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ORIGINAL RESEARCH article

Knowledge, attitude, and practice of patient referral among patent and proprietary medicine vendors in Obio-Akpor, Rivers State, Nigeria

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Keywords: Attitude, barriers, facilitators, knowledge, patent medicine vendor, practice, referral

Abstract: With the limited number of trained healthcare providers in Nigeria, patent and proprietary medicine vendors are inevitable and highly needed especially, in the rural areas for the supply of drugs to treat minor illnesses. The study assessed the knowledge, attitude, and practice of patient referral among patent and proprietary medicine vendors in an area with a limited hospital infrastructure. This cross-sectional descriptive survey was conducted in Obio-Akpor, Rivers State, Nigeria, using a semi-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. The majority of the respondents had moderate knowledge, attitude, and practice (62.4%, 73.4% and 58.0%, separately) of patient referral. Multivariate analysis carried out to ascertain the relationship between patent and proprietary medicine vendors' background characteristics and level of knowledge, attitude, and practice of patient referral showed a significant inverse relationship between years of experience and odds of having the attributes of interest. Patent and proprietary medicine vendors with three years of experience reported significantly higher odds of adequate knowledge (AOR=178.96; 95% CI=60.15-532.49; p<0.005), attitude (AOR=07.38; 95% CI=03.78-14.40; p<0.005) and practice (AOR=131.56; 95% CI=53.50-323.51; p<0.005) than those with above 10 years of experience after controlling for the effects of other variables. The study showed that most respondents have moderate knowledge, attitude, and practice of patient referral. The respondents were aware of how referrals affected their clients' overall treatment outcome, but they also highlighted factors that confine their referral practices making them suboptimal.

Introduction

Universal Health Coverage (UHC) is at the core of current global healthcare delivery debates and agendas [1]. UHC means that individuals receive the healthcare they require, when and where it is required, given in user-friendly ways [2], and embeds the mobilization of adequate resources for health [3, 4]. The government of Nigeria has attempted to address the issue by adopting several health reform programs. 70.0% of health services in Nigeria

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are provided by the private sector, which accounts for 65.0% of all health expenditures in the nation [5]. The significance of patent and proprietary medicine vendors (PPMVs) in the healthcare industry has boosted interest in working together to improve the coverage of suitable and essential care for common medical disorders [6, 7]. This increased interest is due to the realization of the distinctive benefits they provide in terms of accessibility and responsiveness to community requirements. Their strategic location in neighborhoods enables the quick distribution of medications and healthcare information, aiding in the fight against illnesses that pose a serious threat to the general public's health [6, 7]. In a nutshell, because of their accessibility, affordability, and convenience, PPMVs play a critical role in treating common health issues of public health importance. They are now crucial allies in extending healthcare access to neglected people [8]. To find a balance between accessibility and quality in the provision of healthcare services, cooperation is required between regulatory bodies, healthcare authorities, and patent medicine vendors [9].

A study defined referral as a process in which a healthcare provider at a lower level of the health service seeks the assistance of a better equipped and/or specially trained person with better resources at a higher level, to guide him/her in managing or to take over management [10, 11]. A community's referral system's success is influenced by a variety of variables, including the clients/community members who use it, informal healthcare providers, and facility-based healthcare staff [12, 13]. Given their prevalence, well-regulated and well-trained PPMVs could accelerate Nigeria's journey towards UHC. The task-shifting policies Nigeria implemented in 2014/2015 have increased the demand for PPMVs to serve as community-oriented resource persons, assisting in the treatment of HIV/AIDS, tuberculosis, malaria, and maternity and child health [14]. To allow PPMVs to do RDTs for malaria case management, the National Malaria Elimination Programme modified its policy in 2015 [15]. PPMVs require regulation and support to ensure the delivery of good quality care given the expansion of their roles and responsibilities. Few studies of PPMV patient referral practices have been undertaken, mostly in specific populations/disease conditions (children under five 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 and possible barriers and facilitators of patient referral among these PPMVs.

Materials and methods

Study design and area: This cross-sectional descriptive survey was used to measure the participants' knowledge, attitude, and practice of patient referral, as well as possible associations of their characteristics with patient referral. This study was conducted in Obio/Akpor, Rivers State. The local government area covers 260 km^2 and at the 2006 Census held a population of 464, 789 [17, 18]. The main languages are English and Ikwerre and the prominent religion is Christianity. There are 17 political wards in Obio/Akpor LGA and one to four communities make up each ward [17].

Study population: The Obio-Akpor branch of the National Association of PPMVs (NAPPMED) is divided into two units that independently report to the National level. All PPMVs registered with the Rivers State branch of NAPPMED in Obio/Akpor LGA (Units 1 and 2) make up the research population. In Obio/Akpor, PPMVs are a common sight on the streets. They tend to be more concentrated in and around interior settlements and close to the marketplaces in terms of distribution.

Inclusion and exclusion criteria: All patent medicine vendors registered with their association (NAPPMED) in both units of Obio-Akpor were included in the study. All PPMVs who declined participation in the survey were excluded from the study. PMVs who were not on the list were considered unregistered.

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Study tool: Data was collected by an interviewer-administered semi-structured questionnaire. The questionnaire was developed by the researchers following a review of the literature. The questionnaires were reviewed for random and systematic errors and corrections made. The questionnaires were manually sorted out, data cleaned and then coded before entry into the computer. 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, and 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 facets of these factors are covered in the questionnaire. The test for validity of the tool was carried out using Cronbach's alpha coefficient. All the questions were close-ended. Respondents were expected to select just one answer per question. Each question was scored, 5 points for a correct response and 0 points for a wrong response. The average score for each respondent was taken and the percentage was calculated. The adequate score is >75.0%, the moderate is 50.0%-75.0% and the poor score is <50.0% score.

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.

Validity and reliability of the study tool: The questionnaire was developed by the scientists, and reviewed by Prof. Daprim Ogaji of the Department of Health System Management, University of Port Harcourt, Choba, Nigeria, based on existing protocols. By first employing a pre-tested questionnaire, measurement bias was reduced. Scale reliability was measured by the Cronbach's alpha coefficient and estimates >0.7 were considered acceptable. To minimize errors, the questionnaire was created to be straightforward, concise, and properly formatted.

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 PPMVs was through the chairpersons of the two NAPMED units that comprise Obio/Akpor. Before 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.

Statistical analysis: To examine the correlation between categorical variables, frequency distribution tables, and cross-tabulations were made. Ordinal logistics functions of the generalized linear model with a multinomial probability distribution and cumulative logic-linked functions were carried out. The dependent variable was ordinal, and the independent variables were categorical. IBM SPSS software was used to analyze the data.

Results

Table 1 shows the respondents' socio-demographic characteristics in Obio-Akpor LGA of Rivers State, Nigeria. 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 males and 49.4% were females. 27.8% of the respondents were within the age range of 30-39 years, while 24.3% were within the age range of 20-39 years and the same for over 50 years old. Moreover, 20.4% of the respondents had tertiary or other form of education. The experience evaluation revealed that 30.2% of the respondents had less than three years' experience, 28.7% had 4-10 years of experience and 41.1% had more than 10 years of experience with PPMVs.

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Table 1: Socio-demographic characteristics of the respondents

	Frequency	Percentage
Gender		
Male	171	50.6
Female	167	49.4
Age		
20-29 years	82	24.3
30-39 years	94	27.8
40-49 years	80	23.6
> 50 years	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)		
< 3 years	102	30.2
4-10 years	97	28.7
> 10 years	139	41.1

Knowledge, attitude, and patient referral practice of PPMVs: In **Figure 1**, the level of knowledge of client referral PPMVs in Obio/Akpor is presented. 18.3% had adequate knowledge, 62.4% had moderate knowledge and 19.2% had poor knowledge. Regarding the attitude of PPMVs toward client referral, 13.0% had an adequate attitude, 73.4% had a moderate attitude and 13.6% had a poor attitude. In **Figure 1**, the practice of client referral by PPMVs is shown, 08.0% of the respondents had adequate practice, 58.0% had moderate practice, and 34.0% of the respondents had poor practice.

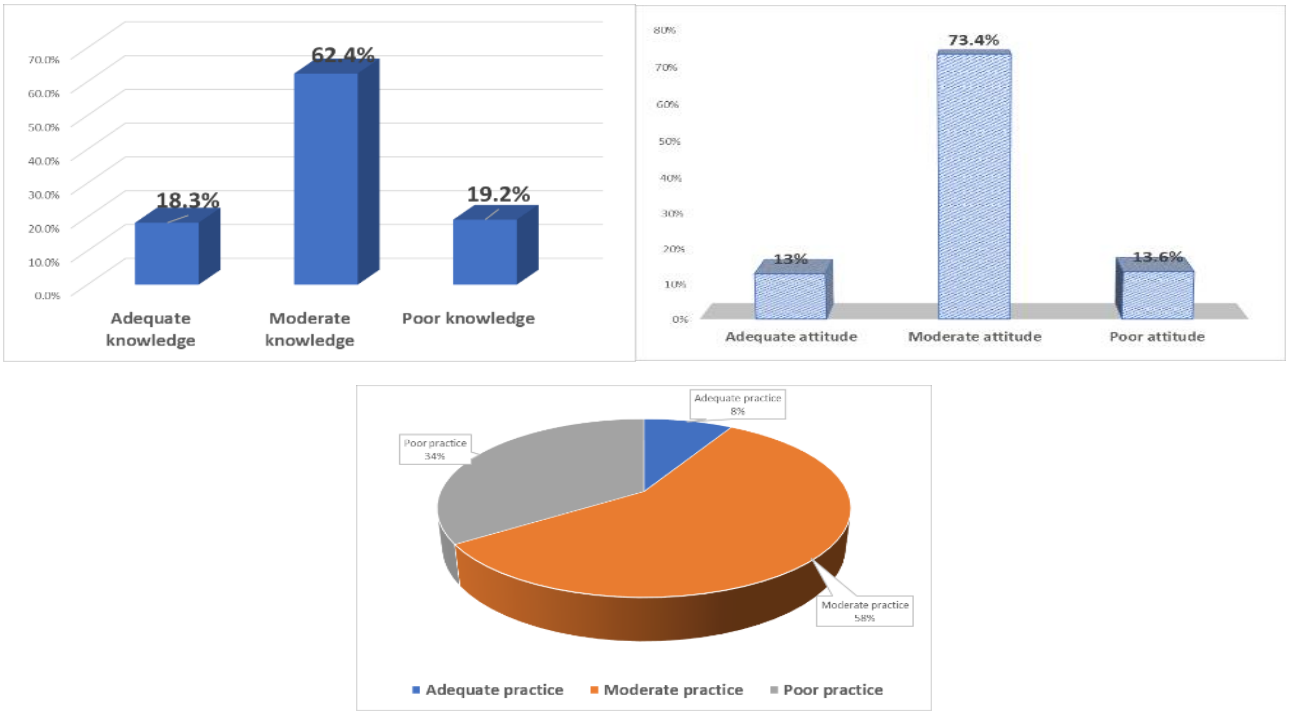

Figure 1: Knowledge, attitude, and practice score of the respondents

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In **Table 2**, the odds of having adequate knowledge were slightly lower among males compared to females in 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 not significant. There were significant inverse relationships between years of experience and odds of having adequate knowledge as PPMVs with three years of experience found significantly higher odds of adequate knowledge (AO=178.96; 95% CI=60.15-532.49; p<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 stated significantly more odds (AOR=20.50; 95% CI=7.75-54.25; p<0.001) compared to those with more than 10 years of experience.

Table 2: PPMVs background characteristics and 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	01		01	
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	01		01	
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	01		01	
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	01		01	
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	01		01	
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	01		01	
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	01		01	
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	01		01	
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	01		01	
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	01		01	
Education	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
	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	01		01	
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	01		01	

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In **Table 2**, 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 p<0.005. For the bivariate analysis of attitude scores, the OR for being male versus female is 1.08 but it is not significant (p=0.713). After adjusting for other variables in the multivariate analysis, the AOR remains non-significant at 1.23 (p=0.434). This suggests that gender does not significantly influence practice once other factors are considered. In **Table 2**, there is, however, a significant association between age categories and adequate referral practice. Individuals aged 30-39 and 40-49 have decreased OR; 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>0.005, and AOR=0.53; 95% CI=0.26-1.06; p>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<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.

Barriers and facilitators to patient referral among PPMVs: **Table 3** highlights barriers to patient referrals among PPMVs in Obio/Akpor. 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%), availability of other treatments (21.6%), lack of improvement post-treatment (10.1%), and improved trust in their practice (10.1%).

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

Common referral sites of PPMVs: **Figure 2** shows that 40.0% of the facilities were by laboratory while only 6.0% of the facilities were by the community pharmacy. 23.0% of the facilities were from primary healthcare, 17.0% of the facilities were from General hospitals, and 14.0% of the facilities were from Teaching hospitals.

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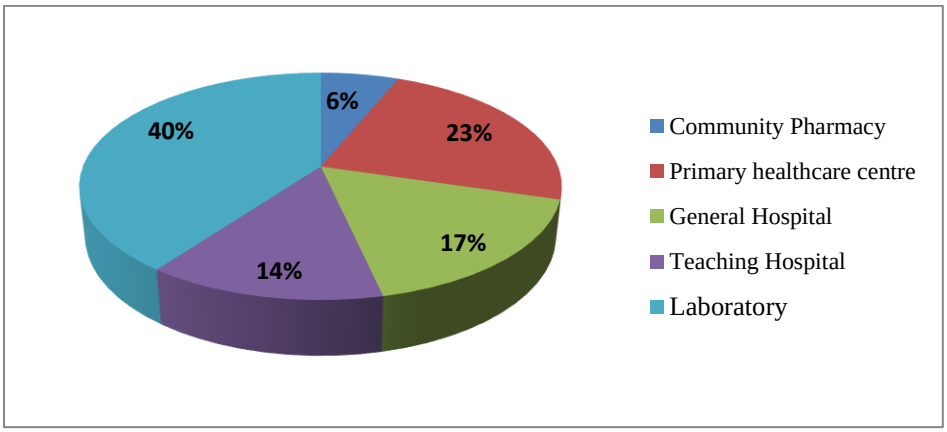

Figure 2: Common facilities patients were referred

Discussion

This study which assessed the knowledge, attitudes, and patient referral practices of PPMVs in Obio/Akpor, Rivers State, reported a high proportion of respondents had moderate knowledge, attitude, and practice of patient referral and was significantly associated with their age and experience in the trade. This study also highlighted some factors that acted as facilitators and barriers to patient referrals among these PPMVs. The findings shed light on distinct PPMV responsibilities in healthcare and the variables affecting their referral habits. The facilitators identified included 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. Thus, the findings show that for knowledge, most of the respondents had adequate and poor knowledge, while the majority had moderate knowledge of client referral. This shows that PPMVs in Obio/Akpor 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 [19, 20] 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 study can be said to be a major influence on the knowledge of referral of patients as is presented in the socio-demographic table where some of the respondents had tertiary, or another form of education. While most of the respondents have long years of experience had 4-10 years of experience and about half had more than 10 years of experience with patent and proprietary medicine. This is in line with Tobin-West and Adeniji [21], 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 up to nine 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 Artemisinin-Based Combination Therapy. This is in line with the test of association between the respondents' knowledge, attitude, and practice with their experience of this present research and the result of the influence of knowledge of referral of this research above where the respondent's knowledge score (X^2=162.645, p<0.001), attitude score (X^2=48.380, p<0.001), and practice score (X^2=178.172, p<0.001) have an association with their experience at 99% confidence interval.

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In assessing the respondents' attitudes, the study revealed that most PPMVs had a moderate attitude towards client referral. However, some of the PPMVs displayed an adequate attitude while some 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 PPMVs. This can be seen in the interventional research findings where PPMVs contributed to about 20.0% of all positive cases identified before and after interventions, respectively [22]. However, the positive outcome is lower compared to the findings of the present study which indicates that about 10.0% of the respondents had adequate practice, about half had moderate practice, and one-third of the respondents had poor practice. The training program resulted in an increase in referrals to Directory Observed Treatment, short courses, 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 Ihesie et al. [23], where the majority of the participants were advised to seek a referral for severe malaria. Also, 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 30.0%. This is lower compared to the results, where more than half of individuals sought medical rapid tests from PMVs [24]. 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 study show that some of the difficulties experienced by the respondents towards patient referrals were a result of inadequate training, which is consistent with the previous findings [25], where it was determined that staff members 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 According to Levesque et al. [26] more than one-third of low-income individuals are underinsured (defined as spending more than 05.0% of family income on medical care), and 08.0% and 13.0% avoid or delay seeking medical treatment or prescription drugs, respectively. Avoiding or postponing medical care is highly associated with coverage under a high-deductible health plan (in which a person must make a significant out-of-pocket contribution before insurance payment begins) and depression, poor perceived health, or poverty. However, to ensure the best service delivery and patient-centered care, regulatory organizations must also step up monitoring, supervision, and capacity-building operations for the PMVs.

Conclusion: Most PPMVs have moderate knowledge, attitude, and practice of patient referral. The respondents were aware of how referrals affected their clients' overall treatment outcome, but they also gave several factors that confine their referral practices making it sub-optimal. These include poor follow-up since there was no paperwork, the cost of accessing care at higher-level facilities, and the fear of losing customers. These points to an urgent need for behavior change communication and educational interventions for PPMVs.

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