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Research Article

Perception and Use of Herbal Medicines Among Clients Visiting Selected Community Pharmacies in Ibadan, Nigeria

***Akande-Sholabi W.[1], Iluyomade A.[1], Ilesanmi O.S.[2], and Adisa R.[1]**

[1]*Department of Clinical Pharmacy and Pharmacy Administration, Faculty of Pharmacy, University of Ibadan, Nigeria*

[2]*Department of Community Medicine, College of Medicine, University of Ibadan, Nigeria*

ABSTRACT

Globally, there is an increasing trend in the use of herbal medicines. Despite, the benefit of its use, herbal medicines are not completely harmless. This study aims to evaluate the perception and use of herbal medicines among clients who visited selected community pharmacies in Ibadan metropolis, Nigeria. A cross-sectional survey was carried out among clients who patronized the selected community pharmacies, using a self-administered questionnaire. Demographic information, as well as perception and use of herbal medicines were evaluated. Data were summarized with descriptive statistics while K-W test was used for ranked variables at $P<0.05$. The response rate was 90.7 %. Malaria 113 (58.9 %) was cited as the most common illness treated with herbal medicines. A total of 232 (76.8 %) had score ≥ 50.0 % indicating "good" perception on the use of herbal medicine. The level of education of the clients significantly influenced some of their perception towards herbal medicine. This include statement such as herbs can cure all diseases (K-W p=0.011), combination of the conventional drugs and herbs have no side effects (K-W p=0.002), and that side effect of synthetic drugs can be minimized with combination with herbs (K-W p=0.044). Most of the respondents had good perception about herbal medicine use. However, it was notable that the level of education significantly influenced the perception about the use of herbal medicines of some respondents. Public sensitization programme, and health education about the safety of herbal medicines, may be a useful means of improving the use of herbal medicine and reduce potential health risk.

***Keywords**: Herbal medicines, perception, pharmacies, Nigeria*

*Author for correspondence: Email: wuradol@gmail.com, Tel: +2348168538093

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INTRODUCTION

The use of herbal medicine as the initial source of healthcare among the world population is approximately 75-80 % (WHO, 2008), and this use is mostly widespread in the developing countries, where it is contemplated to be culturally tolerable, less harmful and a more natural form of medicine that is suitable with the human body system (Suleiman, 2014).

Herbal medicines use emerges a traditional therapy for people who self-care and are active in their health care (Miller *et al*., 2000). The belief in complementary and alternative medicines (CAM) in Nigeria encouraged the use of herbal medicines for self-treating illness (Oreagba *et al*., 2011). Majority of the populace in developing countries belief in the use of herbal medicines for self-treating various ailments (Osamor *et al*., 2010). Thus, the rise in the use of herbal medicines either alone or combined with allopathic medicines is enhanced by the belief that all herbal medicines are safe and natural alternatives to conventional medicines (Barnes, 1999; Anthony, 2002; McCrea *et al*., 2011). However, herbs are medicines, thus, they are anticipated to have adverse side effects (WHO, 2004). These medicines are available in health shops; although, unlicensed in various countries. In Nigeria, some of the herbal medicines are listed for sale by National Agency for Food and Drug Administration and Control (NAFDAC), while investigation is ongoing to fully assess their safety status (Oguntade *et al*., 2011). The NAFDAC perception and unrestricted advertisement of these products are equally contributory factors to the rise in herbal medicine usage (Adepoju *et al*., 2008).

The World Health Organisation (WHO) defines herbal medicines as medications prepared from one or more herbs or plants parts (roots, stem bark, seeds, and/or fruits) (WHO, 2000). Most of these herbal medicines are rarely researched and their safety and efficacy are generally undocumented

unlike the conventional orthodox medicines. In addition, the formulation and sales are inadequately controlled. Hence, they may constitute a potential health hazard for herbal medicine users (Oshikoya, 2008). Although, the evidence of the efficacy of these medicines are scarce in the literature, its use is sometimes beneficial, and they are regularly purchased together with allopathic medicines in pharmacies (Fakeye *et al*., 2007; Adisa *et al*., 2006).

Globally, community pharmacies have been identified as major supplier of herbal medicines. Therefore, they, have an essential role to play in the use of herbal medicines bought by their clients especially since the medicines are commonly sold as over-the-counter (OTC) medicines in many countries (WHO, 2005). In addition, clients usually seek advice and information on medicines, including herbal medicines, from pharmacists.

In Nigeria, previous studies have been conducted on herbal medicine use among adults with various forms of chronic illnesses (Danesi *et al*., 1994; Amira *et al*., 2007; Ogbera *et al*., 2010), pregnant women (Fakeye *et al*., 2009) and children with chronic illnesses (Oshikoya, 2008). However, the perception and use of herbal medicines among the general population needs to be continuously evaluated especially in Nigeria where people have unhindered access to herbal medicine use. This study was therefore aimed at evaluating the perception and use of herbal medicines among clients who visited selected community pharmacies in Ibadan metropolis, Nigeria.

MATERIALS AND METHODS

Study area: This study was carried out in Ibadan. Ibadan is the capital city of Oyo State in the southwestern area of Nigeria. Oyo State has a landmass of 27, 249 square kilometers and is one of the 36 States in Nigeria. Oyo State has a population of 5.6 million (NPC, 2006), while Ibadan metropolis has a population of 3.6 million inhabitants and Ibadan consists of 11 Local Government Areas (LGAs). The first federal university teaching hospital in Nigeria is located in Ibadan, while the State has a number of public and private hospitals, as well as primary healthcare centres widely distributed across the nooks and crannies of the State. Also, registered community pharmacies and patent medicine vendors are abundant in Ibadan.

Study population: Clients who visited selected community pharmacies in Ibadan, Oyo State, Southwestern Nigeria.

Study design and setting : This was a cross-sectional survey among clients who visited selected community pharmacies in the Ibadan metropolis, between June and October 2016, using a pre-tested questionnaire.

Sample size and sampling technique: Number of clients who visited the community pharmacies monthly was obtained from the pharmacies as total average population of 1200 clients. Based on the estimated population at 95 % confidence level and 5 % margin of error, a sample size of 300 was obtained using Yamane sample size formula (Yamane, 1967). Adjusting for a 10 % non-response rate gave a target sample population of approximately 333.

Sampling and data collection procedure: The study was carried out in selected community pharmacies in Ibadan, consisting of at least one pharmacy from each local government area in Ibadan. Investigator visited the selected registered community pharmacy based on the Pharmacists Council of Nigeria (PCN) register for the year of study. There are 98 registered community pharmacies in the year 2016 in the PCN register. Objectives and procedure of the study were explained to the superintendent pharmacists in all the pharmacies visited, after which permission to interact with clients who visited/patronize the pharmacy was obtained. A total of 22 community pharmacies eventually gave permission for the conduct of the study in their premise. Subsequently, clients who patronized the selected pharmacies for prescription refill or health-related complaints were approached, while verbal informed consent was obtained, after the purpose of the study was explained to client individually. Questionnaire administration to clients continued at every day of the week, by allocating specific day of the week for pharmacies in the same axis, while focusing on the peak client patronage for each pharmacy. Consented participants were consecutively enrolled in each pharmacy. Administration of questionnaire was done by the investigators. Participants were assured of their anonymity and confidentiality of response. Each questionnaire took about 20 minutes to complete after which the questionnaire was returned and checked for completeness by the investigators. Measures were put in place to ensure that no client filled more than one questionnaire. This was achieved by coding of each questionnaire administered to the client from each community pharmacy to avoid duplication. Clients who did not understand English were assisted by the investigator, however, back-translation was subsequently done to ensure response consistency. Average of 15 clients filled and completed the questionnaire per consented community pharmacy.

Inclusion and exclusion criteria: All consenting clients aged >18 years who visited the selected community pharmacies were included in the study. All clients younger than 18 years and all non-consenting adults who visited the selected community pharmacies were excluded.

Data collection instrument : The main instrument used for data collection was a semi-structured questionnaire developed by the investigators following extensive review of relevant studies (Oreagba *et al*., 2011; Pearson *et al*., 2018), as well as utilizing previous experience. The questionnaire consisted of three sections. Section A captured demographic characteristics and level of education. Section B contained questions that evaluated the use of herbal medicines among the clients. Section C contained 9-item questions with 5-points Likert scale response option ranging from strongly agree (5) to strongly disagree (1) to explore and evaluate client's perception towards the use of herbal medicine.

Pretest/validation of the questionnaire: The questionnaire was assessed for content validity by two academics with public health expertise. The pretest was done among five randomly selected pharmacies in Ibadan metropolis, these pharmacies were not included in the main study. Feedback from the pretest and validity assessment led to minor modifications including some questions initially designed in open-ended format which were subsequently re-modified as a dichotomous Yes/No format to eliminate response ambiguity.

Ethical approval: The study received approval from the joint University of Ibadan/University College Hospital Institutional Ethical Review Board with IRB No (EC/16/0277).

Statistical analysis:
The administered questionnaires were sorted, cross-checked after each interview and coded serially. Statistical Package for Social Sciences SPSS (version 21) was used for data entering, cleansing and analysis. Descriptive statistics including frequency, percentage, and mean ± standard deviation (SD) was used to summarise data. Continuous data were presented as mean ± standard deviation SD, while categorical data were presented as frequency and percentages. For the 9-item statements on perception of clients with 5-points Likert scale response, a total score of at least 23 (i.e. ≥ 50 %) out of the maximum obtainable score of 45 was categorised as "good" perception, while a score < 23 (i.e. < 50 %) was assigned "poor" perception. The binary categorisation of scores in the knowledge and perception domains developed for this study was adapted from Bloom's cut-off criteria, as well as other related studies (Bloom, 2000; Akande-Sholabi *et al*., 2020). Chi-squared test was used to evaluate the association between demographic characteristics, level of education of clients and binary categories of perception of those who had used herbal medicines, as well as the overall perception scores.

RESULTS

A total of 333 questionnaires were administered to the respondents, only 302 were completely filled, given a response rate of 90.7%. One hundred and sixty-one (53.5 %) were males, 153 (55.6%) were aged between 18 and 30 years. Most of the respondents (255; 84.4%) were Yoruba. Students were 118 (39.3%) and professionals were 117 (35.6%), while majority 237 (78.5 %) had tertiary education (Table 1).

Table 2 shows the usage of herbal medicine among the clients who visited the selected community pharmacies. Majority (271; 89.7%) have no present illness. The most common health condition for which herbs has been used for was malaria (113; 58.9 %), followed by diarrhoea and pile (15; 7.8 %) and typhoid, antioxidant and stomach pain had 6 (3.1 %) each. The pharmacy premise (83; 40.5%) topped the list of the source of herbal medicines for clients followed by the local herb's sellers in the environment (51; 24.9 %), herbalist (36; 17.6%) and patent medicine vendors (25; 12.2 %). Most clients (198; 65.6 %) do not use herbal medicines frequently.

Table 1:
Sociodemographic characteristics of respondents visiting selected community pharmacies in Ibadan, Nigeria

Variable	Frequency	Percent
Age group (n=275)		
18-<30	153	55.6
30-39	69	25.1
40+	53	19.3
Gender (n=302)		
Male	161	53.3
Female	141	46.7
Ethnicity (n=302)		
Yoruba	255	84.4
*Others	47	15.6
Occupation (n=298)		
Student	118	39.6
Professional	117	39.3
Trader	42	14.1
Artisan	21	7.0
Level of education (n=302)		
No formal/Primary education	15	5.0
Secondary education	50	16.6
Tertiary education	237	78.4

**Igbo 31, Hausa 7, Urhobo 2, Ijaw 2, Itsekiri 2, Edo 2, Igala 1*

Table 2:
Herbal medicine usage among clients who visit selected community pharmacies in Ibadan, Nigeria

Any present illness? (n=302)	F	%
Yes	31	10.3
No	271	89.7
Health condition for which herbs has ever been used (n=192)		
Malaria	113	58.9
Diarrhoea	15	7.8
Pile	15	7.8
Typhoid	6	3.1
Antioxidant	6	3.1
Stomach pain	6	3.1
Diabetes	5	2.6
Hemorrhoid	2	1.0
Chickenpox	3	1.6
Menstrual pain	1	0.5
Others	20	10.6
Source of the herbal medicine use (n=205)		
Pharmacy	83	40.5
Local sellers in the environment	51	24.9
Herbalist	36	17.6
Patent medicine vendors	25	12.2
Independent distributor	7	3.4
Hospital	1	0.4
Others	2	1.0
Do you use any herb frequently (n=302)		
Yes	104	34.4
No	198	65.6
Source of local preparation (n=97)		
Home made	62	63.9
Concoction sellers	35	36.1
Did you inform your doctor or other health care provider before the use of herb (n=104)		
Yes	69	66.3
No	35	33.7
Any adverse effect after herb use (n=104)		
Yes	72	69.2
No	32	30.8

Table 3:
Respondents' perception on the use of herbal medicine in Ibadan, Nigeria (n=302)

Statements	Strongly agree n (%)	Agree n (%)	Neutral n (%)	Disagree n (%)	Strongly disagree n (%)	50th percentile
Herbal remedies are always natural	102 (33.8)	131 (43.4)	37 (12.3)	24 (7.9)	8 (2.6)	2
Herbal remedies are always safe	23 (7.6)	89 (29.5)	105 (34.8)	67 (22.2)	18 (6.0)	3
Herbs can cure all disease state	35 (11.6)	47 (15.6)	81 (26.8)	94 (31.1)	45 (14.9)	3
All drugs are originally from herbs	90 (29.8)	97 (32.1)	50 (16.6)	48 (15.9)	17 (5.6)	2
Herbs can aid the action of synthetic drugs	22 (7.3)	66 (21.9)	95 (31.5)	71 (23.5)	48 (15.9)	3
Herbs should be combined with synthetic drugs	21 (7.0)	45 (14.9)	66 (21.9)	88 (29.1)	82 (27.2)	4
Combination of the conventional drugs and herbs improves health	26 (8.6)	66 (21.9)	73 (24.2)	66 (21.9)	71 (23.5)	3
Combination of the conventional drugs and herbs have no side effects	22 (7.3)	35 (11.6)	74(24.5)	95 (31.5)	76 (25.2)	4
Side effect of synthetic drugs can be minimized with combination of herbs	20 (6.6)	34 (11.3)	85(28.1)	89 (29.5)	74 (24.5)	4
Distribution of scores (%)	**Frequency**	**(%)**		Remarks		
<50%	70	23.2		Poor perception		
≥50%	232	76.8		Good perception		

Maximum obtainable score = 45; Strongly agree = 1, agree = 2, undecided = 3, disagree = 4, strongly disagree = 5.

Table 4:
Relationship between relevant socio-demographic characteristics of respondents' perception and frequent use of herbs in Ibadan, Nigeria

	Perception		Frequent Use of Herb	
Variable	Good; n (%)	Poor; n (%)	Yes; n (%)	No; n (%)
Age group				
18-<30	38 (24.8)	115 (75.2)	46 (30.1)	107 (69.9)
30-39	13 (18.8)	56 (81.2)	27 (39.1)	42 (60.9)
40+	12 (22.6)	41 (77.4)	21 (39.6)	32 (60.4)
	[x_2 = 0.971 p = 0.615]		[x_2 = 2.601 p= 0.272]	
Gender				
Male	41(25.5)	120 (74.5)	61 (37.9)	100 (62.1)
Female	29 (20.6)	112 (79.4)	43 (30.5)	98 (69.5)
	[x_2 = 1.013 p= 0.314]		[x_2 = 1.819 p = 0.177]	
Ethnicity				
Yoruba	59 (23.1)	196 (76.9)	86 (33.7)	169 (66.3)
*Others	11(23.4)	36(76.6)	18 (38.3)	29 (61.7)
	[x_2 = 0.002 p= 0.968]		[x_2 = 0.367 p = 0.544]	
Occupation				
Student	30 (25.4)	88 (74.6)	37 (31.4)	81 (68.6)
Professional	20 (17.1)	97 (82.9)	36 (30.8)	81 (62.9)
Trader	12 (28.6)	30 (71.4)	19 (45.2)	23 (54.8)
Artisan	8 (32.0)	17 (68.0)	12 (48.0)	13 (52.0)
	[x_2 = 4.545 p= 0.208]		[x_2 = 5.4 p= 0.145]	
Level of education				
No formal/Primary education	7(46.7)	8 (53.3)	9 (60.0)	6 (40.0)
Secondary education	14 (28.0)	36 (72.0)	23 (46.0)	27 (54.0)
Tertiary institution	49 (20.7)	188 (79.3)	72 (30.4)	165 (69.6)
	[x_2 = 5.637** p = **0.018**]		[x_2 = 9.03 p= **0.011**]	

*Igbo 31, Hausa 7, Urhobo 2, Ijaw 2, Itsekiri 2, Edo 2, Igala 1; **Linear by Linear association

About two-third 69 (66.3 %) of the clients inform their doctor or other health care provider before the use of herb, while 72 (69.2 %) reported to have experienced an adverse effect after the use of herb. Most of the clients (62; 63.9 %) who use the locally prepared herbs used the home-made preparation.

Respondent perception on the use of herbal medicine is shown in Table 3. Two-hundred and thirty-three (77.2 %) reported herbal remedies are always natural, 112 (37.1 %) believes herbal remedies are always safe and 187 (61.9 %) believed all drugs are originally from herbs. A total of 232 (76.8 %) had score ≥ 50 % indicating "good" perception on the use of herbal medicine. The association between relevant demographic characteristics and respondent's overall perception scores is shown in Table 4. Clients with no formal/primary education (8; 53.3 %) had significantly poor perception about herbal medicine usage compared with other

counterparts (X_2=5.637, p=0.018). On the other hand, clients with tertiary education (165; 69.6 %) significantly do not use herbal medicines frequently when compared with their counterparts (X_2=9.03 p=0.011).

Table 5:
Association between level of education and perception about use of herbal medicine in Ibadan, Nigeria (n=302)

Statement	**Level**	**N**	**Mean Rank**	**K-W, p-value**
Herbal remedies are always natural	≤Primary	15	142.37	**0.039**
	Secondary	50	125.56**	
	Tertiary	237	157.55*	
Herbal remedies are always safe	≤Primary	15	132.30	0.067
	Secondary	50	129.47**	
	Tertiary	237	157.36*	
Herbs can cure all disease state	≤Primary	15	121.80**	**0.011**
	Secondary	50	124.05	
	Tertiary	237	159.17*	
All drugs are originally from herbs	≤Primary	15	126.10**	0.228
	Secondary	50	139.46	
	Tertiary	237	155.65*	
Herbs can aid the action of synthetic drugs	≤Primary	15	147.17**	0.944
	Secondary	50	148.75	
	Tertiary	237	152.35*	
Herbs should be combined with synthetic drugs	≤Primary	15	112.10**	0.122
	Secondary	50	143.82	
	Tertiary	237	155.61*	
Combination of the conventional drugs and herbs improves health	≤Primary	15	133.50**	0.618
	Secondary	50	146.87	
	Tertiary	237	153.62*	
Combination of the conventional drugs and herbs have no side effects	≤Primary	15	82.60**	**0.002**
	Secondary	50	139.56	
	Tertiary	237	158.38*	
Side effect of synthetic drugs can be minimized with combination with herbs	≤Primary	15	102.20**	**0.044**
	Secondary	50	143.93	
	Tertiary	237	156.22*	

K-W: Kruskal-Wallis test
**Highest mean rank indicates those who least agreed to the corresponding statement*
***Lowest mean rank indicates those who mostly agreed to the corresponding statement*

Table 5 shows that the level of education of the clients significantly influenced their opinion on some perception related statements towards herbal medicine use such as herbs can cure all diseases (K-W p=0.011), combination of the conventional drugs and herbs have no side effects (K-W p=0.002), and that side effect of synthetic drugs can be minimized with combination with herbs (K-W p=0.044).

DISCUSSION

Herbal medicines use is very common among general population in Nigeria (Oreagba *et al*., 2011). Various studies in Nigeria have been conducted on herbal medicine among adults with chronic illnesses (Danesi *et al*., 1994; Amira *et al*., 2007; Ogbera *et al*., 2010), pregnant women (Fakeye *et al*., 2009), children with chronic illnesses (Oshikoya, 2008) and cancer (Ezeome *et al*., 2007). Only few studies have explicitly assessed herbal medicine use among general population (Williamson *et al*., 1998; Bennett *et al*., 2000; Oreagba *et al*., 2011). This study evaluated the perception and use of herbal medicines among clients who visited selected community pharmacies in Ibadan metropolis, Nigeria.

In this study, herbal medicines were used for a variety of health conditions ranging from malaria to diarrhoea, typhoid and so on (Table 2). Furthermore, malaria was the commonest illness for herbal medicine use in this study. This finding is similar to previous studies in Nigeria (Adibe, 2009; Oreagba *et al*., 2011). However, only 58.9 % of our respondents treated malaria with herbal medicine compared with 20 % (Adibe, 2009) and 80 % (Oreagba *et al*., 2011) in the previous studies. The difference in the proportions of respondents using herbal medicine to treat malaria in our studies as well as other studies might be as a result of the differences in the perception of the herbal medicine users in the various parts of Nigeria. In addition, malaria is a major public health problem that may negatively affect many individuals in high malaria endemic region, thus the look for alternative therapy to augment the conventional orthrodox medicine. Of note, the upsurge of chloroquine and sulphadoxine/pyrimethamine resistant malaria in the country might have influenced the use of herbal medicines by the respondents (Igboeli *et al*., 2010).

The choice of using the pharmacy premise as a target site for our respondents was corroborated by the fact that, substantial number of the respondents cited pharmacy premises as the most common source of purchase for the herbal medicine used. It is also noted in our study that about two-third of the clients claimed to inform their doctor or other health care providers before the use of herbs. The community pharmacist role in the sale and use of herbal medicine cannot be underrated, as they play a significant role in counselling and educating the clients about these products. Most herbal medicine users believe herbs are safe due to its natural sources. However, this may be misleading and therefore necessitate the need for continuous enlightenment of the populace, that though herbal medicine is perceived to be safe, there is still need to be safety cautions. The fact that herbal medicine is produced from herbs which originated from natural products does not justify its safety (WHO, 2004). Some of the respondents reported to have experienced an adverse effect after the use of these products. This could be

attributed to some potential toxicity of herbs. Thus, continuous appropriate measures should be put in place towards educating the populace about possible drug-drug interaction between herbal medicines and orthodox medicines by the Nigerian regulatory framework (NAFDAC).

The levels of education of herbal medicine users in this study significantly influenced their perception about use of herbal medicine, notably the perception that herbs can cure all diseases, combination of the conventional drugs and herbs have no side effects and that side effect of synthetic drugs can be minimized with combination with herb usage has mostly been associated with lower level of education achievement. Moreover, this correlates with previous findings documented in Cambodia, Ethiopia and Nigeria that herbal medicine use is usually associated with lower level of education in resource-poor settings (Joseph *et al*., 2016; Mekuria *et al*., 2017; Pearson *et al*., 2018).

Majority of the respondents had good perception about the use of herbal medicines. This maybe expected because of the partial approval of some of these products by NAFDAC in Nigeria which might have further encouraged people to engage in the use of herbal medicine. Therefore, there is need for continuous public awareness on the rational use of herbal medicine.

Most of the respondents had good perception of herbal medicine use. However, it was notable that the level of education significantly influenced the perception about the use of herbal medicines of some respondents. Considering the fact, that it was clients with lower level of education who demonstrated some levels of ignorance in the perception of herbal medicine use, it is necessary to evaluate the safety and accessibility of procurement of these products. Public sensitization programme, and health education about the safety of herbal medicines, may be a useful means of improving the use of herbal medicine users and reduce potential health risk.

Some limitations of this study were it was conducted among clients who visited selected community pharmacies in one city. Perhaps if conducted in more cities, we might have a more comprehensive evaluation of the perception about the use of herbal medicines who visited community pharmacies. Thus, there may be a need for caution in generalization of our findings to the herbal medicine users in Nigeria. The results reported maybe subject to recall bias, due to the self-reported nature of the study, whereby the respondents may either under or over reported certain variables.

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