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RESEARCH ARTICLE

PREVALENCE OF CONCURRENT USE OF HERBAL AND SYNTHETIC MEDICINES AMONG OUTPATIENTS IN A MISSION HOSPITAL IN NIGERIA

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ABSTRACT

Purpose: *To study the prevalence of concurrent use of herbal and synthetic medicines among outpatients in a mission hospital in Nigeria.*

Methods*: A pre-tested questionnaire was used to collect data from a sample of 278 outpatient respondents in a mission hospital.*

Results: *One hundred and ninety three (69.4%) of the study population had used herbal and synthetic drugs concurrently within one-month of the study period. The top three conditions for which they were used were Malaria (88.5%), typhoid fever (69.8%), cough and sore throat (60.1%) and asthma (19.1%) was the least. Concurrent use of herbal and synthetic drugs was significantly associated with age group ($p< 0.001$), gender ($p = 0.026$), monthly income ($p < 0.001$) and level of respondent's education ($p < 0.001$). Using multiple logistic regression models, the risk estimate of using of herbal drugs along side with synthetic drugs was higher among the middle aged (40- 59 years) group (OR: 2.4; 1.60 - 3.22). The risk was least common among age of ≥ 60 years (OR: 0.16; 0.18-0.21) compared to youngest age group. The practice was higher among females (OR: 2.8; 2.2 -3.4) compared to males. The risk was most common among the middle income group (OR: 4.2; 3.1-6.4) and it was increasing as the education level of the respondents increased.*

Conclusion: *The prevalence of concurrent use of herbal and synthetic medicines in Nsukka is high. This could be the reflection of what is happening in whole Nigeria. The risk of this practice is significantly associated with demographic and socio-economic characteristics of respondents.*

KEY WORDS: *Herbal drug, Mission hospital, Nigeria, Nsukka, Outpatient, Synthetic medicine, Traditional medicine.*

INTRODUCTION

Herbal medicines are defined as follows: finished , lebelled medicinal products that contain as active ingredients aerial or underground parts of plants, or other plant material, or conbinations thereof, whether in the crude state or as plant preparations. Plant material includes juices, gums, fatty oils, essential oils, and any other substances of this nature. material are considered to be synthetic medicines.

Exceptionally, in some countries herbal medicines may also contain, by tradition, natural organic or inorganic active ingredients which are not of plant origin.[1]

Traditional therapies also include medication therapies if they involve use of herbal medicines, animal parts and /or

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minerals. Non medication therapies if they are carried out primarily without the use of medication, as in the case of acupuncture, manual therapies and spiritual therapies. Traditional medicine is a comprehensive term used to refer both to Chinese medicine, Indian ayurveda and Arabic Unani medicine, and to various forms of indigenous medicines. In the countries where the dominant health care system is based on allopathic medicine or where traditional medicine has not been incorporated into the national health care system, traditional medicine is often termed complementary, alternative or non-conventional medicine.[2]

In many part of the world, there is a rich tradition in the use of herbal medicine for treatment of many diseases. In developing countries, it is estimated that about 80% of the population rely on traditional medicine for their primary health care.[3] Also in developing countries, a resurgence of interest in herbal medicines has resulted from the preference of products of natural origin by many consumers. The growing number of national traditional medicine research institutes in developing countries is also a sign of the growing importance of traditional medicine. Notable examples are found in Nigeria, China, Ghana, India, Madagascar and Vietnam.[4]

The world health organization (WHO) noted that inappropriate use of traditional medicines or practices can have negative of dangerous effects and advised that further researches are needed to ascertain the efficacy and safety of several medicinal plants and practices used in traditional medicine system. In order to meet these growing needs and challenges which have arisen due to widespread use of traditional medicines, WHO has developed some strategies to tackle them. These strategies are 1) increasing availability and affordability of traditional medicines, 2) integrating relevant traditional medicine with national health care systems by developing and implementing national traditional medicine policies and programmes, 3) promoting the safety, efficacy and quality of traditional medicine therapy and providing guidance on regulatory and quality assurance standards, 4) promoting sound use of traditional medicine by providers and consumers, and 5) documentation of traditional medicines and remedies.[5]

The past decade has seen a significant increase in the use of herbal medicines. As a result of WHO's promotion of traditiona medicine, countries have been seeking the assistance of the Organization in identifying safe and effective herbal medicines for use in national health care systems.[1] These above issues informed the aim of the study which is to study the prevalence of concurrent use of herbal and synthetic medicines among outpatients in a mission hospital in Nigeria.

METHODS

A hospital based cross-sectional survey was conducted in Bishop Shanaham Hospital (BSH), Nsukka, Enugu State, Nigeria. BSH is the largest hospital in Enugu north senatorial zone of Enugu state. This hospital is a mission hospital and it serves as referral centre for the senatorial zone, some parts of Kogi State and Benue State. The average number of outpatients that visit the hospital per year is about 6,500 patients. Nsukka is a university town of University of Nigeria Nsukka. Nsukka local government area has a population of 309,633. Enugu north senatorial zone has seven local government areas and has a total population of one million three hundred and seventy seven thousand and one (1,377,001) people.[6]

The study population consisted of businessmen and women, students, teachers/ lectures, civil servants, bankers and retired workers.

Data Collection

Self administered, structured pre-tested questionnaires were administered to the patients. A total of two hundred and seventy eight (278) adult patients who agreed to take part and who satisfied the inclusion criteria were administered questionnaire following their consent by trained undergraduate pharmacy students. Patients were eligible if they were aged 18 and above, and not too ill to complete questionnaire. Patients who do not understand English were assisted by the investigators who understand and speak Nsukka dialect. Investigators briefed the respondents on the purpose of the study and oral consent

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was obtained from the respondents. All respondents were assured of confidentiality and anonymity. They were asked to put the completed questionnaire in the envelope provided and hand it over to the investigators. The time taken by a patient to complete the questionnaire ranged from 15 to 20 minutes. Administration and retrieval of questionnaires were continuous for five weeks. Permission was obtained from appropriate authority of the hospital.

Questionnaire consisted of both closed- and open-ended questions. In addition to questions on demographic information, the questionnaire included questions on socio-economic variables such as monthly income, health seeking behaviour, previous self-use of traditional medicines, conditions for which traditional medicines were used.

The questionnaire was pre-tested for content and design on 25 patients. Slight modifications were done so that the questionnaire was simple to be answered and yet gave accurate data.

Analysis of Data

Data were entered into the Statistical Package for Social Sciences (SPSS, version 14) and descriptive analysis conducted. Prevalence of concurrent use of herbal and synthetic medicines was reported as percentage and 95% confidence intervals.[7] The confidence intervals were computed using GraphPad Instat 3. As the main outcome measures were binary variables describing the concurrent use of herbal and synthetic medicines status, logistic regression models were used to assess the predictors. The results of multivariate logistic were reported as odds ratio and 95% confidence interval.[8]

RESULTS

Two hundred and seventy eight (278) adults were surveyed, 150 (53.9%) of whom were aged between 18-39 years. One hundred and seventy four (62.6%) were females. One hundred and twenty three (44.2%) had a monthly income of less than 10,000 Naira (US$ 66.67), while 91 (32.7%) had incomes in the range of 10,000 – 25,000 Naira (US$ 66.67 - 166.67) and 64 (23.0%) had incomes greater than 25,000 Naira (> US$ 166.67). Twenty one (7.6%) were illiterate, 58 (20.9%) had completed primary education, 131 (47.1%) had gone through secondary school while 68 (24.5%) were university graduates.

One hundred and ninety three (69.4%) of the study population had used herbal and synthetic drugs concurrently within one-month of the study period. Table 1 shows the prevalence and the confidence intervals of concurrent use of herbal and synthetic drugs and the conditions for which they were used. The top three conditions were Malaria (88.5%), typhoid fever (69.8%), cough and sore throat (60.1%) and asthma (19.1%) was the least. Table 2 shows the descriptive association between socio-demographic status and concurrent use of herbal and synthetic drugs. Concurrent use of herbal and synthetic drugs was shown to be significantly associated with age group ($p < 0.001$), gender ($p = 0.026$), monthly income ($p < 0.001$) and level of respondent's education ($p < 0.001$).

Table 3 provides the adjusted odds ratios and 95% confidence intervals that quantify the association between socio-demographic factors and the concurrent use of herbal and synthetic drugs. These estimates were obtained using multiple logistic regression models. The risk estimate of using of herbal drugs along side with synthetic drugs was higher among the middle aged (40- 59 years) group (OR: 2.4; 1.60 - 3.22). The risk was least common among age of ≥ 60 years (OR: 0.16; 0.18-0.21) compared to youngest age group. The practice was higher among females (OR: 2.8; 2.2 -3.4) compared to males. The risk was most common among the middle income group (OR: 4.2; 3.1-6.4) and it was increasing as the education level of the respondents increased Table 3.

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Table 1: Prevalence and (95% Confidence Interval) of using herbal drugs along side with synthetic drugs in Nsukka, Enugu state (n= 278)

Data	Frequency	Prevalence % (95% CI)
Concurrent use of herbal with synthetic drug	193	69.4 (66.3-73.8)
Conditions for which they were used		
Abdominal pain	124	44.6 (41.8 - 46.9)
Common colds	106	38.1 (35.2 - 41.2)
Genitourinary infections	153	55.0 (51.4 - 60.1)
Cough and sore throat	167	60.1 (58 - 64.2)
Malaria	246	88.5 (85.1- 92.4)
Pregnancy	57	20.5 (18.2 - 23.7)
Arthritis	89	32.0 (29.3-36.6)
Asthma	53	19.1 (17.3- 21.4)
Diabetes	134	48.2 (44.1 - 51.9)
Hypertension	98	35.3 (32.4- 37.8)
Typhoid fever	194	69.8 (65.6 – 74.2)
Ulcer	143	51.4 (48.7 – 53.8)
Others	168	60.4 (57.2- 64.7)

Table 2: Association between concurrent use of herbal drugs with synthethic drugs according to patient's characteristics

Respondents' characteristics	Concurrently used (n = 193)	Not Concurrently used (n = 85)	P - Value
Age			< 0.001
18-39	108(93.3%)	42 (49.4%)	
40-59	52 (26.9%)	29 (34.1%)	
≥60	31 (16.1%)	16 (18.8%)	
Gender			0.026
Males	67 (34.7%)	37 (43.5%)	
Females	121(62.7%)	53 (62.4%)	
Monthly income (150 Naira =US$ 1)			< 0.001
≤ 10,000 Naira (≤ US$ 66.67)	81(42.0%)	42 (49.4%)	
10,000- 25,000 Naira (US$ 66.67-166.67)	51 (26.4%)	40 (47.1%)	
> 25,000 Naira (>US$ 166.67).	43(22.3%)	21 (24.7%)	
Level of education			< 0.001
Illiterate	13 (6.7%)	8 (9.4%)	
Primary School	37 (19.2%)	21 (24.7%)	
Secondary School	94 (48.7%)	37(43.5%)	
University Graduates	57 (29.5%)	11 (12.9%)	

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Table 3: Adjusted Odds Ratios and 95% CI Association between concurrent uses of herbal drugs with synthetic drugs and various variables (n = 278)

Respondent characteristic	Concurrent uses of herbal drugs with synthetic drugs OR (95% CI)	*P-Value*
Age (years)		
18-39	Reference	
40-59	2.4 (1.60 - 3.22)	< 0.001
≥60	0.16 (0.18 – 0.21)	< 0.001
Gender		
Males	Reference	
Females	2.8 (2.2 – 3.4)	< 0.001
Monthly income (150 Naira =US$ 1)		
≤ 10,000 Naira (≤ US$ 66.67)	Reference	
10,000- 25,000 Naira (US$ 66.67-166.67)	4.2 (3.1 – 6.4)	< 0.001
> 25,000 Naira (>US$ 166.67).	2.7 (2.1 – 3.6)	0. 0472
Level of education		
Illiterate	0.49 (0.34 – 0.66)	< 0.001
Primary School	0.52 (0.37 – 0.72)	< 0.001
Secondary School	0.73 (0.57 – 0.98)	< 0.001
University Graduates	Reference	

DISCUSSION

The association between those who were using herbal and synthetic drugs concurrently and those who were not was significant in all demographic and socio-economic characteristics of respondents (Table 2).

Multiple logistic regression models showed that the risk of using of herbal drugs along side with synthetic drugs was 2.4 times higher among the middle aged (40- 59 years) group when compared to the young people (18-39 years) and 15 time higher when compared to elderly people (> 60 years). The risk of this practice was almost 3 times higher among females compared to males. The risk was highest among middle income earner and there was a continuous increase in the risk with increase in the level of education (Table 3). This result revealed that this practice was not only done by the poor and illiterates people but also by the rich and highly educated people; therefore there is need for closer evaluation of this practice to explore and exploit the strengths and weaknesses in these herbal medicines. A similar study done in Nsukka on therapeutic uses of aloe Vera herbal medicine showed the same trend in demographic and socio-economic status.[8]

The high prevalence of concurrent use of herbal and synthetic medicines seen in this study (Table 1) was not surprising because there had been reports of increased use of herbal drugs in many parts of the world.[9] This trend has been attributed to accessibility, affordability and availability of herbal medicines.[5] This explains why UNAIDS/WHO[10] called for a closer monitoring and collaboration of traditional practitioners in sub-Sahara Africa with the government.

The risk of using herbs and synthetic drugs concurrently was high in some conditions like malaria, typhoid fever and upper respiratory tract infections. This result collaborates previous reports from Ghana which revealed that synthetic and herbal medications were both used in

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treatment of malaria.[11] The use of this combination could have dangerous consequences arising from the complex reactions between the herbal and synthetic medicines.

Fifty seven out of 174 female that participated in this study had used both herbal and synthetic medicines concurrently in pregnancy within one month of this study. Traditional medicine has maintained its popularity in all regions of the developing world and its use is rapidly spreading in industrialized countries.[12] Concurrent use of herbal and synthetic medicines in pregnancy needs vigorous enlightenment to sensitize the women on the dangers and benefits associated with this practice. In fact, some African countries had recognised the contributions of traditional birth attendants (TBAs) in primary health care, a number of them have initiated training programmes to improve traditional birth attendants' skills and knowledge. Some of these countries also provided training in traditional medicine for pharmacists, doctors and nurses.[5] This is important to improve the health of the mother and the unborn baby, though many of the mothers claimed that they use these herbs to slim the baby for easy parturition.

National agency for food and drug administration and control (NAFDAC) is legislated to register both herbal and synthetic medicines and to licence companies and individuals that import, manufacture, and sell drug in Nigeria. NAFDAC should rise up to wage war against unwholesome, fake, counterfeit, unregistered and adulterated drugs in the Nigerian market. They should also bring companies and individuals who indulge in these illicit activities to book.

In a particular patient, medical practitioners should be aware of potential interactions and liaise with appropriate authority or drug advisory department to avoid adverse events which the patient might encounter in course of combining these drugs. Physicians need to specifically ask patients about traditional medicine use and document this appropriately and this should be discussed with the patient in an open non-judgemental manner.

Implementation of pharmaceutical care in community pharmacies could help to alleviate this problem. Community pharmacists can play and active role in the provision of advisory and educational services to these patients.

LIMITATIONS

This type of study depends very much on information given by the respondents. However, given that all the respondents who gave consent to participate were surveyed; we believe that the results of this study were a close estimate of the situation in Nsukka and Nigeria in general. Also interviewer bias was another potential limitation due to differences in interviewers' attitude and approach to questions, we believe that this effect should be minimal as all the investigators were trained before the study and they were highly experienced in this regard.

CONCLUSION

The prevalence of concurrent use of herbal and synthetic medicines in Nsukka is high. This could be the reflection of what is happening in whole Nigeria. The risk of this practice is significantly associated with demographic and socio-economic characteristics of respondents. This provides a strong rationale for further exploring the largely untapped potentials in traditional medicines to the achievement of better health care system. Public health implications of traditional medicines are far reaching, and include regulation of the industries and protection of public through appropriate safety and monitoring measures.

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