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Original Article

# Medicine Vendors: Self-medication Practices and Medicine Knowledge

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## Abstract

**Background:** Medicine vendors fill the gap created by inadequate skilled professionals required for medicine procurement, storage, and distribution in developing countries. **Aim:** To evaluate self-medication practice and medicine knowledge among medicine vendors and to determine if a relationship exists between both. **Materials and Methods:** A descriptive, cross-sectional study was conducted, using a pretested questionnaire on 236 medicine vendors in Jos, Nigeria, sampled through a two-stage stratified design. Data collected were analyzed using the Statistical Package for Social Sciences version 16, and the chi-square test was used to determine the association between variables. **Results:** Self-medication was common (75.4%) among respondents and was not associated ( $P>0.05$ ) with any of the demographic characteristics studied. The classes of medicines commonly used by respondents for self-medication were analgesics (31.4%), anti-malarials (22.6%), multivitamins (17.7%), and antibiotics (11.25%). A knowledge assessment test revealed that only 34.3% of the respondents had adequate knowledge. There was no significant ( $P>0.05$ ) relationship between self-medication practice and medicine knowledge, among the respondents. However, the medicine knowledge scores were significantly ( $P<0.05$ ) associated with holding a certificate in health sciences, years of experience, and the place of practice of the medicine vendors. **Conclusion:** The present study demonstrated that self-medication practice was high and inadequate medicine knowledge existed among respondents.

**Keywords:** Medicine knowledge, Medicine vendors, Self-medication

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## Introduction

Medicine retailers play an important role, especially at the community level, in developing countries. They constitute a limited number of community pharmacies and numerous patent medicine stores.<sup>[1]</sup> Medicine vendors in these medicine outlets fill the gap created by inadequate skilled health professionals (Pharmacists) required for the procurement, storage, and distribution of medicine.<sup>[2]</sup>

In Nigeria, patent medicine stores are registered by licensed Patent Medicine Vendors (PMVs), while community pharmacies are registered by licensed Pharmacists. PMVs are individuals with no formal

pharmacy training, and are only authorized to sell over-the-counter medicines and are usually licensed to practice by the Pharmacists Council of Nigeria; however, no such licensing exists for medicine vendors in community pharmacies.<sup>[3]</sup>

The law does not specify the minimum educational level for medicine vendors; however, the minimum educational level for PMVs in Nigeria is the primary level of education. In Nigeria, medicine vendors are required, by law, to sell medicines in their original package.<sup>[4]</sup> PMVs are not allowed, by law, to alter a medicine package or sell a portion of medicines from their package as this constitutes dispensing. Hence, their role is commercial and retail in nature. However, 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.<sup>[5]</sup> However, some medicine vendors in Nigeria are trained as Pharmacy Technicians with basic knowledge of dispensing, to serve as assistants to registered pharmacists.<sup>[6]</sup>

Self-medication is a common practice in developing

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countries. About 60–80% of health problems are treated by self-medication.<sup>[7]</sup> Appropriate self-medication requires the individual to accurately recognize symptoms, set therapeutic objectives, select the appropriate medicine to be used for his medical condition, and determine the appropriate dosage and dosage schedule, taking into account his medical history, contraindication, and possible side effects of the medicine.<sup>[8]</sup>

Self-medication among health staff has been studied. Nalini,<sup>[9]</sup> evaluated self-medication practice among government doctors in India, and concluded that the prevalence of self-medication practice among doctors is high. Baros *et al.*,<sup>[10]</sup> demonstrated that self-medication was a frequent practice among nurses working in public hospitals in Brazil, and Bamgboye *et al.*,<sup>[11]</sup> showed that self-medication among workers involved in medical care services in tertiary hospitals in Nigeria is high. No study has looked at self-medication practice and medicine knowledge among medicine sellers in Nigeria. This study was therefore aimed at evaluating self-medication practice and medicine knowledge among medicine vendors, to determine if a relationship exists between the two.

## Materials and Methods

### Study setting

The study was conducted in Jos, north-central, Nigeria. There are about 119 registered Community Pharmacy outlets and several Patent Medicine Stores in Jos-North and Jos-South Local Government Areas, where this research was carried out.

### Study design

A descriptive, cross-sectional survey was conducted on 236 medicine vendors. The study population was obtained through a two-stage stratified convenience sampling design. The first stage involved stratifying Jos into two, based on the two local governments that made up Jos. Each local government was further stratified into two according to the place of practice (community pharmacy and patent medicine store) of the respondents, and these formed the primary sampling unit. The primary sampling unit (PSU) was obtained by a convenience method and the medicine vendors in the PSU who consented to participate in the study were included in the study. A total of 129 PSUs, consisting of 55 community pharmacies and 74 patent medicine stores were used for this study.

A pretested questionnaire was administered to the participating medicine vendors. The participants responded to questions on demography, self-medication practices within the last month, reasons for self-

medication, and sources of medicine information. A knowledge assessment test was also administered to test the respondents' over-the-counter medicine knowledge on key areas of medicine indication, drug administration, brand and generic names of medicines, contraindication, interaction, and side effects of medicines.

The study was approved by the Ethical Committee of the Faculty of Pharmaceutical Sciences, University of Jos, Jos, Nigeria. Approval to carry out the study in each PSU was obtained from the managers of the PSUs. Verbal informed consent was sought from each participant before administering the questionnaire and the participants were told that participation in the study was voluntary and information obtained would be anonymous and confidential.

### Data analysis

Data were entered into the Statistical Package for Social Sciences (SPSS) version 16.0 (SPSS Inc, Chicago IL) to generate descriptive statistics. Relationships between variables were tested using the chi-square test. The knowledge assessment test was graded and the score was converted into percentages. A percentage score of less than 50% was considered inadequate, while a score of between 50 to 69% was considered marginal, and a score of 70 to 100% was considered adequate.

## Results

A total of 310 questionnaires were distributed to medicine vendors, but 236 of them were returned, representing a response rate of 76.1%. About 62% of the respondents were between the ages of 21 and 30 years and most respondents (65.7%) had post secondary education with 28% of the respondents holding a certificate in health sciences [Table 1]. There was a significant association between the respondents' place of practice with their highest educational level attained and holding a health certificate, as 67.7% of those with tertiary education and 71.2% of those holding a health certificate worked in community pharmacies.

Self-medication was found to be common (75.4%) among medicine vendors and it was not found to be associated ( $P>0.05$ ) with any of the demographic characteristics of the respondents [Table 2].

The classes of medicines commonly used by respondents for self-medication were analgesics (31.4%), anti-malarials (22.6%), multivitamins (17.7%), and antibiotics (11.25%) [Table 3].

The common reasons given by the respondents for engaging in self-medication were that their illness was mild (31.7%), they were knowledgeable about

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

Variables	Frequency	Percentage
Age (years)		
≤20	27	11.4
21–30	147	62.3
31–40	59	25.0
41–50	3	1.2
Gender		
Male	120	50.8
Female	116	49.2
Marital status		
Single	175	74.2
Married	57	24.1
Widowed	3	1.3
Divorced	1	0.4
Highest educational level		
Primary	6	2.5
Secondary	75	31.8
Tertiary	155	65.7
Hold a health certificate		
Yes	66	28.0
No	170	72.0
Years of experience in practice		
0–5 years	130	75.1
6–10 years	30	17.5
11–15 years	11	6.3
16–20 years	2	1.2
Place of Practice		
Patent medicine store	98	41.5
Community pharmacy	138	48.5

the treatment of their conditions (23.5%), and self-medication saved time (17.6%). Other reasons given by the respondents were that self-medication saved money (12.2%) and that they had taken the same medicine in the past (10.9%)

Common sources of medicine information among respondents were from the health professionals (47.3%), medicine leaflets (23.3%), and the media (19.1%). Other sources of medicine information among respondents were from friends and relatives (7.6%) and the internet (0.8%).

The knowledge assessment test revealed that 32.6% of the respondents had inadequate knowledge, 33.1% had marginal knowledge, and 34.3% had adequate knowledge. There was no significant ( $P>0.05$ ) relationship between self-medication practice among respondents and their medicine knowledge. However, the medicine knowledge scores were found to be significantly ( $P<0.05$ ) associated with holding a certificate in health sciences, the years of experience, and place of practice [Table 4].

## Discussion

The demographic data gathered from this study showed that a number of medicine vendors had post secondary education with about 28% of them holding a certificate

**Table 2: Prevalence of self-medication practice among respondents**

Variables	Prevalence (%)	$\chi^2$ , df	P value
Age (years)		6.665, 3	0.083
<20	81.5		
20–30	71.0		
31–40	86.4		
41–50	50.0		
Gender		1.168, 1	0.280
Male	79.3		
Female	73.3		
Highest educational level		2.414, 2	0.299
Primary	66.7		
Secondary	70.2		
Tertiary	79.1		
Hold a health certificate		3.612, 1	0.057
Yes	84.6		
No	72.8		
Years of experience in practice		3.272, 2	0.195
0–5 years	76.7		
6–10 years	76.7		
11–15 years	100		
Place of practice		1.767, 1	0.184
Patent medicine store	71.9		
Community pharmacy	79.4		
Overall	75.4		

**Table 3: Classes of medicine used by respondents for self-medication**

Class of Medicine	Frequency	Percentage
Analgesics	71	31.4
Multivitamins	40	17.7
Antibiotics	26	11.5
Flu/cough medicine	22	9.7
Malaria medicine	51	22.6
GIT medicine	11	4.9
Herbal medicine	2	0.9
Psychotropic agents	1	0.4
Other medicine	2	0.9

in various fields of health sciences. Those holding a certificate in health sciences reported being trained as nurses, community health workers, and pharmacy technicians. Although the policy does not consider being trained in these fields as a prerequisite to being a medicine vendor, having trained staff at the community level is of public health significance, as these staff work in premises that are cited within local communities and they can advice the public on the safe use of medicines, minor ailments, and healthy lifestyles.

The prevalence of self-medication among medicine vendors was high (75.4%). This rate is similar to a finding in a tertiary hospital in Nigeria, wherein, the prevalence of self-medication among workers was 73%.<sup>[11]</sup> Although the prevalence of self-medication in this study was not associated with any of the demographic characteristics

**Table 4: Medicine knowledge assessment scores of respondents**

Variable	Inadequate knowledge N (%)	Marginal knowledge N (%)	Adequate knowledge N (%)	$\chi^2$ , df	P value
Gender				0.842, 2	0.656
Male	36 (30.5)	42 (35.6)	40 (33.9)		
Female	40 (34.5)	35 (30.2)	41 (35.3)		
Highest educational level				8.432, 4	0.077
Primary	3 (50.0)	2 (33.3)	1 (16.7)		
Secondary	32 (42.2)	24 (32.4)	18 (24.3)		
Tertiary	42 (27.8)	52 (34.4)	61 (40.4)		
Hold a health certificate				12.476, 2	0.002*
Yes	14 (21.2)	18 (27.3)	34 (51.5)		
No	63 (37.1)	60 (35.3)	47 (27.6)		
Years of experience in practice				10.21, 4	0.037*
0–5 years	49 (37.7)	42 (32.3)	39 (30.0)		
6–10 years	4 (13.3)	9 (30.0)	17 (56.7)		
11–15 years	4 (36.3)	2 (18.2)	5 (45.5)		
Place of practice				13.333, 2	0.001*
Patent medicine store	36 (37.5)	40 (41.7)	20 (20.8)		
Community pharmacy	41 (29.7)	37 (26.8)	60 (43.5)		
Overall	77 (32.6)	78 (33.1)	81 (34.3)		

\* $P < 0.05$ 

studied, the high prevalence of self-medication among medicine vendors may be as a result of their perceived medicine knowledge (as most of them reported that they were knowledgeable about the medicine they used for self-medication) and increased access to medicines, as these factors have been shown to promote self-medication.<sup>[9]</sup>

The high use of analgesics for self-medication confirms the findings that analgesics are the commonly used over-the-counter medicines for self-medication,<sup>[12,13]</sup> while the high use of anti-malarial drugs correlates with the high incidence of malaria in Nigeria.<sup>[14,15]</sup> Multivitamins were common because people take them as supplements for promoting health, preventing illness; to boost the immune system, for prevention of stress, and to supplement regular nutrition.<sup>[12]</sup> Hence, their use is usually seen as part of a healthy lifestyle. Self-medication with antibiotics is of public health concern because inappropriate use of antibiotics has been reported even among health workers.<sup>[9]</sup> Inappropriate use of antibiotics results in antibiotic resistance, which is a major problem worldwide especially in developing countries.<sup>[16]</sup>

Reliable sources of medicine information increases an individual's knowledge on medicine. Medicine information from friends / relatives, media, and the internet are unreliable sources of medicine information and people can easily be misinformed by these sources.<sup>[17]</sup> A number of the studied population relies on these sources of information, hence, the need for these vendors to be enlightened on the appropriate and reliable sources of medicine information.

The study demonstrated poor medicine knowledge

among the respondents; only 34.3% of the respondents had adequate knowledge as per the medicine knowledge assessment test. Medicine knowledge was found to be associated ( $P < 0.05$ ) with holding a certificate in health sciences, years of experience, and place of practice. Vendors with a health certificate, those with more years of experience, and those working in a community pharmacy had more adequate knowledge. The higher medicine knowledge level achieved by medicine vendors in community pharmacies, rather than those in patent medicine stores, could be a result of the high percentage of trained medicine vendors working in community pharmacies or might have to do with their working environment and experience, as vendors working in community pharmacies had more exposure with respect to the types of medicines they handled and they also worked under the supervision of a trained pharmacist, who could be contributing to their medicine knowledge.<sup>[6]</sup>

### Study limitation

A few limitations exist with this study; the study population may not be representative of the medicine vendors found in Jos; and the study was based on retrospective information obtained from the vendors and this is prone to recall error and bias in reporting.

### Conclusion

The present study demonstrated that self-medication practice was high and inadequate medicine knowledge existed among respondents. Hence, there is a need for education on appropriate self-medication practice among medicine vendors.

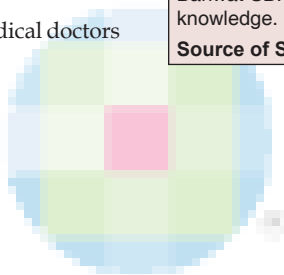


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