

## Patentli İlaç Satıcılarının Müşterileri: İlaç Kullanım Davranışı

### [Patent Medicine Vendors' Clients: Medicine Use Behaviour]

#### ÖZET

**AMAÇ:** Çalışmanın amacı, patentli ilaç satıcılarının (PMV) müşterilerinin kendi kendini tedavi ve ilaç paylaşımı dâhil bazı ilaç kullanım davranışlarını araştırmaktır.

**YÖNTEM:** Tanımlayıcı, kesitsel bir çalışma Temmuz 2011'de Jos Üniversitesi Nijerya'da son bir ay içerisinde PMV'leri ziyaret eden 361 öğrenci arasında yürütüldü. Ön denemesi yapılmış bir soru formu katılımcı öğrencilere uygulandı. Katılımcılar demografik özellikler ve ilaç kullanım davranışı hakkında soruları yanıtladı. Veriler SPSS version 16 kullanılarak analiz edildi, tanımlayıcı istatistiklerde yüzdelikler kullanıldı.

**BULGULAR:** Sonuçlar gösterdi ki; Katılımcıların %91,7'si kendi kendini tedavi etmek için genel kullanılan ilaçları almak için PMV'leri ziyaret etti. Bunlardan %38,4'ü analjezik, %22,2'si antimalaryal ve %14,1'i besin/kan preparatları talep etti. PMV'lerin müşterilerine satılan ilaçların %78,5'i orijinal ambalajındaydı. Sadece %45,9'u kullanmadan önce son kullanım tarihini kontrol ettiğini beyan etti. İlaç paylaşım davranışı %60,2 ile katılımcılar arasında oldukça yüksekti. Çoğunluğunun (%70,2) geçmişte ilaç prospektüsünü okuduğunu söylemesine rağmen, yine de pek çoğu ilaç bilgi kaynağı olarak güvenilir olmayan arkadaş/akraba (%23,2), medya (%23,2) ve internet (%9,9) gibi kaynaklara bel bağlıyorlardı.

**SONUÇ:** Çalışma, PMV müşterileri arasında kendi kendini tedavi etme ve ilaç paylaşma davranışı yüksek olduğunu ortaya koydu.

#### SUMMARY

**AIM:** To investigate some medicine use behaviour of Patent Medicine Vendors' (PMVs) clients including self medication practice and medication sharing behaviour.

**METHOD:** A descriptive, cross-sectional survey was conducted in July 2011, on 361 undergraduate students of the University of Jos, Nigeria who visited PMVs within a month preceding the study. A pretested questionnaire was administered to participating students. Participants responded to questions on demography, and medicine use behaviour. Data were entered into the Statistical Package for Social Sciences (SPSS) version 16 to generate descriptive statistics which were represented in percentages.

**RESULTS:** The results showed that majority of the respondents (91.7%) visited the PMVs for self-medication with the common classes of medicines procured by PMVs clients including analgesics (38.4%), antimalarials (22.2%) and nutrition/blood preparations (14.1%). About 78.5% of the medicines sold to PMVs clients were in their original package and only 45.9% of clients reported checking the expiry date of their procured medicine prior to use. Medication sharing behaviour was common (60.2%) among respondents. Although most respondents (70.2%) said they had read a medicine information leaflet in the past, majority of them depended on unreliable sources such as friends/relatives (23.2%), media (10.8%) and the internet (9.9%) for medicine information.

**CONCLUSION:** The study therefore demonstrated that PMV clients are those on self-medication and medication sharing behaviour is high among them.

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#### INTRODUCTION

Patent Medicine Vendors (PMVs) play an important role in the health care system especially at the community level as they fill the gap created by inadequate skilled health professionals required for the procurement, storage and distribution of medicine (1).

Patent medicine vendors are individuals with no formal pharmacy training authorized to sell only over-the-counter medicines. They are usually licensed to practice in Nigeria by the Pharmacists Council of Nigeria. The licensee should be at least 21 years of age and should submit two referees (2). The law does not specify the minimum educational level for PMVs, however, the minimum educational level of PMVs in

Nigeria is the primary level of education (3). In Nigeria, PMVs are required by law to sell medicines in their original package as they are not allowed to alter medicine package or sell a portion of medicines from their package as this constitutes dispensing (4). Their role is therefore meant to be commercial and retail in nature but in response to their clients demand, they are often seen dispensing medicines from their original package or dispensing generic medicines like paracetamol from their tins (5). PMVs obtain their medicines from formal and informal distribution channels with a recent survey showing that the most common sources of medicine for PMVs are the open markets. The open markets which are informal distribution channels are also large commercial centres in urban areas where many

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**Anahtar Kelimeler:**  
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**Key Words:**  
Patent Medicine Vendors, Self-medication, Medication Sharing.

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wholesalers meet to sell medicine in bulk, making the PMVs prone to obtaining substandard, counterfeit or expired medicines (2).

In Nigeria, PMVs are usually the first point of call for community members and are the major medicine retailers in Nigeria both in terms of value of medicine sold and number of outlets. PMVs are preferred by its clients because of their ease of accessibility, shorter waiting time, longer opening hours, ease of seeking advice, lower cost, flexible pricing policy and no service charge (5,6). However, there are concerns about the practices of this sector because they are involved in the sale of prescription only medicines which they are not authorized by law to sell; the type and dose of medicine given by PMVs are inappropriate for their clients complaints; they may prescribe unnecessary medicines such as antibiotics to their clients; they may sell expired or substandard medicine; and they may exaggerate information on the efficacy and purpose of the medicine they sell (7,8).

Several studies have investigated the practice of PMVs. Brieger et al., demonstrated that PMVs are involved in selling of medicines, giving suggestions to clients, asking question about illness, and providing instructions on how to take medicine (5). Okeke et al., showed that there is poor knowledge and dispensing practices among PMVs (7). However, this study was aimed at investigating some medicine use behaviour of PMV clients, including self medication practices and medication sharing behaviour.

## **MATERIAL and METHOD**

### **Study Setting**

The study was conducted in University of Jos, Jos, Nigeria. The University of Jos is located in north-central Nigeria and is made up of nine faculties (with two faculties being health-based and seven non-health based). Each faculty is made up Departments and students in each Department are organized into academic levels (classes).

### **Study Population and Sampling Procedure**

The study population consists of 1205 undergraduate students of the University of Jos. The study respondents were obtained through a stratified two-stage cluster design. In the first stage, 12 clusters (departments) consisting of at least one cluster from each faculty were selected. The second stage of the

sampling technique involved the selection of an average of four academic levels (which constitutes the primary sampling unit) from each Department. Participants were selected from the primary sampling unit by a simple random sampling method with at least 20 participants selected from each primary sampling unit.

A total of 1205 participants were recruited. However 836 participants were excluded from the study on the basis of non-visit of PMVs within a month preceding the study.

### **Study Design**

A descriptive, cross-sectional survey was conducted in July 2011, on 361 undergraduate students of the University of Jos, who visited PMVs within the month preceding the study. The research objective and method were explained to each respondent and a pretested questionnaire was administered to participating students. The questionnaire contained both open and close-ended questions. Participants' responded to questions on demography, whether they visited PMVs for self medication or to fill a prescription, types of medicine procured, whether procured medicine was sold in their original package, checking of expiry date of medicine prior to use, medication sharing behaviour, sources of medicine information, and name of the active ingredient and their commonly used headache medicine. A total of 361 students (representing about 98%) responded to the administered questionnaire.

### **Ethical Consideration**

The study was approved by the ethical committee of the Faculty of Pharmaceutical Sciences, University of Jos, Jos, Nigeria. Participants were told that participation in the study was voluntary and information obtained would be anonymous and confidential; and verbal informed consent was sought from each participant before administering the questionnaire.

### **Data Analysis**

Data were entered into the Statistical Package for Social Sciences (SPSS) version 16 (Chicago IL) to generate descriptive statistics which were represented in percentages. The Fisher's exact test was performed to determine any demographic difference in medicine use behaviour among respondents.

## RESULTS

A total of 361 of the recruited undergraduate students responded to the administered questionnaire. The study respondents consisted of 54.8% of males and 45.2% females with 60.7% of participants between 20 – 24 years old (Table 1).

**Table 1:** Demographic characteristics of respondents.

	Variable	Frequency (%)
<b>Gender</b>	Male	198 (54.8)
	Female	163 (45.2)
<b>Age</b>	15-19 years	23 (6.4)
	20-24 years	219 (60.7)
	25-29 years	116 (32.1)
	30-34 years	3 (0.8)
<b>Faculty</b>	Health-Based Faculty	80 (22.2)
	Non Health-Based Faculty	281 (77.8)

Majority of the participants (91.7%) visited the PMVs for self medication while only a few (8.3%) visited the PMVs to fill their prescription. The common classes of medicines procured by PMVs clients were analgesics, antimalarials and Nutrition/blood preparations (see Table 2). About 78.5% of the medicines sold to PMVs clients were in their original package. Only 45.9% of clients checked the expiry date of the medicine they procure prior to use.

**Table 2:** Types of medicines procured by PMVs clients.

Types of medicines	Percentage (%)
Analgesics	28.4
Nutrition/Blood preparation	14.1
Antibiotics	11.3
Flu/Cough preparations	10.3
Skin products	5.6
Antimalarials	22.2
GIT medicines	6.3
Psychotropic medicine	0.3
Others	1.5

About 60.2% of the clients reported they had given out their medicine to someone else or taken someone else's medication. There was no statistical difference ( $p > 0.05$ ) between male and females with respect to visiting the PMV for self medication,

checking of expiry dates of medicine, medication sharing behaviour, reporting of ever reading a medicine leaflet and knowledge of commonly used active ingredient of respondent's headache medicine (Figure 1). No statistical significant difference ( $p > 0.05$ ) within faculties was also observed when Fisher's exact test was applied on the above listed characteristics except for the checking of expiry dates in which respondents from health-based faculties were found to be significantly different ( $p < 0.05$ ) from those of non-health based faculties (see figure 2).

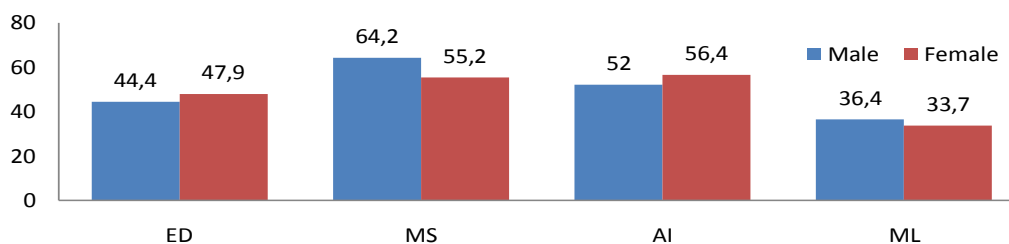
Majority of respondents (70.2%) said they had read a medicine information leaflet but only about 54.1% of respondents were able to name the active ingredient of their commonly used headache medicine. Major sources of medicine information for PMVs clients were health professionals, medicine leaflets and friends/relatives (Table 3).

**Table 3:** Sources of medicine information for PMVs clients.

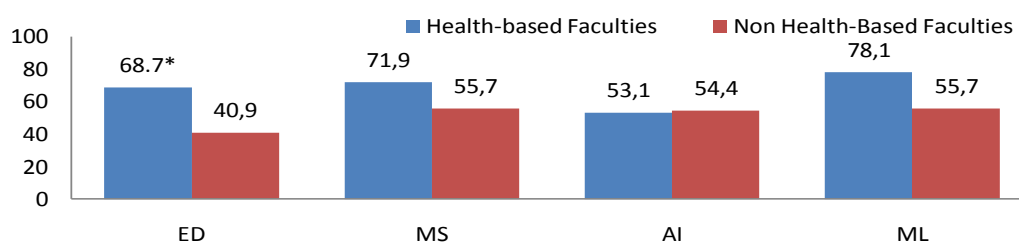
Sources of Medicine Information	Percentage Response (%)
Health Professionals	32.4
Media	10.8
Internet	9.9
Medicine leaflets	23.2
Friends/Relatives	23.2
Others	0.5

## DISCUSSION

Customers of PMVs are people on self medication as demonstrated by this study. This is because PMVs are licensed to sell over-the-counter medicines which are the most common group of medicines used for self medication. However, a number of people still fill their prescription medicines from PMVs (3,4,9). Although PMVs are not licensed to sell prescription medicines, these medicines were procured from PMVs as shown by this study. PMVs clients reported that they obtained antibiotics and psychotropic agents which are prescription only medicines, from PMVs. Other studies have also demonstrated that prescription medicines have been obtained from PMVs and this shows that PMVs are under-regulated in terms of the category of medicines they should handle (6,10). The sale of prescription only medicines by unauthorized persons and without a prescription, poses a great danger to public health because these medicines are not safe for self-medication use (11).



**Figure 1:** Some medicine-use characteristics reported by respondents' gender. ED- Check expiry date; MS- Involved in medication sharing; AI- know active ingredient of commonly used headache medicine; ML- Ever read a medicine leaflets



**Figure 2:** Some medicine-use characteristics reported by respondents' faculty. ED- Check expiry date; MS- Involved in medication sharing; AI- know active ingredient of commonly used headache medicine; ML- Ever read a medicine leaflets; \*  $P < 0.05$

Hence, there is need for regulatory authorities to ensure that PMVs sell only the medicines they are authorized to handle.

The common classes of medicines procured by PMVs clients were analgesics, antimalarials and nutrition/blood preparations. Analgesics are the most commonly procured medicines on self medication and are usually the first line of medicines used by people in an event of an illness (12). This is because most illnesses present with pain and fever and these medicines are mostly used for their symptomatic relief with the resultant adverse effect. For example, they can contribute to increased risk of liver and kidney damage when taken in high doses (12). Analgesics may also mask an early warning signal for a serious illness thereby delaying early diagnosis.

Although, most antimalarials especially the artemisinin based combination therapy (ACTs) are prescription only medicine, several studies have reported the sale of antimalarials and the involvement of PMVs in the treatment of malaria at the community level (2,3,6,13). A major concern with this practice is the poor knowledge and dispensing practice of PMVs. These studies have described their practices with respect to the sale of antimalarials and providing treatment for malaria as inadequate.

Nutrition/blood preparations are common because people take them as supplements for promoting health, preventing illness, boost the immune system, prevention of stress and to supplement regular nutrition (12). Hence, their use is usually seen as part of a healthy lifestyle.

About 22% of medicines were not sold to PMVs clients in their original package as required by law. This shows that PMVs are carrying out medicine dispensing in their premises leading to inappropriate dispensing and use of medicines because PMVs lacks the training to appropriately dispense medicine (3). In addition when over-the-counter medicines are sold outside their original packaging, the clients may not be able to benefit from the medicine information contained in package inserts and that can result in inappropriate use of medicines. Some medicines also have their expiry dates written on their packaging. Hence the client may not be able to know if the medicine is expired or not.

As a result of the awareness created by the National Agency for Food, Drug Administration and Control (NAFDAC) on fake and expired medicines in Nigerian markets, people are becoming increasingly aware about the need to check the expiry dates of medicines at the point of sale or administration (14). However, a significant number of people as seen in

this study do not check the expiry dates of their medicines. Most medicine outlets do not conduct regular checks of expiry dates and hence there is a probability of dispensing or selling out expired medicine. In addition, the informal channel of medicine procurement, profit making orientation, and under-regulation of the practice of PMVs, increase their likelihood of stocking expired medication, hence the need for increased awareness among client and PMVs on expiry date checks.

Medication sharing behaviour was found to be high among PMVs clients. Medication sharing behaviour involves “giving medication to someone else (“loaning”) or taking someone else’s medication (“borrowing”)” (15). Medication sharing results in inappropriate use of drugs and non-adherence to therapy and this have a number of impact such as reduced care seeking, increased risk of adverse effects, promotion of resistance and undesired outcome of therapy (16). Medication sharing has been shown to be common among adolescent and young people; our study also confirms this finding (15,17).

Although majority of the PMVs clients reported reading a medicine information leaflet, they do not appear to have adequate knowledge about medicines. About 46% of the respondents were unable to name the active ingredient of their commonly used headache medicine. This is of public health concern, since the study population is supposed to be a representation of the educated part of the general population and appropriate self-medication requires that people have a good general knowledge of medicines (12). Lack of knowledge about the active ingredients of commonly used medicine can result in client taking two brands of medicine with the same active ingredient and this can lead to an overdose of a medicine. The risk of taking the different branded medicine with the same active ingredient is high where polypharmacy exist and polypharmacy is a common practice in developing countries (8). Hence, there is need for public education and education of PMVs on active ingredients of commonly used medicines as this would prevent the use of the more than one medicine with the same active ingredient.

The common sources of medicine information among PMVs clients were health professionals, medicine leaflets and friends/relatives. Information from health professionals and medicine information leaflets are reliable sources of medicine information (18). Information from medicine leaflets are usually written at a level beyond the comprehension of the general public and as a result, individuals benefit little from this information source (19). Sources of medicine information from friends/relatives, internet

and media are not reliable sources of medicine information and can be a risk especially with self medication (18).

### **Study Limitation**

This study was conducted among students and may not be representative of the general population. Hence, a research carried out among a wider community may give a better picture on the medicine use behaviour of PMVs client and factors that are associated with or influenced it.

This research does not consider whether the PMVs clients on self-medication were taking the medicine appropriate for their medical condition and in the right dose. Hence a further research that would explore these issues would give information on the appropriateness of self medication practices by PMV clients.

### **CONCLUSION**

The present study demonstrated that self medication and medication sharing behaviour is high among PMVs clients. PMVs clients depend on unreliable sources of medicines information, hence the need for public education on appropriate medicine use practices.

### **REFERENCES**

1. Adikwu MU. Sales practices of patent medicine sellers in Nigeria. *Health Policy Plan.* 1996; 11(2): 202-205.
2. Oladepo O, Salami KK, Adeoye BW, Oshiname F, Ofi B, Oladepo M. Malaria treatment and policy in three regions in Nigeria: The role of patent medicine vendors. *Future Health Systems Innovation for Equity 2007. Working Paper 1. Nigeria Series.*
3. Okeke TA, Uzochukwu BSC, Okafor HU. An in-depth study of patent medicine sellers' perspectives on malaria in a rural Nigerian community. *Malar J.* 2006; 5: 97.
4. Pharmacists Council of Nigeria. PCN's approved patent medicines list. Abuja: PCN, 2009.
5. 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(3): 177-182.

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6. Onyeneho NG. Response to childhood fevers among Mbaise parents and caregivers in Imo State, Nigeria: Does the sex of the child matter? *Tanzanian Health Research Bulletin*. 2006; 8(2): 62-69.
7. 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.
8. Goodman C, Brieger W, Unwin A, Mills A, Meek S, Greer G. Medicine sellers and malaria treatment in sub-saharan Africa: What they do and how can their practice be improved? *Am J Trop Med Hyg*. 2007; 77: 203-218.
9. Erhun OO, Babalola MO, Erhun WO. Drug regulation and control in Nigeria: The challenge of counterfeit drugs. *Journal of Health & Population in Developing Countries*. 2001; 4: 23-34.
10. Okonkwo AD, Okonkwo UP. Patent medicine vendors, community pharmacists and STI management in Abuja, Nigeria. *Afr Health Sci*. 2010; 10(3): 253-265.
11. World Health Organization. Guidelines for the regulatory assessment of medicinal products for use in self-medication. Geneva: WHO, 2000.
12. Linden KA. Pharmacoepidemiological study of medicine use among finish conscripts. *Annales Medicinæ Militaris Fenni*. 2005; 2: 6-113.
13. Chirdan OO, Zoakah AI, Ejembi CL. Impact of home education on home treatment and prevention of malaria in Jengre, North Central Nigeria. *Ann Afr Med*. 2008; 7(3): 112-119.
14. Akunyili D. Fake and Counterfeit drugs in the health sector: The role of medical doctors. *Annals of Ibadan Postgraduate Medicine*. 2004; 2(2): 19-23.
15. Daniel KL, Honein MA, Moore CA. Sharing prescription medication among teenage girls: potential danger to unplanned/undiagnosed pregnancies. *Pediatrics*. 2003; 111(5 Pt 2): 1167-1170.
16. Goldsworthy RC, Mayhorn CB. Prescription Medication Sharing Among Adolescents: Prevalence, Risks, and Outcomes. *J Adolesc Health*. 2009; 45(6): 634-637.
17. Goldsworthy RC, Schwartz NC, Mayhorn CB. Beyond abuse and exposure: Framing the impact of prescription-medication sharing. *Am J Public Health*. 2008; 98(6): 1115-1121.
18. Narhi U, Helakorpi S. Analgesics users' sources of medicine information. *Int J Pharm Pract*. 2007; 15: 251-253.
19. Bradley B, Singleton M, Po ALW. Readability of patient information leaflets on over-the-counter (OTC) medicines. *J Clin Pharm Ther*. 1994; 19: 7-15.