



Research Article

Evaluation of Prescribing Pattern and Quality of Pharmaceutical Care for Hypertensive Patients in Southern NigeriaSUNDAY OLAJIDE AWO FISAYO*¹ NSE OKON EYEN², ANIEFIOK JIMMY UWAH¹¹ Department of Clinical Pharmacy and Biopharmacy, Faculty of pharmacy, University of Uyo, NIGERIA.² Laboratory Science Technology Department, Akwa Ibom State Polytechnic, NIGERIA.**ARTICLE DETAILS***Article history:*

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*Keywords:*Hypertension,
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This study examines the pattern of prescribing, adequacy of community based pharmaceutical care and patient's presenting diastolic blood pressure as a pointer to possible therapeutic success in Akwa Ibom state, Nigeria. Six community pharmacy outfits were visited to meet buyers who are hypertensive having duly signed prescriptions. Questionnaires were administered seeking information on the demographics and behavioural disposition of respondents to their drugs and assessment of care concern of the pharmacist in charge of their prescription fill. Seven hundred and sixty seven respondents, males (32.0±7.6) and females (39.0±6.8) predominantly natives of Akwa Ibom participated in the study. 11.1% of the respondents were underweight while 29.5 were obese. The mean diastolic blood pressure (MDP) of obese males were significantly higher than their counterpart female BMI group (P>0.01). Only 24% of the respondent admitted knowledge of the professional services of a pharmacist and recorded a pharmaceutical care assessment of 24.98 ± 9.99 out of 50 points. The frequency of use of antihypertensive was diuretic, anxiolytic, beta-receptor antagonist, ACEI and other classes in the order 36.0%, 27.9%, 15.4%, 13.9% and 5.8% respectively. The monitoring of drug use pattern as part of pharmaceutical care in hypertensive patients can make readily available information on which improved patient care is based in that environment.

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INTRODUCTION

Hypertension is a disease that is asymptomatic yet morbid. Early identification and treatment is the mainstay for excellent patient. The proper management of a hypertensive patient begins with the selection of an appropriate goal blood pressure, recognizing other risk factors for cardiovascular disease, noting concomitant disease states and selecting an appropriate drug therapy for patients^[1].

Coincident with the increased awareness of hypertension, improved treatment and lifestyle modifications have been a 150% decrease in mortality from coronary heart diseases since 1972 and a 57% decrease in mortality from stroke since 1992^[2].

While this favourable trend is apparent in the U.S. and industrialized countries, the opposite have been noted in third world and former eastern bloc countries^[3]. The JNCV guidelines state that the goal of therapy is to lower morbidity and mortality by the least intrusive means possible. A change in lifestyle necessary to contract high blood pressure may however interfere with the patient's quality of life due to inconveniences, adverse reactions, unpalatable diets or increased costs^[4]. Hypertensive patients should be supplied with information on the disease state, treatment, compliance and hypertension-related morbidity and mortality^[5].

All antihypertensive drugs can effectively lower blood pressure. This was evidenced in the treatment of Mild Hypertension Study (TOMHS) which compared a diuretic, a beta blocker, an alpha blocker, an ACE inhibitor, and a calcium antagonist to placebo in a randomized trial in 902 subjects^[6]. The JVNC stated that diuretics and beta blockers are the preferred agents unless there is a specific reason to consider an

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alternative [2]. The British Hypertension society has recommended a similar approach [7].

The pharmacist plays a central role in the outcome of therapy as issues pertaining to the physical handling and dispensing of drugs reside with him. The manner of handing over of drugs to patients by the pharmacist without adequate information and assurance of comprehension of dosing will mar the entire clinical intervention.

Elderly patients with coronary risk factors frequently require treatment with multiple medications, placing them at increased risk for non-adherence [8]. Strategies for potential intervention and for improving compliance have been designed to provide the patient with insights into his own situation and himself.

Patients may not accurately report back to health care workers because of fear of possible embarrassment, or seeming to be ungrateful for a doctor's care [9]. In the past, both doctor and patient expected that the end of a consultation should be marked by a prescription. However, many patients don't necessarily wish to commence a course of treatment but merely seeks reassurance as to the nature of their symptoms [10]. This reassurance to the patient is part of drug information services - an aspect of pharmaceutical care.

This study evaluates the awareness of the availability of pharmaceutical care and patients' care satisfaction in the community setting, the behavioural disposition of hypertensive patients, the drugs prescribed to them and the prevailing diastolic blood pressure in the research environment.

METHOD

The study employed quantitative survey methods together with blood pressure, height and weight measurements to determine the risk factors and health status of respondents. The study was conducted from June to November (6 months period). Evaluation of the prescription pattern of antihypertensive drugs based on the presented prescriptions at the community pharmacies was also performed. Six registered pharmacy retail outlets randomly selected across the three senatorial districts in the state were used for the study. The inclusion criteria for the subjects were buyers requesting for antihypertensive drugs with prescriptions and self-identified natives of the state. Potential participants were excluded if they were non-resident native or buyers who are in transit.

The blood pressures were taken seated and repeated after a rest period of 10 min with digital monitors validated by the British Hypertensive Society. An average of the repeated measure was calculated. Anthropometric measures were taken in patients with light clothing and without shoes. Weight was measured by using an electronic scale and height with a portable Seca-Leicester height measure. Body mass index was categorized as <18.5kg/m² (underweight), 18.5-24.9 kg/m² (normal weight), 25.0-29.9kg/m² (overweight), 30.0-39.9kg/m² (obese), ≥40.0kg/m² (extremely obese). A structured questionnaire designed to evaluate patient's level of satisfaction of rendered pharmaceutical care/services by their attending community pharmacist was administered. Respondents' level of satisfaction was based on their assessment of received care based on the different care parameters and scores were rated 1 to 4; 4 being highest level of satisfaction. A pre-set Mean value of 2.0 was considered acceptable for the various care services considered. The questionnaire was divided into sections A and B. Section A contained demographic questions such as age, sex, education, and monthly income. Education was categorized as "informal, primary, secondary and tertiary and used as the measure of socioeconomic status for the analyses. Section B evaluates patient's assessment of care from their pharmacist. The questionnaire was checked for ambiguities before it was used to collect data.

Statistical Analysis

The data was collected by the principal researcher and two trained assistants while the analysis done using SPSS version 17.0 (SPSS, Inc, College Station, Texas). Frequencies, percentages and descriptive statistics were computed for the variables and the association between levels of education and assessment of pharmaceutical care; level of education and blood pressure, weight and height measurement. The level of significance of the satisfaction of service was determined as paired alternatives and tested by McNemar's test ($P < 0.05$); and association between number of respondents in the BMI groups and hypertensive by Fischer's Exact test, ($P < 0.0001$). The pre-set score values for respondents' assessment of acceptable pharmaceutical care concern for an item/ service and total was 2.0 and 50 respectively.

RESULTS

The number of respondents recruited into the study was 867. The demographics of the

respondents and the mean age ± SD of respondent in relation to educational attainment are shown in Table 1.

Table 1: The demographics of the respondents

Characteristics	Males n=490	Female n=377
Mean age + SD	32.0±7.6	39.0±6.8
Educational level ^a		
Informal	137(27)	112(30)
Primary	178(36)	098(26)
Secondary	111(22)	076(20)
Tertiary	064(13)	091(24)
Employment status ^b		
Self employment	179(37)	213(43)
Private employment	068(14)	076(20)
Public employment	192(39)	088(23)
Monthly income ^c		
<N10000	121(25)	102(27)
>N10000 but< N50000	237(48)	211(56)
>N50000	132(27)	064(17)

a. $\chi^2 = 43.27, df = 3, P < 0.001$; b. $\chi^2 = 25.07, df = 2, P < 0.001$; c. $\chi^2 = 2.95, df = 2, P < 0.5$

Table 2: Mean diastolic blood pressure (DBP) in mm Hg of respondents across the body mass index (BMI) categories.

BMI Categories	n (%)	Mean DBP (mm Hg)	SD
Underweight	097 (11.1)		
Men	078 (80.4)	101	12.4
Women	019 (19.6)	99	10.2
Normal weight	282 (32.5)		
Men	196 (69.5)	95	5.8
Women	086 (30.5)	100	11.6
Overweight	232 (26.7)		
Men	103 (44.4)	118	12.5
Women	129 (55.6)	115	10.8
Obese	192 (22.1)		
Men	085 (44.3)	105	8.4
Women	107 (55.7)	100	11.7
Extremely obese	064 (7.4)		
Men	028 (43.8)	109	10.8
Women	036 (56.2)	110	12.9

Fischer's Exact test and analysis done 2 sided; $P < 0.0001$.

The mean diastolic blood pressure (MDP) of men and women in the study is shown in Table 2. A comparison of the overall MDP of males to females showed no significant difference ($P < 0.01$). Comparing the number of hypertensives to non hypertensives among the BMI groups on a contingency table using Fischer's exact test gave a statistically significant association between the number of respondents in the BMI groups and the number of hypertensive ($P < 0.0001$). The frequency of prescribing of calcium channel antagonists ($P < 0.1$) and alpha adrenergic antagonists ($P < 0.05$) to male was significantly higher than females but no significant difference was observed with beta adrenergic antagonists ($P < 0.01$) (Fig 1). 24% of respondents are aware of the person and professional called a pharmacist but admitted that no definite care was offered in pharmacy outlets. About one-tenth of the respondents (9.5%) believe that pharmacists can do better in terms of care if they are available and accessible to their clients.

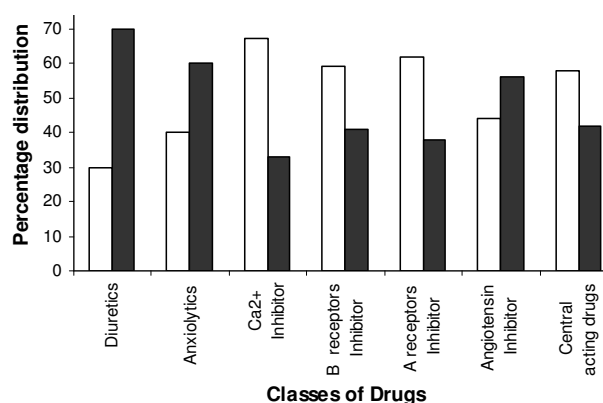


Fig. 1: The distribution of antihypertensive prescribing to males and females

Rating pharmaceutical care based on listed items on Table 3, each item bordering on hypertensive care, the pharmaceutical care rating was 26.5 ± 12.6 which is below the maximum point of 50. Diuretics were prescribed as a single drug or in combination with other class of antihypertensive with total feature as 36.0%, anxiolytics followed closely being 27.9% while calcium antagonists, beta-receptor antagonist, alpha-receptor antagonists had a frequency of 15.4%, 13.9%, and 5.8% respectively.

DISCUSSION

Pharmaceutical care has not progressed as readily in the community setting as it has in the institutional setting for several reasons. One

explanation for the slow progress is attributed to the inaccessibility of patient's data and the lack of easy communication between General Practitioners and the other providers of care to the patient [10]. As part of pharmaceutical care services, the development of the database by community pharmacists primarily entails taking a detailed history from the patient and supplementing physical appearance, mental acuity, and physical observation including blood pressure and laboratory tests i.e. blood sugar or cholesterol [11]. The observed respondents' levels of satisfaction with respect to these services were markedly low (Table 3).

Table 3: Pharmaceutical care services and respondents' assessment of their level of satisfaction

Characteristics	Service Assessment	SD
Weight	3.78	0.72
Physical examination	2.13	1.17
Medication	4.26	1.54
Counseling		
Drug use	1.48	1.12
Patient record/data		
Inter-personal relationship	2.67	1.05
Follow up on drugs	2.13	1.35
Ordering for routine tests	1.18	0.75
Referral services	1.04	0.42
Generic substitution of drugs	2.66	1.42
Mean Total	24.98	9.99

Pharmaceutical care services that can lead to effective patient care and high patient satisfaction have not been the trend in the study area. The patients care assessment Mean score \pm SD for ordering of routine tests and referral services were 1.18 ± 0.75 and 1.04 ± 0.42 (Table 3). This assessment was below the pre-set value of

2.0 (acceptable performance). An improvement in this care service area is therefore required.

It is important to discuss with patients to know their health beliefs and attitudes and to educate them about the etiology and management of hypertension to promote better blood pressure control [12]. The respondents indicated their assessment about drug counseling and interpersonal relationship with their pharmacist (Table 3). The respondents also expressed their knowledge of the need of getting their BP checked regularly, limiting their salt intake, exercising and controlling their weight through interaction with their pharmacist. 32.5% of the respondents had BMI above 25.0 Kg/m² which might be a risk factor to their disease (Table 2). Sequel to this, checking of body weight as part of pharmaceutical care and weight control education and measures is identified as a step to reduction of hypertension risk in the study area.

All antihypertensive can effectively lower blood pressure. This was evidenced in the treatment of Mild Hypertension Study (TOMHS) which compared a diuretic, a beta blocker, an alpha blocker and ACE inhibitor and a calcium antagonist to placebo in a randomized trial in 902 subjects. Decreases in blood pressure were significantly greater in drug treated patients than with placebo, but there were no difference between the drugs. There is the need to document drug use for records analysis to obtain the pattern of prescribing of the various classes of drugs in any selected study area. Fig 1 gives the relative pattern of prescribing of drugs to the male and female respondents showing no statistical difference in the percentage distribution of use of drugs in the sex groups across the various classes ($P < 0.001$). Diuretics were prescribed as a single drug to the respondents in this study even though the JNC V stated that diuretics and beta blockers are the preferred agents unless there is a specific reason to consider an alternative. The alternative agents observed in the study for patients with hypertension employs the ACEI, calcium antagonists and alpha-beta blocker. Other classes of drugs are not recommended for mono therapy because their long term effects are limited by the side effect of salt and water retention and other associated adverse effects. The side effects notwithstanding, the drugs were used in males and female hypertensive patients to the same extent (Fig 1).

CONCLUSION

Despite having knowledge about the causes and risk factors of hypertension, the respondents in our study have not adopted behaviours to prevent hypertension. More than 40% of the participants were at increased risk of fatalities from hypertension based on their observed BMI. Although the items used in the survey instruments were adapted from previously validated scales, one limitation of this study is that no pilot study was done prior to data collection. Samples of individuals who were self-selected into the study were met in a pharmaceutical outfit increased the chances that the participants represented individuals who were more concerned about their health. The scope however was to draw inferences from the population of people who have the correct approach to purchases of prescription only medicines. The care concern of the pharmacists on duty with respect to hypertensive care needs to be improved. Finally, pharmacists as health educator need to design prevention and intervention programs for hypertension and individualize pharmaceutical care through record keeping and analysis of drug use.

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