

## KNOWLEDGE, PERCEPTIONS AND PRACTICES OF COMMUNITY PHARMACISTS ON THE USE OF PHYTOPHARMACEUTICALS IN JOS, NIGERIA

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Article Received on  
15 Jan. 2016,

Revised on .....  
Accepted on 19 Jan. 2017

DOI: 10.20959/wjpps20172-8623

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### ABSTRACT

The global increase in the use of phytopharmaceutical products (herbal medicinal formulations) partly arises from the misconception that ‘natural’ means “safe or risk-free”. To provide optimal pharmaceutical care, pharmacists need to be knowledgeable on the activities, safety and rational use of phytopharmaceutical products. This study is an Assessment of the knowledge, perceptions and practices of community pharmacists on the use of phytopharmaceutical products in Jos, Plateau State, North-Central Nigeria. Data on pharmacists’ demographics, opinion, knowledge of indications, side effects, interactions, contra-indications, regulations of phytopharmaceutical products and other

professional practices were collected using self-administered questionnaires in December, 2013. Descriptive statistics was used to measure findings and main features of the study using the Statistical Package for Social Sciences (SPSS) version 16 in March, 2014. Majority of respondents were without any form of post-graduate training on phytopharmaceutical products. Most community pharmacists sold phytopharmaceutical products and indicated that clients always sought information on the products. There was complete lack of knowledge of interactions and contra-indications and a very minimal knowledge of side effects but a substantial knowledge of the indications of phytopharmaceutical products from the pharmacists. It was therefore established that pharmacists had limited knowledge on phytopharmaceutical products but were willing to acquire additional training. Regulatory

bodies and educational institutions should organize continuing education programmes to update the knowledge of pharmacists in this area.

**KEYWORDS:** Community pharmacists, Phytopharmaceutical products, Knowledge and pharmaceutical care.

## **MATERIALS AND METHODS**

### **study site**

The study was conducted among community pharmacists working in community pharmacies located in Jos, North-Central Nigeria.

### **sampling method**

The study was conducted using the total population sample after considering the exclusion and inclusion criteria.

### **study design**

Cross-sectional and prospective survey.

### **study instrument**

A twenty five-item, structured, self-administered questionnaire was used to collect data from the respondents.

### **data collection method**

A list of registered pharmacies in Jos was obtained from the Office of the Director of Pharmaceutical Services, Plateau State Ministry of Health. From the records, a total of 102 pharmacies were registered. Questionnaires were administered to 46 pharmacists in the pharmacies that had pharmacists on duty at any time during the period of this study. 44 of the questionnaires were filled and retrieved in December 2013. Informed consent of the pharmacists taking part was obtained before the commencement of the study.

The questionnaires were distributed to the pharmacists after validating for readability, question design and length, by pretesting on three (3) community pharmacists. The questions were meant to: (i) Obtain the pharmacist's demographic data (ii) Evaluate pharmacists' perception and professional practices towards the use of phytopharmaceutical products and (iii) Assess pharmacists' knowledge of regulatory issues, common indications, side effects, interactions, contra-indications of ten (10) popular and commonly sold phytopharmaceuticals

(Garlic, Yoyo bitters, Fijk flush, Ginseng, Ginkobiloba, Adam's desire, Bronchicum elixir, Noni juice, Extra-large size and Swedish bitters).

### **inclusion and exclusion criteria**

Included in the study were pharmacists working in registered pharmacies. Excluded were internees and those pharmacies without pharmacists on duty.

### **ethical consideration**

The Pharmacists' informed consent was sought before data was collected from them.

### **data analysis**

The questionnaires were analyzed in March, 2014 using Statistical Package for Social Sciences (SPSS) version 16. Descriptive statistics (frequencies and percentages) were used to quantify the responses of the pharmacists.

## **RESULTS**

**Table 1: Demographics**

	<b>RESPONSE</b>	<b>FREQUENCY</b>	<b>PERCENTAGE (%)</b>
Years of community pharmacy practice	1-5 Years	22	50.00
	6-10 Years	10	22.72
	11-15 Years	6	13.60
	16-20 Years	5	11.35
	<20 Years	1	2.27
	Total	44	100.00
Community pharmacy practice as respondent's only source of income	Yes	17	38.60
	No	27	61.40
	Total	44	100
Respondent's ownership of the pharmacy	Yes	21	48.00
	No	23	52.00
	Total	44	100

**Table 2: Experiences and practices of respondents with regards to the use of phytopharmaceutical products.**

	<b>RESPONSE</b>	<b>FREQUENCY</b>	<b>PERCENTAGE</b>
Stocking of Phytopharmaceutical products	Yes	34	77.30
	No	10	22.70
	Total	44	100:00
Concurrent purchase of phytopharmaceutical products and orthodox medicine by patients	Yes	41	93.20
	No	1	2.30
	No Response	2	4.50
	Total	44	100:00

Concurrent purchase of phytopharmaceuticals and orthodox medicines used in the management of chronic diseases such as hypertension and diabetes	Yes	32	72.70
	No	11	25.00
	No Response	1	2.30
	Total	44	100:00
Prescription for phytopharmaceutical products by doctors	No	18	40.90
	Rarely	25	56.80
	Frequently	1	2.3
	Total	44	100:00
Frequency of request for phytopharmaceutical products by patients/clients	Sometimes	32	72.70
	Most Times	11	25.00
	No Response	1	2.30
	Total	44	100:00
Prescription/recommendation of phytopharmaceutical products to patients/clients by respondents	Yes	33	75.00
	No	10	22.70
	No Response	1	2.30
	Total	44	100:00
Respondents' commonest mode of sales of phytopharmaceutical products	On patients'/clients' request	22	50.00
	Pharmacist's recommendation	15	34.10
	Doctor's prescription	1	2.3
	No Response	6	13.60
	Total	44	100:00
Request for information from pharmacists on phytopharmaceutical products by patients/clients	Yes	37	84.10
	No	6	13.60
	No Response	1	2.30
	Total	44	100:00
Counselling of patients by respondents not to use phytopharmaceuticals and orthodox medicines together	Yes	31	70.50
	No	12	27.20
	No Response	1	2.30
	Total	44	100:00
Frequency of counselling of patients by respondents on the use of phytopharmaceutical products	I don't	5	11.30
	Sometimes	20	45.50
	Most Times	12	27.30
	Always	6	13.60
	No Response	1	2.30
	Total	44	100:00
Respondents' source(s) of information	Official books only	1	2.30
	Internet only	5	11.40
	Product leaflet	9	20.50
	Others	2	4.50
	Two of the above	1	2.30
	Three of the above	1	2.30
	No Response	24	54.50
	Total	2	4.50
	44	100:00	

**Table 3: Respondents perception on the safety and efficacy of phytopharmaceutical products, as well as their competence in providing information on the products to patients**

	<b>RESPONSE</b>	<b>FREQUENCY</b>	<b>PERCENTAGE</b>
Respondents' perception on the adequacy of undergraduate pharmacognosy courses in preparing them to provide information on phytopharmaceuticals	Yes	24	54.50
	No	19	43.20
	No Response	1	2.30
	Total	44	100:00
Respondents' perception on the safety of phytopharmaceutical products	Very Safe	12	27.30
	Somewhat Safe	21	47.70
	I am not sure	9	20.50
	No Response	2	4.50
	Total	44	100:00
Respondents' perception on the efficiency of phytopharmaceutical products	Very Effective	8	18.10
	Somewhat Effective	26	59.10
	Never Effective	1	2.30
	I am not sure	5	11.40
	No Response	4	9.10
	Total	44	100:00
Respondents' opinion on the increase in the sales and use of phytopharmaceutical products	It is a positive development	27	61.40
	It is a negative development	2	4.50
	It has both positive and negative sides	13	29.50
	I don't have an opinion	-	-
	No Response	2	4.5
	Total	44	100:00
Respondents' highest level of training on phytopharmaceutical products	Undergraduate		
	Pharmacognosy only	25	56.80
	Postgraduate studies	5	11.40
	Workshops	11	25.00
	Others	1	2.30
	No response	2	4.50
Total	44	100.00	
Respondents' interest in acquiring additional knowledge/training on phytopharmaceutical products	Yes	41	93.20
	No	2	4.50
	No Response	1	2.30
	Total	44	100:00

**Table 4: Knowledge of respondents on phytopharmaceutical products**

	<b>RESPONSE</b>	<b>FREQUENCY</b>	<b>PERCENTAGE (%)</b>
Respondents knowledge on the evaluation of claims on phytopharmaceutical products by NAFDAC	Yes	6	13.60
	No	29	65.90
	No Response	9	20.50
	Total	44	100:00
Respondents' knowledge on common phytopharmaceutical products sold in their pharmacies	Indications	Pass (5-10/10) – 19	43.20
	Side Effects	Pass (5-10/10) – 2	4.50
	Interactions	Pass (5-10/10) – 0	0.00
	Contra-indications	Pass (5-10/10) – 0	0.00

## DISCUSSION

A total of 44 out of 46, making 96% of the questionnaires distributed were filled, retrieved and analyzed. This is an impressive level of response which indicates community Pharmacists' willingness to be involved in research work and contribution to knowledge. This high level of response is an improvement as compared to the findings by Ndem in a similar work carried out in South-South States of Nigeria.<sup>[12]</sup> Majority of respondents (56.80%) cited undergraduate Pharmacognosy as their highest level of training on phytopharmaceutical products which aligns with a similar study by Adisa and Fakaye in which 72% of respondents were without any form of post graduate studies, workshops or seminars on herbal medicinal products (phytopharmaceuticals).<sup>[2]</sup> This could be responsible for the overwhelming interest (> 93%) by respondents in acquiring additional knowledge/ training on phytopharmaceutical products, since there is evidence of high population of patients (> 84%) making enquiries about these medications.

Though, ironically, despite the afore mentioned findings of respondents' overwhelming interest in additional training, 54.50% of respondents thought that their undergraduate pharmacognosy has adequately prepared them to provide information on Phytopharmaceuticals. About 41% of respondents are either ignorant or not sure of the registration status of phytopharmaceuticals with NAFDAC number, (either 'listed' or fully registered) which does not mean approval of claims made by manufacturers for indications, efficacy, lack of side effects e.t.c.<sup>[11]</sup> This calls for greater effort by NAFDAC as a regulatory body to create awareness concerning what the NAFDAC numbers usually written on such products stand for, considering all kinds of claims often made on television, radio, product leaflets, internet e.t.c. that do not have sound scientific backings.

About 66 of the respondents were knowledgeable that claims made by manufacturers about the indications, efficacies e.t.c. of the products are not evaluated by NAFDAC<sup>[11]</sup>, that is quite

commendable. However 13.6% of the respondents were ignorant while 21.20% did not answer the question whether claims made by manufacturers about indications, efficacies of the products are not evaluated by NAFDAC, despite the fact that a notice to that effect is written on each pack of such products sold in Nigeria, even though usually written with very tiny prints that are hardly legible. Therefore NAFDAC needs to ensure that such important information are boldly written to serve their purpose of informing healthcare providers and users of the products alike. Most Respondents (>77%) indicated that they stock phytopharmaceutical products in their premises, which could suggest that pharmacists believe that they should be in charge of the sales and supplies of these products, as equally seen in previous studies by Adisa and Fakaye(2006) and Boon *et al*; 2009.<sup>[2,4]</sup> However; when viewed against the backdrop of apparent deficit in knowledge, one tends to question the justification for pharmacists to stock products on which they are ill-equipped for effective patient counseling, thereby raising the seeming conflict between profit motive and practice ethics.<sup>[4]</sup> Consequently, this buttresses the urgent need for training on Phytopharmaceutical products to enhance and promote effective practice. On the other hand, stocking of these products by pharmacists brings such products under the control of professionals who, if adequately prepared and having the right attitude could counsel patients appropriately on the safe and rational use of these products, resulting in improved quality of life for patients.

There was a substantial level of self-medication with phytopharmaceuticals by patients, which was shown by 50% of respondents who agreed that the commonest mode of sales of these products was by patients' request. This places much responsibility on the pharmacists, being the link in between the patients and medication usage as also described by Lin *et al.*<sup>[10]</sup> Furthermore, majority of respondents (>84%) attested that patients sought for information on phytopharmaceutical products from them. This is similar to a finding by Bolajoko *et al.*<sup>[12]</sup> About 46% of respondents also indicated that they sometimes counselled patients on the use of these products, with only about 27% of the respondents indicating that they counselled patients most times, while 11.30% indicated they don't counsel patients at all on the use of phytopharmaceuticals. This could be as a result of the deficit in knowledge of respondents on the products. Consequently, this possibly justifies the overwhelming interest by respondents in additional training on herbal products and it correlates with the importance of patients counselling which is central to pharmaceutical care that is concerned with the "responsible provision of drug therapy for the purpose of achieving definite outcomes that improve patient's quality of life."<sup>[8]</sup> Globally, pharmacists are encouraged to embrace this concept of



pharmaceutical care to improve patient's care and this involves: Identifying actual and potential drug therapy problems, preventing potential drug therapy Problems and resolving actual drug therapy problems, possibly stemming from indications errors, dosages errors, side effects, interactions etc.

The need for continuing education on phytopharmaceutical products was further underscored by the result of the knowledge base test of indications, side effects, interactions and contra-indications of ten (10) commonly used as well as researched phytopharmaceutical products, which revealed a very poor knowledge of respondents. Only about 43% of the respondents have an above average knowledge of indications, only 4.50% have an above average knowledge on side effects while none of the respondents have any knowledge on the interactions and contra-indications of these products.

From these results, pharmacists scored below average on the question bordering on the indications of these products which differ with observation by<sup>[1,15,6,9,12]</sup> which showed that pharmacist had well above knowledge on the indications of phytopharmaceutical products. Seeing the extremely high level of purchase of phytopharmaceuticals along with orthodox medicines (> 93%), especially purchase of phytopharmaceuticals along with orthodox drugs used in the management of chronic diseases such as hypertension and diabetes, (>72%), the possibility of herb-drug interactions is very high, which may result in treatment failure and other adverse drug events. This becomes even more worrisome because these patients often have to be on medications for life.

Although, majority of respondents (over 70%) indicated that they counselled patients not to use phytopharmaceuticals and orthodox medicines together, it is necessary to go further in acquiring knowledge on specific indications, side effects, interactions, contra-indications etc. of these products especially on those commonly sold and used in their respective places of practice. However, as it is now, they grossly lack such knowledge as revealed by this study and other earlier studies as cited above.

Almost half of the respondents (47.70%) thought phytopharmaceutical products are somewhat safe and almost 60% thought they were somewhat effective, such a perception needs to be justified by thorough search for scientifically proven and credibly sourced information, otherwise pharmacists should thread cautiously in recommending these products to patients at it is done presently, since 75% of pharmacists recommended these products to



their patients. This could be as a result of their ignorance on the registration status of these products by NAFDAC<sup>[11]</sup>, among other possible factors.

## CONCLUSIONS

Most community pharmacists in Jos stocked phytopharmaceutical products. Phytopharmaceutical products and orthodox medicines are often used concurrently by patients, including patients who are on medications for the management of chronic diseases thereby increasing the risk of drug-phytopharmaceutical interactions and possibly treatment failures. Most community pharmacists recommended these products to patients while some physicians also prescribed them to their patients. Community pharmacists have very limited knowledge of the side effects, interactions, contra-indications and regulations of the commonly used phytopharmaceutical products. Most community pharmacists thought the increase in the use of phytopharmaceutical products is entirely a positive development, which shows they are possibly ignorant of the safety concerns of these products. Most community pharmacists were interested in undergoing additional training on phytopharmaceutical products. Community pharmacists have been providing information to patients on the safe and rational use of phytopharmaceutical products despite their limited knowledge regarding these products.

## REFERENCES

1. Abuhussain NA, Abuhussain EA, Al-Oumi FM. (Pharmacists' Attitudes and Awareness Towards The Use and Safety of Herbs in Kuwait). *Pharmacy Practice*, 2007; 5(3): 125-129.
2. Adisa F, Fakaye T. (Assessment of the Knowledge of Community Pharmacists Regarding Common Phytopharmaceuticals Sold in South Western Nigeria). *Tropical Journal of Pharmaceutical Research*, 2006; 5(2): 619-625.
3. Borreli, F, Izzo A. A, (Herb-Drug Interactions with St John's wort (*Hypericum perforatum*)): an update on clinical observation, *AAPSJ*, 2009; 11(4): 710-727.
4. Boon H, Hirschhorn K, Griener G. and Cali M. (The Ethics of Dietary Supplements and Natural Health Products in Pharmacy Practice). A systematic documentary and analysis. *Int J Pharm Pract.* 2009; 17(1): 31-8.
5. Chang ZG, Kennedy DT, Holdford DA, Small RE. (Pharmacists' Knowledge and Attitudes Towards Herbal Medicines). *Ann Pharmcother*, 2000; 34(6): 710-5.

6. Duraz AY, Khan SA. (Knowledge, Attitudes and Awareness of Community Pharmacists Towards the Use of Herbal Medicines in Muscat Region). *Oman Medical Journal*, 2011; 26(6): 451-453.
7. Esimone, CO, Akah PA, Nworu CS, (Efficacy and Safety Assessment of T. Angelina Herbal Tonic: a phytomedicinal product popularly used in Nigeria: Evidence based Complimentary and Alternative medicine). 123036, 2011; [Online]: Available at [www.ncbi.nlm.nih.gov/pmc/articles/pmc3094697/tool=pmcentrez](http://www.ncbi.nlm.nih.gov/pmc/articles/pmc3094697/tool=pmcentrez).
8. Hepler CD, Strand LM. (Opportunities and Responsibilities in Pharmaceutical Care). *Am J Hosp Pharm*, 1990; 47(3): 533-43.
9. Kemper KJ, Amata-Kynvi A, Dvorkin L, Whelan JS, Woolf A, Samuels RC, Hibberd P. (Herbs and Other Dietary Supplements: healthcare professionals' knowledge, attitudes and practices). *Altern Ther Health Med*, 2003; 9(3): 42-9.
10. Lins Brandao MG, Assis Acurcio F, Melo Montemor RL, Paes Marliere DP. (Complementary/alternative medicine in Latin America: use of herbal remedies among a Brazilian metropolitan area population). *Journal of Complementary and Integrative Medicine*, 2006; 3(1): 1-8.
11. National Agency for Food Drug Administration and Control. (NAFDAC, 2013).
12. Bolajoko AA, Ndem EE, (Evaluation of the Knowledge, Attitudes and Practices (KAP) of Community Pharmacists Towards Herbal Medicinal Products in Some South-South States of Nigeria). *The Nigerian Journal of Pharmacy*, 2015; 49(1): 53-61.
13. Oreagba IA, Oshikoya KA, Amachree M. (Herbal medicine use among urban residents in Lagos, Nigeria). *BMC Complementary and Alternative Medicine*, 2011; 11: 117-125.
14. Rasaq A, Titilayo F. (Assessment of the Knowledge of Community Pharmacists Regarding Common Phytopharmaceuticals Sold in South Western Nigeria). *Trop J Pharm Res*, 2006; 5(2): 619-625 [Online]. Available at: <http://www.tjpr.org>.
15. Tindle HA, Davis RB, Phillips RS, Eisenberg DM. (Trends in use of Complementary and Alternative Medicine by US Adults. 1997-2002). *Altern Ther Health Med*, 2005; 11(1): 42-49.
16. World Health Organisation (WHO) Media Centre. Traditional Medicine Fact Sheet, No 134, 2008; [Online] Available at: <http://www.who.int/mediacentre/factsheets/fs134/en/>.
17. World Health Organisation (WHO). (General Guidelines for Methodologies on Research and Evaluation of Traditional Medicine 2000). pp. 3-4 [www.medscape.com](http://www.medscape.com), accessed on 27<sup>th</sup> August, 2013.