798	0.53 (0.26 – 1.06)	0.072
	50 and above	1		1	
Education	No Formal	0.78 (0.40 – 1.53)	0.477	1.06 (0.51 – 2.22)	0.879
	Primary	0.95 (0.48 – 1.89)	0.891	0.93 (0.44 – 1.97)	0.932
	Secondary	0.78 (0.39 – 1.55)	0.480	0.77 (0.36 – 1.62)	0.488
	Tertiary	0.75 (0.38 – 1.47)	0.397	0.82 (0.40 – 1.71)	0.603
	Others	1		1	

Years of experience in trade	≤3 years	158.6 (54.16 – 464.58)	0.000	178.96 (60.15 – 532.49)	0.000
	4 – 10 years	18.12 (6.91 – 47.51)	0.000	20.50 (7.75 – 54.25)	0.000
	>10 years	1		1	

Variables	Categories	Level of attitude			
		Bivariate analysis		Multivariate analysis	
		OR (95%CI)	p-value	AOR (95%CI)	p-value
Gender	Male	1.23 (0.76 – 1.98)	0.401	1.21 (0.73 – 1.20)	0.464
	Female	1		1	
Age	20 – 29	0.13 (0.06 – 0.28)	0.000	1.10 (0.44 – 0.22)	0.000
	30 – 39	0.32 (0.16 - 0.67)	1.212	0.26 (0.12 – 0.55)	0.000
	40 – 49	0.80 (0.40 – 1.61)	0.539	0.65 (0.31 – 1.37)	0.254
	50 and above	1		1	
Education	No Formal	1.07 (0.50 – 2.26)	0.871	0.92 (0.42 – 2.04)	0.843
	Primary	1.14 (0.54 – 2.43)	0.732	0.96 (0.44 – 2.11)	0.915
	Secondary	0.77 (0.36 – 1.65)	0.500	0.76 (0.34 – 1.68)	0.494
	Tertiary	0.64 (0.30 – 1.36)	0.245	0.70 (0.32 – 1.52)	0.360
	Others	1		1	
Years of experience in trade	≤3 years	5.97 (3.12 – 11.41)	0.000	7.38 (3.78 – 14.40)	0.000
	4 – 10 years	1.56 (0.86 – 2.85)	0.147	1.58 (0.85 – 2.93)	0.152
	>10 years	1		1	

Variables	Categories	Level of practice			
		Bivariate analysis		Multivariate analysis	
		OR (95%CI)	p-value	AOR (95%CI)	p-value
Gender	Male	1.08 (0.71 – 1.65)	0.713	1.23 (0.73 – 2.07)	0.434
	Female	1		1	
Age	20 – 29	0.50 (0.23 – 1.10)	0.085	1.32 (0.67 – 2.63)	0.423
	30 – 39	0.34 (0.16 - 0.73)	0.005	0.87 (0.45 – 1.68)	0.688
	40 – 49	0.27 (0.13 – 0.60)	0.001	0.53 (0.26 – 1.06)	0.072
	50 and above	1		1	

	No Formal	1.59 (0.70 – 3.59)	0.269	1.06 (0.51 – 2.22)	0.879
	Primary	1.58 (0.70 –3.56)	0.268	0.93 (0.44 – 1.97)	0.932
Education	Secondary	2.95 (1.27 – 6.87)	0.012	0.77 (0.36 – 1.62)	0.488
	Tertiary	1.38 (0.63 – 3.05)	0. 422	0.82 (0.40 – 1.71)	0.603
	Others	1		1	
Years of experience in trade	≤3 years	98.86 (40.38 –223.02)	0.000	131.56 (53.50 – 323.51)	0.000
	4 – 10 years	7.94 (3.67 – 17.18)	0.000	8.89 (4.07 – 19.41)	0.000
	>10 years	1		1	

From the data presented in the table, the odds of having adequate knowledge were slightly lower among males compared to females in both the bivariate (OR = 0.98; 95% CI: 0.64 – 1.50) and multivariate models (OR = 0.94; 95%CI: 0.59 – 1.52). These findings were, however, not statistically significant. There were statistically significant inverse relationships between years of experience and odds of having adequate knowledge as PPMV with 3 years of experience reported significantly higher odds of adequate knowledge (AOR = 178.96; 95%CI: 60.15 – 532.49; p-value <0.005) than those with more than 10 years of experience after controlling for the effects of other variables. Similarly, those with 4 – 10 years of experience reported significantly greater odds (AOR = 20.50; 95%CI: 7.75 – 54.25; p<0.001) compared to those with more than 10 years of experience

For attitude, bivariate analysis showed that individuals aged 20-29 have an odds ratio of 0.13 (95% CI: 0.06-0.28) compared to individuals aged 50 and above, indicating a significantly decreased likelihood of adequate patient referral attitude. Similarly, in the multivariate analysis, individuals aged 20-29 still have a significantly decreased likelihood of patient referral after adjusting for other variables, with an adjusted odds ratio of 1.10 (95% CI: 0.44-0.22), and a p-value of <0.005.

For the bivariate analysis of attitude scores, the odds ratio (OR) for being male versus female is 1.08, but it is not statistically significant (p = 0.713). After adjusting for other variables in the multivariate analysis, the adjusted odds ratio (AOR) remains non-significant at 1.23 (p = 0.434). This suggests that gender does not significantly influence practice once other factors are considered.

There is however a significant association between age categories and adequate referral practice. Individuals aged 30-39 and 40-49 have decreased odds ratio; 0.34 (0.16 - 0.73) and 0.27 (0.13 – 0.60) respectively of adequate referral practice compared to those aged 50 and above.

However, in the multivariate analysis, these associations lose significance (AOR = 0.87; 95%CI: 0.45 – 1.68; p-value >0.005 and AOR = 0.53; 95%CI: 0.26 – 1.06; p-value >0.005) after adjusting for other variables. This indicates that age may not independently predict the outcome once other factors are considered.

Both in the bivariate and multivariate analyses, individuals with more years of experience in the trade have significantly higher odds of adequate referral practice compared to those with fewer years of experience. PPMVs with ≤3 years of experience reported significantly higher odds of adequate referral practice (AOR = 131.56; 95%CI: 53.50 – 323.51; p-value <0.005) than those with more than 10 years of experience after adjusting for other variables. Similarly, those with 4 – 10 years of experience reported

significantly greater odds (AOR = 8.89; 95%CI: 4.07 – 19.41; p<0.001) compared to those with more than 10 years of experience in the trade.

Table 3: Barriers and facilitators to patient referral among PPMVs in Obio/Akpor, Rivers state (n=338).

Barriers to Patients' Referral	Frequency	Percentage
Inadequate training	48	14.2
The inability of clients to afford the cost of care at health centers	60	17.8
Limited access to health facilities	63	18.6
Inadequate communication with health facilities	67	19.8
The fear of potentially losing customers	100	29.6
Facilitators of Patient Referral		
Lack of improvement following initial treatment	34	10.1
Improved trust and confidence in my practice	34	10.1
Non-availability of other medications/treatment options	73	21.6
The severity of the client's condition at the time of presentation	94	27.8
The need for diagnostic tests	103	30.5

Table 3 highlights barriers to patient referrals among PPMVs in Obio/Akpor LGA. Challenges faced by respondents include inadequate training (14.2%), limited access to health facilities (18.6%), poor communication with these facilities (19.8%), high costs of care (17.8%), and fear of losing customers (29.6%). Factors influencing referrals by PPMVs include the severity of the client's condition (27.8%), need for diagnostic tests (30.5%), non-availability of other treatments (21.6%), lack of improvement post-treatment (10.1%), and improved trust in their practice (10.1%).
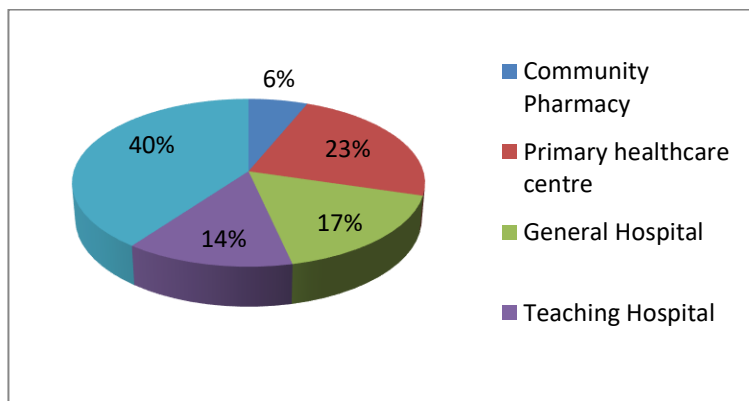

Fig. 2: Common facilities patients were referred

Discussion

The study which assessed the knowledge, attitudes, and patient referral practices of Patent and Proprietary Medicine Vendors (PPMVs) in Obio/Akpor, Rivers State, found that a high proportion of respondents had moderate knowledge, attitude, and practice (62.4%, 73.4% and 58% respectively) of patient referral and it was significantly associated with their age and experience in the trade. It also highlighted some factors that functioned as facilitators and barriers to patient referrals among these PPMVs. The findings shed light on distinct PPMV responsibilities in healthcare as well as the variables affecting their referral habits. The facilitators identified in this study include the severity of the client's condition, the need for diagnostic tests, and the accessibility of alternative treatments. Barriers to referrals

included insufficient training, limited access to healthcare facilities, poor communication, clients' financial constraints, and the fear of losing customers. Addressing these barriers and promoting education and training can enhance the effectiveness of patient referrals and contribute to improved healthcare outcomes.

The findings of the study show that for knowledge, most of the respondents had adequate and poor knowledge of referral practice, while the majority had moderate knowledge of client referral. This shows that PPMVs in Obio/Akpor LGA of Rivers State know proper client referrals when faced with health conditions beyond their expertise. This level of habit and knowledge application is in line with the assertion of the Nigerian Federal Ministry of Health[20,21] that PPMVs are permitted to offer a limited number of over-the-counter pharmaceuticals but are not permitted to sell prescription medications such as antibiotics or undertake invasive medical procedures such as malaria quick diagnostic tests due to regulatory constraints.

The Level of Knowledge of respondents in this research can be said to be a major influence on the knowledge of referral of patients as is presented in the socio-demographic table where (20.4%) of the respondents had tertiary, or another form of education. While most of the respondents have long years of experience, 28.7% had 4-10 years of experience and 41.1% had more than 10 years of experience with patent and proprietary medicine. This is in line with the results of a study conducted in Rivers State in 2012[22], where most of their respondents had formal education: about half had secondary education and one-third had post-secondary education. Of the total respondents, about half had work experience ranging between 0 to 9 years. However, in comparison to their level of knowledge and education, PPMVs' understanding of the new National Malaria Treatment Policy was limited. Only one-fifth were aware of the policy suggestion regarding the usage of ACTs. This is in line with the test of association between the respondents' knowledge, attitude and practice with their experience in this research and the result of the influence of knowledge of referral of this research above where the respondent's knowledge (χ^2=162.645, p-value=0.00), attitude (χ^2=48.380, p-value=0.00), and practice score (χ^2=178.172, p-value=0.00) have an association with their experience at 99% confidence interval.

In assessing the respondents' attitudes, the study revealed that most PPMVs had a moderate attitude towards client referral. However, 13% of the PPMVs displayed an adequate attitude while 13.6% demonstrated a poor attitude. Nevertheless, this is still considered a positive attitude overall.

The variance in referral attitude amongst participants in this research could be attributed to the level of education and level of training provided for the patent and proprietary medicine vendors (PPMVs). This can be seen in the interventional research findings conducted in 2023[23], where PPMVs contributed to 15% and 20% of all positive cases identified before and after interventions, respectively. However, the positive outcome is lower compared to the findings of this present research which indicates that 8% of the respondents had adequate practice, 58% had moderate practice and 34% of the respondents had poor practice. The training program resulted in an increase in referrals to DOTS and positive cases.

Some factors influence patient referral by the PPMVs, these include the severity of the client's condition at the time of presentation; although low in percentage, it is in line with the assertion of a previous study[24], where most of the participants were advised to seek a referral for severe malaria. Additionally, focus group discussions revealed that the severity of the child's illness, the drug requests of parents or caregivers, and their perceived ability to afford the medication were factors that influenced PPMVs' treatment practices for malaria. This is like the need for diagnostic tests which is found to be at (30.5%). This is lower compared to the results of a 2021 study[26], where more than half of individuals sought medical rapid tests from patent medicine vendors (PMVs). Availability of other medications/treatment options was another factor and this most times leads to self-medication and poor referral practice.

The findings of this research show that some of the difficulties experienced by the PPMVs towards patient referrals were a result of inadequate training, which is consistent with the findings of a 2013 research conducted in South Eastern Nigeria[26], where it was reported that staff and patients were unaware of the referral system and the potential complications that would result from avoiding it.

Client's inability to pay the cost of care at health facilities also posed a barrier to patient referral, more than one-third of low-income individuals are underinsured (defined as spending more than 5% of family income on medical care), and 8% and 13% avoid or delay seeking medical treatment or prescription drugs, respectively in a previous study[27]. Avoiding or postponing medical care is highly associated with coverage under a high-deductible health plan where clients are required to make a significant out-of-pocket contribution before insurance payment begins. Aside from postponing care, this ugly situation can also result in depression and poverty.

Limitations of the study
The exclusion of unlicensed PPMVs from the study was one of its limitations which could affect the generalization of these findings to all PPMVs in the locality as unregistered and unauthorized PPMVs might operate differently from licensed ones.

A further constraint was the deployment of self-report measures, which have been shown to generate information bias. As with other cross-sectional studies, the goal of this study was to provide insights into issues that would help guide future research and interventions. However, because establishing temporality in this kind of study design presents challenges, the connections found in this study cannot be made to be causal.

Implications of the findings of the study
A better understanding of the knowledge, attitude, and patient referral practices of PPMVs can result in better health outcomes for patients through increased health education, better preventive care, lower healthcare costs, and more equitable access to health care. Improving patient outcomes in the community can be facilitated by fixing the identified flaws in the referral process involving the PPMVs.

This study identifies the need for collaboration and integration - encouraging collaboration between PPMVs and the formal healthcare system to improve referral pathways and access to equitable and comprehensive healthcare services. Healthcare services may become more efficient and well-coordinated if these cooperative efforts are strengthened.

The findings of this research can help build healthcare quality assurance protocols for patent medicine vendors. This could entail creating policies, curriculums, or certification procedures to make sure suppliers follow recommended procedures for patient referrals. Enhancing PPMVs' knowledge, attitudes, and practices (KAP) in patient referral necessitates training and certification programs. Comprehensive training is essential because it improves clinical skills and keeps PPMVs up to date with medical guidelines. On the other hand, case studies and hands-on workshops would emphasize the value of making timely referrals. By offering a certification process, one could promote positive patient relations and confidence by establishing professional standards and ethical care. All of this would contribute to the development of standardized referral procedures and efficient provider-to-provider communication, guaranteeing reliable and smooth patient treatment.

Potential risks in the healthcare system can be identified by understanding the knowledge, attitudes, and referral practices of patent medicine vendors. Reducing these risks can help build a stronger and more dependable healthcare delivery system.

Conclusion

PPMVs had moderate knowledge, attitude, and practice of patient referral even with high awareness of how referrals affected their clients' overall treatment outcomes. Constraints to referral practices at PPMVs include poor follow-up, the cost of accessing care at formal healthcare facilities, and the fear of losing customers. These require urgent interventions involving behavior change communication (BCC) and educational interventions for PPMVs. Regulatory agencies need to step-up monitoring, supervision, and capacity-building operations for PPMVs.

Conflict of Interest

The authors declare no conflict of interest.

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