Indian Journal of Pharmacy Practice | Association of Pharmaceutical Teachers of India

Knowledge and Practices of Patent Medicine Vendors in Rivers State, Nigeria: Implications for Malaria Control in Rural and Sub-Urban Communities

Charles I. Tobin-West*, Foluke O. Adeniji

Preventive and Social Medicine, University of Port Harcourt, Port Harcourt, Nigeria

ABSTRACT

Submitted: 20/1/2012 *Accepted: 15/2/12012*

Anti-malarial drugs rank high among the drugs administered by patent medicine vendors in Nigeria. Many local inhabitants erroneously perceive these vendors as well knowledgeable on health matters and can be relied on or trusted. This study aims to highlight the knowledge and practices of patent medicine vendors in order to stimulate policy regulation of their practices for effective malaria control and accelerated attainment of the Millennium Development Goals by 2015. A cross sectional study was carried out in October 2008 among 263 patent medicine vendors operating in Rivers State, Nigeria through a two-stage sampling design. All the data generated were analyzed with Epi Info ver 6.04d Statistical Software. Significant tests were performed with confidence level set at 95%. The medicine vendors consisted of 179(68.1%) male and 84(31.9%) female. Most of them had formal education: 148(56.3%) had secondary and 101(38.4%) post secondary education. Their knowledge on the new National Malaria Treatment Policy recommending the use of artemisinin combination therapy for the treatment of uncomplicated malaria in place of monotherapies like chloroquine and sulfadoxine-pyrimethamine was however low (20.5%). Only 24(9.1%) complied with the policy. But their knowledge on use insecticide treated nets was high 250(95.1%). Although most medicine vendors possessed basic education, their knowledge with respect to change in National Malaria Treatment Policy was very low. Adequate dissemination of the new policy and training of patent medicine vendors on rational use of Artemisinin Combination Therapy are necessary to accelerate malaria control in the State and in Nigeria.

Keywords: Patent Medicine Vendors, Malaria Control, Rivers State, Nigeria

INTRODUCTION

More than a million people die yearly of malaria in Africa.[1] Aside from the human toll, malaria wreaks significant economic havoc, resulting in a decreased Gross Domestic Product (GDP) by as much as 1.3% in countries with high levels of transmission.[1] In Nigeria, malaria is estimated to cause about 132 billion Naira (£530 million) direct loss to the economy.[2] Malaria control relies essentially on prompt and effective management of the clinical disease, but unfortunately, most early treatments in developing countries occur through self-medication with drugs recommended or bought from patent medicine vendors.[3,4] These patent medicine vendors (PMVs) are persons without formal training in pharmacy, who sell orthodox drugs and other pharmaceutical products on a retail basis for profit.[5,6] They take advantage of the persistent shortage of health manpower and are often the primary sources of orthodox drugs for both urban and rural populations[7, 8] and cut across the various socio-economic groups. However, because of the frequent drug stock-outs in public health facilities, the services of these patent medicine vendors become inevitable. Their drugs are perceived to be cheaper, while they are said to be friendlier and approachable by the locals unlike orthodox health care practitioners. Even where there are free medical care programmes in public health facilities, people are more likely to patronize medicine vendors to avoid the travel, inconvenience and especially time wastage associated with public health services.[9] Some have however, argued that the closeness of the patent medicine sellers to homes of majority of the people than the formal sector facilities could be responsible for the relationship existing between them.[10]

Over-the-counter (OTC) drugs are the only drugs authorized to be sold by the patent medicine vendors in Nigeria, but they generally sell all types of drugs based on their financial capability[11] and customer demands. Antimalarial drugs rank high among the drugs administered by these medicine sellers in Nigeria.[7] In addition to selling drugs, they are also a major source of advice about illness and health matters.[12] Many local

Address for Correspondence:

Dr. C.I. Tobin-West, Preventive and Social Medicine, College of Health Sciences, University of Port Harcourt, P. M. B. 5323, Port Harcourt, Nigeria,

E-mail: tobin3000@yahoo.com

inhabitants erroneously perceive them to be well knowledgeable on health matters and can be relied on or trusted. However, with widespread resistance to chloroquine and the shift in malaria treatment policy to artemisinin-combination therapy (ACTs) there are concerns that medicine sellers may continue to sell monotherapies like artemisinin derivatives alone because they are cheaper, thus potentially jeopardizing ACT efficacy in the long-term.13 There are also concerns that PMVs are indulged in the use of counterfeit drugs, incorrect dosing and irrational prescription practices.[14]

Goal six of the Millennium Development Declaration (MDGs) addresses malaria and targets to halt it and begin to reverse its incidence by 2015.[15] Similarly, the Global National Malaria Action Plan has the target to reduce malaria deaths to near zero by 2015.[16] It has been said that by addressing the problem of malaria most of the MDGs would also have been addressed. One cannot therefore undermine the important role PMVs can play in achieving this. This study aims to highlight the knowledge and practices of patent medicine vendors with a view to stimulating policy regulation for enhancing their role towards effective malaria control in rural and sub-urban communities for the accelerated attainment of the MDGs by 2015.

MATERIALS AND METHODS

Study Area:

The study was carried out in Rivers State, Nigeria. Rivers State is one of the 36 States of the Nigerian Federation. It is located in the South-south geopolitical zone and is one of the major oil bearing states of Nigeria's Delta region. A third of the State is riverine and comprised of a mangrove and rainforest vegetations with heavy rainfall and high humidity all year round. It has a population of 5.2 million people with an annual growth rate of 3%. The most vulnerable groups for malaria in the state; children under five years of age and pregnant women constitute 20% and 2% of the population respectively. Administratively, the state is made up of three Senatorial Districts, with each comprising of 7-8 Local Government Areas (LGAs). Each LGA has between 12-19 Political Wards. Each ward is made up of 1-4 communities. Health care in the state is weak, and is provided by both by formal and informal sectors. The informal sector providers constitute the majority and comprise predominately of Patent Medicine Vendors, Alternative Care and Herbal Practitioners, and Spiritual Healers. Most of the communities are rural with little or no social amenities like good roads, health centres or schools. The predominant occupations of the people are farming, fishing and petty trading.

Study Design and Sampling:

A cross sectional study design was used to carry out the study in October 2008 among PMVs operating in Rivers State. A minimal sample size of 263 was determined using the formula for descriptive studies [17] based on 9% of PMVs who stocked artemisinin combination drugs (ACTs) for treatment of malaria in three of the six geopolitical zones of Nigeria [18] and error margin of 5%, Design Effect of =2, and attrition rate of 5%. Participants were selected through a multi-stage random sampling method. The first stage was the selection of three LGAs; one from each of the three Senatorial Districts. The second stage was the selection of a political ward from each of the selected LGAs. The third stage was the selection of communities in each political ward. Subsequently, all PMVs operating in a selected community were identified with the assistance of local guides and those who consented among them to participate in the study were interviewed using a self-administered, semi-structured questionnaire. A few illiterate PMVs had their questionnaire interviewer-administered. A total of 270 questionnaires were distributed and 263 were returned completed, giving a response rate of 97.4%. The questionnaire was in three parts: demographic profile of respondents; knowledge of respondents on malaria drugs and drug regulation; and practices of PMVs.

Data Analysis:

All the data generated were double-entered and analyzed with Epi Info ver 6.04d statistical software package. Significant tests were performed with confidence level set at 95%.

Ethical Considerations:

A verbal consent was obtained from all participants after explanation of the aim of the study and assurances of confidentiality and the right to decline participation without sanctions.

RESULTS

A total of 263 PMVs were interviewed between 16th and 30th October 2008. They consisted of 179(68.1%) male and 84(31.9%) female participants. Their mean age was 35.98±9.75. Most of them 148(56.3%) [95% CI= 50.05 – 62.35] had at least a secondary education, while only a few 6(2.3%) did not have formal education. Majority, 154 (58.5%) had practice experience of between 0-9 years (Table 1).

Knowledge of PMVs on Malaria:

The knowledge of PMVs on the new National Malaria Treatment Policy was low. Only a fifth (20.5%) had knowledge of the policy recommendation in the use of ACTs

Table 1: Demographic Characteristics of Patent Medicine Vendors

Variable	Absolute Frequency (n=263)	Relative Frequency (%)	95%CI
Age distribution n=263			
20-29	75	28.5%	23.14-34.39
30-39	101	38.4%	32.50-44.58
40-49	66	25.1%	19.97-30.79
50-59	15	5.7%	3.23-9.23
60-69	6	2.3%	0.84-4.89
Sex distribution			
Male	179	68.1%	62.06-73.65
Female	84 31.	9%	26.35-37.94
Educational level			
Non-formal education	6	2.3%	0.84-4.89
Primary	8	3.0%	1.32-5.91
Secondary	148	56.3%	50.05-62.36
Post secondary	101	38.4%	32.67-44.39
Length of experience as medicine vendor			
0-9 yrs	154	58.5%	52.34 – 64.57
10-19 yrs	83	31.6%	25.99 – 37.55
20-29 yrs	17	6.5%	3.81 – 10.15
⩾30	9	3.4%	1.58 – 6.39

in place of monotherapies like chloroquine and sulfadoxine-pyrimethamine for prompt treatment malaria in both the children and adult populations. The vast majority of the PMVs 148 (56.3%) [95% CI= 50.05 – 62.35] had no idea of the policy. However most 259 (98.5%), were aware of the regulation to stock and sell only drugs registered by the National Agency for Food and Drugs Control (NAFDAC). Also, most 265 (99.3%) [95% CI= 94.59 – 98.9] looked out for drug expiration dates before purchasing. On why some PMVs sell low quality drugs to their clients, the main reason given was to increase their profit margin (47.9%). About one-third (39.5%) however, claimed ignorance of the quality of the drugs they sell (Table 2)

Practices of PMVs and Validation of PMV Claims:

Most of the PMVs 235 (89.4%) [95% CI= 84.98 – 92.81] were found to be registered with their respective LGA authorities. Only a few, 28 (10.6%) were not registered. In the same vein, most of the available anti-malaria drugs found with PMVs had the certification/registration numbers of the National Food and Drug Administration and Control (NAFDAC), the government body that regulates and certifies drugs in Nigeria.

Table 2: Knowledge of Patent Medicine Vendors on Malaria

Variable	Absolute Frequency (n=263)	Relative Frequency (%)	95%CI
Knowledge of New National malaria treatments policy			
Good knowledge	54	20.5%	15.82 -25.92
Limited Knowledge	61	23.2%	18.23 – 28.77
No knowledge	148	56.3%	50.05 – 62.35
Awareness of importance of NAFDAC registration of drugs			
Yes	259	98.5%	96.15 – 99.58
No	4	1.5%	0.41 – 3.84
Awareness of the importance of drug expiration dates			
Yes	256	97.3%	94.59 – 98.92
No	7	2.7%	1.07 - 5.40
Awareness of the Need to check for drug expiration date			
To avoid harm to client	242	92.0%	88.05 – 94.98
To ensure that drug is safe	17	6.5%	3.81 – 10.14
Others	4	1.5%	6.87 – 14.58
Reason why some PVMs sell low quality drugs			
Ignorance	104	39.5%	33.59 – 45.53
To maximize profit	126	47.9%	41.73 – 54.13
Others	33	12.5%	8.79 – 17.16

However, most of the PMVs used monotherapies for the treatment of uncomplicated malaria instead of ACTs; (32.7%) used sulphadoxine-pyrimethamine and (25.5%) used chloroquine respectively. Only a few, (9.1%) [95% CI= 5.93 – 13.27] used artemisinin-based combination drugs (ACTs) for same reason. Similar finding was observed in the treatment of malaria among pregnant women. Majority of the PMVs 170 (64.6%) [95% CI= 58.53 – 70.41] procured their drugs from the open markets instead of from licensed pharmaceutical stores. Action taken by PMVs when clients did not respond to initial treatment with anti-malaria drugs showed that majority (67.5%) referred the patients to a health facility, while about a quarter (27.4%) prescribed other drugs (Table 3).

Knowledge about Insecticide-Treated Bed Nets:

Knowledge of Insecticide Treated Nets (ITNs) for malaria prevention was high among the PMVs 250(95.1%) [95% CI= 91.69 – 97.34]. However, only a third (35.4%) of them reported ever having received request for the purchase of ITNs from their clients. Nevertheless, most PMVs 184(70.0%) [95% CI= 64.02 – 75.44] believed that they are a potential source of ITN distribution in the communities (Table 4).

Table 3: Practice of Patent Medicine Vendors on malaria

Variable	Absolute Frequency	Relative Frequency	95%CI
Registration of drug store by LGA or other authorities			
Yes	235	89.4%	84.98 – 92.81
No	28	10.6%	7.19 – 15.02
NAFDAC Registration of available anti-malaria drugs			
All have NAFDAC Reg. no.	236	89.7%	85.41 – 93.12
Don ' t have NAFDAC Reg. no.	27	10.3%	6.87 – 14.58
Drugs used for treatment of malaria n=263			
Choroquine	67	25.5%	20.32 - 31.19
Sulphadoxine/ Pyrimethamine	86	32.7%	27.06 – 38.73
Amodiaquine	26	9.9%	6.56 – 14.15
ACT	24	9.1%	5.93 – 13.27
Artesunate only	58	22.1%	17.19 – 27.56
Others	2	0.8%	0.09 – 2.72
Drugs used for treatment of malaria in pregnant women			
Choroquine	27	10.3%	6.87 – 14.58
Sulphadoxine/ Pyrimethamine	120	45.6%	39.49 – 51.85
Amodiaquine	7	2.7%	1.07 – 5.41
ACT	11	4.2%	2.11 – 7.36
Artesunate only	17	6.5%	3.81 – 10.15
Others	3	1.1%	0.24 – 3.30
Don't Know	78	29.7%	24.20 – 35.58
Source of anti-malaria drugs			
Open market	170	64.6%	58.53 – 70.41
Pharmaceutical store	72	27.4%	22.08 – 33.19
Drug manufactures	10	3.8%	1.84 – 6.88
Others	11	4.2%	2.11 – 7.36
Action taken when clients response to anti-malaria was poor			
Change to other drugs	72	27.4%	22.08 – 33.19
Refer to Health centre	178	67.7%	61.66 – 73.29
Refer for native/ spiritual treatment	2	0.8%	0.09 – 2.72
Do nothing	1	0.4%	0.00 – 2.10
Others	10	3.8%	1.84 – 6.88

Table 4: Knowledge and use of Insecticide Treated Nets

Knowledge of ITNs			
Yes	250	95.1%	91.69 – 97.34
No	13	4.9%	2.66 – 8.30
Seen any ITNs			
Yes	240	91.3%	87.17 – 94.38
No	23	8.7%	5.62 – 12.83
Request of clients for ITNs			
Yes	93	35.4%	29.59 – 41.46
No	162	61.6%	55.42 – 67.50
Sometimes	8 3.0%	1.32 – 5.91	
PMVs as source of ITN distribution			
Yes	184	70.0%	64.02 – 75.44
No	73	27.7%	22.43 – 33.59
Others	6	2.3%	0.84 – 4.89

DISCUSSION

Although patent medicine vendors (PMVs) are individuals without formal training in pharmacy, they take advantage of the weaknesses in the health system like shortages in health manpower and frequent drug stock outs to find relevance in rural and sub-urban communities. This study revealed that most of the PMVs interviewed had at least secondary level education which was quite reassuring that they possessed the basic education that could be improved upon and harnessed for malaria control in these rural and sub-urban communities where health care centres are few or completely lacking. This notwithstanding, it was found that their knowledge regarding the change in malaria treatment policy from the use of monotherapies like chloroquine, sulfadoxine-pyrimethamine, artesunate, dihydroartemisinin to ACTs was quite low. The implication is that they have continued to deploy and use these monotherapies to treat uncomplicated malaria with the attendant risk of severe consequences like treatment failure, exacerbation of symptoms, emergence of complications such as cerebral malaria and the increased potential for parasite resistance. Similar result was also obtained by Oladepo et al[18] in the study they carried out in three of the six geo-political zones in Nigeria. They reported that despite the impressive educational background of PMVs, their use of ACTs was low, thus suggesting that such major change in malaria policy might not have been widely disseminated across to all the relevant stakeholders in the nation. The World Health organization (WHO) had recommended the use of ACTs as the best available treatment option for uncomplicated malaria to avoid these risks and accelerate the global malaria control efforts.[1,13]

Knowledge of the use of insecticide treated bed nets (ITNs) for malaria control was however high among the PMVs and this might not be unconnected with the various ITN intervention programmes such as the free net distribution campaigns in communities as well as the free antenatal care programmes for pregnant women that were ongoing in the State during the period of the study. This was however significant because PMVs are generally known to be located in communities closer to the homes of majority of the people and often act as a major source of advice about health matters to community folks.[10,12] Similarly, other studies have also revealed that these PMVs were more likely to be patronized by people who want to avoid the travels, time wastage and other beaurocratic bottle necks often associated with public health services.[10] The advantaged position of PMVs in this regard can therefore be leveraged for ITN distribution and other malaria control interventions in the communities as was even suggested by most of the PMVs themselves.

The study also revealed that a large portion of the PMVs were registered with the local LGA authorities, who were quite good in identifying and regulating their practices and could also be utilized for information sharing and capacity building. In the same vein, almost all the PMVs interviewed were aware of the National Regulation to stock and sell only drugs registered by NAFDAC and the need to check for drugs expiry dates before procurement and sale. Though impressive, this might not be unconnected with the regular media campaigns mounted by NAFDAC on the dangers of adulterated and sub-standard drugs and the need for individuals to purchase only drugs registered by it. NAFDAC had in the past several years consistently enlightened the general public on ways to identify "fake" drugs which included absence of its (NAFDAC) registration number or manufacturers' name or expiry date. However, while residents in urban areas with better access to social infrastructure and electronic media of communication might be well sensitized, those in rural and sub-urban communities with lower literacy levels and poorer amenities may not be that lucky.

The study further showed that while most of the PMVs sold antimalarials with NAFDAC number/certification, some PMVs were found with antimalarials without NAFDAC certification, thus suggesting that such drugs might be counterfeit drugs unless proven otherwise. The consequences of the use of such drugs might spell doom for malaria control in the State if unchecked. The major motivation for buying and selling counterfeited drugs was said to be profit maximization since such drugs were usually cheaper and are freely sourced in the open markets.[14,19] Given that PMVs are said to be the foremost source of antimalaria and other drugs for many rural and sub-urban communities in developing countries, including Nigeria, their role therefore in malaria control should not be overlooked.[20,21]

CONCLUSION

While most of the PMVs operating in rural and sub-urban communities of Rivers State, Nigeria possess adequate basic education, their knowledge with respect to the change in National Malaria Treatment Policy from the use of monotherapies such as chloroquine and others to ACTs was found to be very low. Wider dissemination of the policy to all relevant stakeholders and the training of PMVs on the rational use of ACTs as well as their inclusion into the State and National Malaria control strategies are advocated to accelerate malaria control in the State and to speed up the attainment of the MDGs by 2015.

ACKNOWLEDGEMENTS

We acknowledge with gratitude the funding support for the study provided by the Rivers State Ministry of Health and also Dr. Seye Babatunde who helped with data analysis.

REFERENCES

1. Roll Back Malaria Fact sheet No. 94. Geneva: World Health Organization [Cited 2011 Sept 17]. Available from: http://www.who.int/mediacentre/ *factsheets/fs094en*.
2. Malaria Consortium. Support to the National Malaria Programme, Nigeria: DFID-British Council; 2008-2012.
3. Erhun WO, Adebayo A. Students' management of perceived malaria in a Nigerian University. J Soc Adm Pharm 2002; 19:151–60.
4. Marsh VM, Mutemi WM, Muturi J, Haaland A, Watkins WM, Otieno G, et al. Changing home treatment of childhood fevers by training shop keepers in rural Kenya. Trop Med Int Health 1999; 4(5):383-9.
5. Van der Geest S. The illegal distribution of western medicines in developing countries: pharmacists, drug peddlers, injection doctors and others. A bibliographic exploration. Med Anthropol 1982; 197-19.
6. Brieger WR, Osamor PE, Salami KK, Oladepo O, Otusanya SA. Interactions between patent medicine vendors and customers in urban and rural Nigeria. Health Policy Plan 2004; 19:177–82.
7. Iweze EA. The patent medicine store: hospital for the urban poor. In: Makinwa PK, Ozo OA, editors. The urban poor in Nigeria. Ibadan, Nigeria: Evans Brothers Ltd; 1987.
8. Salako LA, Brieger WR, Afolabi BM, Umeh RE, Agomo PU. Treatment of childhood fevers and other illnesses in three rural Nigerian communities. J Trop Pediatr 2001; 47:230–8.

9. Williams HA, Jones CO. A critical review of behavioral issues related to malaria control in sub-Saharan Africa: what contributions have social scientists made? Soc Sci Med 2004; 59:501–23.

10. Snow RW, Peshu N, Forster D, Mwenesi H, Marsh K. The role of shops in the treatment and prevention of childhood malaria on the coast of Kenya. Trans R Soc Trop Med Hyg 1992; 86:237–9.

11. Erhun OO, Babalola MO, Erhun WO. Drug regulation and control in Nigeria: The challenge of counterfeit drugs. J health popul dev ctries 2001; 4:23–34.

12. Ross-Degnan D, Sourmerai SB, Goel PK, Bates J, Makhulo J, Dondi N, et al. The impact of face-to-face educational outreach on diarrhea treatment in pharmacies. Health Policy Plan 1996; 11:308–18.

13. Kachur SP, Black C, Abdulla S, Goodman C. Putting the genie back in the bottle? Availability and presentation of oral artemisinin compounds at retail pharmacies in urban Dar-es-Salaam. Malar J 2006; 5:25.

14. Onwujekwe O, Kaur H, Dike N, Shu E, Uzochukwu B, Hanson K, et al. Quality of anti-malarial drugs provided by public and private healthcare providers in south-east Nigeria. Malar J 2009; 8:10-22.

15. Federal Republic of Nigeria (FGN). Millennium Development Goals (MDG) Report 2010. Abuja: Federal Republic of Nigeria 2011;4-6.

16. Roll Back Malaria Partnership. Global Malaria Action Plan for a Malaria-Free World. Geneva: World Health Organization; 2008.

17. Campbell MJ, Machin D. Medical Statistics. A common sense approach. 2nd ed. London: John Willey and Sons Ltd; 1996.

18. Oladepo O, Salami KK, Adeoye BW, Oshiname F, Ofi B, Oladepo M, et al, editors. Malaria treatment and policy in three regions in Nigeria: The role of Patent Medicine Vendors. Abuja: Future Health Systems; 2007.

19. Chuma J, Abuya T, Memusi D, Juma E, Akhwale W, Ntwiga J, et al. Reviewing the literature on access to prompt and effective malaria treatment in Kenya: implications for meeting the Abuja targets. Malar J 2009; 8:243.

20. Okeke .TA, Uzochukwu BSC Improving childhood malaria treatment and referral practices by training patent medicine vendors in rural south-east Nigeria Malar J 2009; 8:260.

21. Okeke TA, Okeibunor JC. Rural-urban differences in health-seeking for the treatment of childhood malaria in south-east Nigeria. Health Policy 2010; 95(1):62-8.