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Universal Journal of Pharmaceutical Research
An International Peer Reviewed Journal
ISSN: 2831-5235 (Print); 2456-8058 (Electronic)

RESEARCH ARTICLE

SOCIOECONOMIC STATUS EFFECT ON MANAGEMENT OF HYPERTENSION IN COMMUNITY PHARMACY IN SOUTH- SOUTH ZONE IN NIGERIA

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Article Info:

Article History:
Received: 2 August 2021
Reviewed: 6 September 2021
Accepted: 10 October 2021
Published: 15 November 2021

Cite this article:
Mgbahurike AA, Oduogu SO, Bagbi BM. Socioeconomic status effect on management of hypertension in community pharmacy in south-south zone in Nigeria. Universal Journal of Pharmaceutical Research 2021; 6(5):30-34.
https://doi.org/10.22270/ujpr.v6i5.670

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Abstract

Background to study: Effective management of hypertension is influenced by several factors that center on social and economic status of the patient. Identification of these factors will enable informed intervention in the management of hypertensive patients.
Objective: The study aimed to determine possible association between blood pressure control and socioeconomic status of patients who are managed in community pharmacies in Rivers State.
Method: A descriptive cross-sectional survey of thirty-nine community pharmacies was conducted between July and December 2018. A total of 195 respondents participated in the study. Every patient's consent was obtained. Further information on patients' demographics were extracted from pharmacists' documentation files. Such include age, medication patient is on, duration of hypertension, co-morbidity, income/ social status, and habits like smoking, alcohol consumption, educational status, and mean blood pressure over the study period. The outcome measure taken as controlled blood pressure was mean BP ≤140/90 mm Hg for the general population and BP 130/80 mmHg for patients with diabetes as co-morbidity. BP >140/90 mm Hg was considered as uncontrolled blood pressure.
Result: A total of 195 respondents participated in the study, of which 105(53.8%) were male and 90(46.2%) were female. Out of this number 75(38.5%) were below 40 yrs of age, 105(53.8%) were between 41–50yrs of age and only 15(7.7%) were 60yrs and above. More female had BP control compared to the male (OR 1.89, 95% CI (1.16 - 3.0), *p*=0.009. Patients within ages 41 - 59yrs had more controlled BP compared to older age, 60yrs and above, OR 1.48, 95% CI (0.84 - 2.42) p 0.18. Uncontrolled BP was found more among employed patients and patients with highest monthly income, OR 1.05 95% CI (0.58 - 2.00); OR 1.16 95% CI (0.49 - 2.78) P, 0.36 respectively. Exercise activities have significant impact on BP control as alcohol consumption increased OR of BP control with no significant difference in OR on amount of monthly expenditure on medications.
Conclusion: Male gender, employment, and high income earning have negative effect on BP control while exercise is associated with BP control
Keywords: Socioeconomic factors, South-South Nigeria, uncontrolled Blood Pressure.

INTRODUCTION

Effective management of hypertension is being influenced by a number of factors that center on social and economic status of the patient. Identification of these factors will enable informed intervention in the management of hypertensive patients. Association between socioeconomic status and poor health, particularly cardiovascular condition, has been known for decades in high income countries[1-4]. Few studies have reported on hypertension in relation with individual patient-level socioeconomic status in sub–Saharan African[5-7]. Hypertension was defined as, in absence of anti-hypertensive drugs, blood pressure measured at least three times in different days, with a systolic blood pressure >140 mmHg and/or diastolic blood pressure >90 mmHg. High blood pressure is a serious public health concern, with World Health Organization (WHO) reporting global hypertension mortality rate of 13%[8]. High blood pressure is a

preventable disease and has been associated directly with lifestyle habits including tobacco smoking, educational status, lack of physical activity and alcohol consumption[9]. In fact, the relationship between hypertension and socioeconomic status (SES) has been well established in advanced countries like USA[4]. Socioeconomic status (SES) is a complex term combining a number of variables including employment status, educational level, income, and wealth as well as place of residence. SES is a well-established cardiovascular risk factor and means for predicting behavior[10,11]. Educational status has been established as the best marker of SES since it offers the most stable measure at an individual level and does not have the problem of reverse causation such as income and wealth statue[11]. Studies of hospital populations have shown an association between low SES and higher prevalence of hypertension, poorer BP control and higher mortality rate[12-16]. However, studies on the relationship between SES and hypertension in low- and middle-income countries are limited[17,18]. While the association between SES and BP control among patients who manage their BP condition in general practice has not been fully established. Thus this work aimed to evaluate influence of socioeconomic factors on management of hypertension among patients managed in community practice.

METHOD

Study area:

Port Harcourt, one of the largest cities in the South - South geopolitical Zone of Nigeria, is the State capital of Rivers State. It has a total of 374 registered pharmacies spread across the State and grouped under 20 zones.

Study Population:

This comprises of all patients 20 yrs and above who visited community pharmacies for consultation and/or refill of their anti hypertensive medication, and were willing to participate in the study.

Sample size

The sample size determined was calculated using the method by Araoye[19]. A total of 200 questionnaires were distributed across the 20 zones of the registered pharmacies, and a total of 195 were retrieved, with each patient giving consent to participate in the study.

Study design

A descriptive cross sectional study was carried out among patients who attend community pharmacies for their anti hypertensive medication needs, to assess the influence of socioeconomic status on the management of hypertension among these patients. Structured pre-tested and validated questionnaires were used to collect the required data. The questionnaire designed consisted of 5 parts: A, B, C, D, and E. Part A consists of demographic information of the patients including age, gender and marital status. Part B consists of data on social information like lifestyle habits, such as smoking, alcohol consumption and physical activities. Part C, consists of economic status such as monthly income, and average of cost of medication per month. Part D consists of management data such as medication used, frequency of blood pressure monitoring, current and average BP value for the period of study, and advice on lifestyle modification by the health professional. Part E consists of other questions such as co-morbidity.

Data analysis

Data collected was analyzed using SPSS statistical package version 20 and significance difference was considered at $p<0.05$.

RESULTS

The demographic and characteristic data of the respondents are shown in Table 1. Of the 195 respondents, 54%(105) were male and 46%(90) were female. The overall mean age was 56.8±7.8yrs. Most, 53.8% (105) of the respondents were within the ages of 40yrs - 59yrs. Overall blood pressure ranged between 120mmHg systolic and 80mmHg diastolic to 160mmHg systolic and 100mmHg diastolic. The results of various factors that affect blood pressure control is given in Table 2. Controlled blood pressure was considered as BP level ≤140 mmHg systolic and ≤ 90mmHg within the 6 months of study and BP level >140mmHg systolic and >90 mmHg diastolic was taken as uncontrolled blood pressure. The various types of anti-hypertensive medication used by the patients and the frequency of their use is shown in Figure 1. Amilodipine is the most frequently used of all the anti-hypertensive agents. Vasoprin which is an anti platelet or blood thinner is used as frequent but more than Clopidogrel which is also an anti-platelet, probably due to cost since Vasoprin is cheaper.

DISCUSSION

This study determined the influence of socioeconomic status on the management of hypertension among patients who manage their hypertensive condition in community Pharmacies in Port Harcourt, Rivers State. This study identified that socioeconomic status was associated with BP control among the patients who manage their blood pressure in the community pharmacies. The study found that more female achieves BP control than the male. This may be related to female showing more concern to their health than their male counterparts. This finding is in line with two similar studies carried out in Western part of Nigeria[20] and South Eastern part[21] which opined that with respect to responsibilities of a traditional African man, such as family responsibility, as a factor predisposing more African males to increased blood pressure, hence hypertension with limited concern to its control. This result may be in line with a systematic review which indicated that prevalence of hypertension is higher among men than women[17,22]. Studies have recommended that socioeconomic factors like education, occupation, and income should not be used interchangeably[23-25]. These factors were studied independently in this work and a significant difference in BP control was observed. Low educational level was found to be associated with BP control, which is similar to previous study[26].

Table 1: Demographic and characteristic data of respondents.

Demographic data	Proportion	Percentage
Gender		
Male	105	53.8
Female	90	46.2
Age		
>40yrs	75	38.5
≤40 - ≥59yrs	105	53.8
≥60yrs	15	7.7
Marital status		
Married	150	76.9
Single	45	23.1
Educational status		
Primary	30	15.4
Secondary	100	51.3
Tertiary	65	33.3
Employment status		
Employed	120	61.5
Unemployed	66	34.0
Retired	9	4.6
Monthly income earning (Naira)		
Lowest (>50,000.00)	120	61.5
Medium(≤50,000.00 - 100,000.00)	45	23.1
Highest (100,000.00)	30	15.4
Monthly expenditure on medication		
Lowest (>5000.00)	120	61.5
Medium (≤5000.00 - 10,000.00)	40	20.5
Highest (10,000.00)	35	18.0
Exercise activity		
Yes	75	38.5
No	120	61.5
Alcohol intake		
Yes	95	48.7
No	100	51.3
Smoking		
Yes	30	15.4
No	165	84.6

In that study effect of education level on BP control remained after adjustment for a number of factors. Probably, higher education may give advantage for better understanding of the risk of uncontrolled BP and importance of its treatment. It may also be possible that effect of education on BP control maybe related to employment status and monthly income earning or amount spent on medication. In Table 2 patient in employment have BP control of less than 140/90 mmHg than the unemployed. Again more patients on lowest income have uncontrolled BP. This maybe reflection of how much was spent on medication to control the BP as is shown that there is a significant difference (p<0.01) in BP control based on the amount spent on medication. Study by Antignac, *et al.*,[27] highlighted the relative association of individual wealth and country-level income with uncontrolled hypertension. Another significant factor is marital status of the patients. Generally, it was observed that a larger number of the respondents were married (150(76.9%). Uncontrolled BP was identified more among the married compared to those single, p< 0.01.

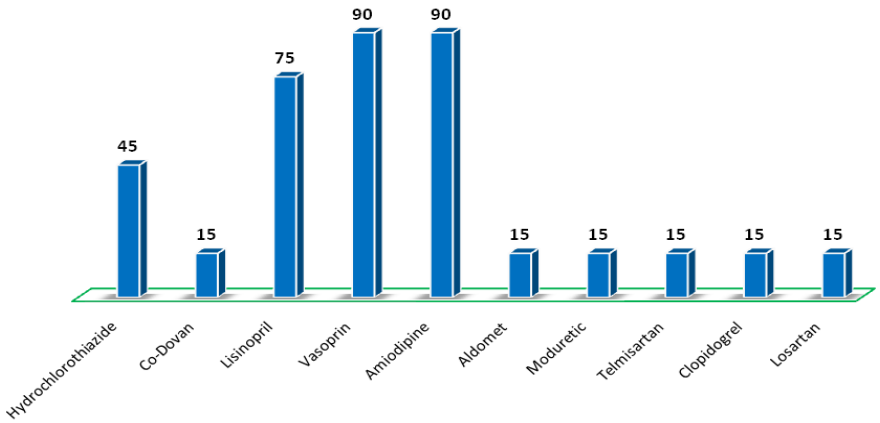

Figure 1: Various Anti-hypertensive agents used to control blood pressure.

Table 2: Factors that influence blood pressure control.

Factor	Controlled BP≤140/90 mmHg	Uncontrolled BP>140/90m mHg	OR (odd ratio)	95%CI (confidence interval)	*p*-value
Gender					
Male	40(38.1%)	65 (61.9%)	1.89	1.168 -3.076	0.0096
Female	65(72.2%)	25(27.8%)			
Age					
>40yrs	30(40%)	45(60%)	1.43	0.842 -2.424	0.186
41-59yrs	45(42.9%)	60(57.1%)	1		
≥60yrs	11(73.3%)	4(26.7%)	0.67	0.204- 2.172	0.501
Marital status					
Single	35(77.8%)	10(22.2%)	1		
Married	48(32%)	102(68%)	0.874	0.526 -1.453	0.604
Educational status					
Primary	20(66.7%)	10(33.3%)	1		
Secondary	45(45%)	55(55%)	2.44	1.039- 5.749	0.02
Tertiary	40(61.5%)	25(38.5%)	1.25	0.504 - 3.102	0.315
Employment status					
Employed	75(62.5%)	45(37.5%)	1		
Unemployed	40(60.6%)	26(39.4%)	1.083	0.585 - 2.007	0.399
Retired	8(88.9%)	1(11.1%)	0.208	0.025- 1.721	0.072
Monthly income (Naira)					
>50,000.00	40(33.3%)	80(66.7%)	1		
50,000.00 to 99,000.00	32(71.1%)	(13(28.9%)	0.231	0.096 - 0.429	0.0015
≥100,000.00	9(30%)	21(70%)	1.166	0.490- 2.780	0.363
Monthly expenditure on medication					
>5000.00	70(58.3%)	50(41.7%)	1		
5000.00 to 10,000.00	32(80%)	8(20%)	0.351	0.149- 0.823	0.0080
<10,000.00	25(71.4%)	10(28.6%)	0.562	0.247- 1.269	0.0824
Exercise Activities					
Yes	68(90.7%)	7(9.3%)	1	9.865 - 56.419	0.000
No	35(29.2%)	85(70.8%)	23.591		
Alcohol Consumption					
Yes	55(73.3%)	20(26.7%)	1		
No	70(58.3%)	50(41.7%)	1.964	1.049 -3.679	0.0174
Smoking Habit					
Yes	8(26.7%)	22(73.3%)	1		
No	45(27.3%)	120(72.7%	0.9696	0.403- 2.335	0.4721

The reason for this observation is not clearly known but maybe attributed to the intricacies involved with marriage as a predisposing factor. The fact that more of the respondents are married (77%) maybe another reason, but considering and comparing the significance difference (p<0.05) between married with uncontrolled BP, and that of the single respondents', points to other possible reason other than number. In this study, social factors such as lack of exercise, smoking habit and alcohol consumption have been correlated to the management of hypertension.

Respondents who do not exercise and respondent who smoke as well as those who consume alcohol exhibited uncontrolled blood pressure, significantly different from that of those who do not indulge in these habits. This further supports these factors as risk factors to hypertension. Again, the most frequently used anti-hypertensive agent was amilodipine, followed by lisinopril, the cost of which is less than ARB (angiotensin receptor blockers like losartan that are better kidney protector in the face of comorbidity like diabetes. This could also affect the level of BP control, further supporting cost effect on BP control.

CONCLUSION

Socioeconomic factors are found to associate with uncontrolled blood pressure. Male gender, employment, and lowest income earning as well as amount of monthly expenditure on medications have negative effect on BP control while exercise is associated with controlled blood pressure.

ACKNOWLEDGEMENTS

The authors extend their thanks and appreciation to the University of Port Harcourt, Rivers State, Nigeria to provide necessary facilities for this work.

AUTHOR'S CONTRIBUTIONS

Mgbahurike AA: writing original draft, literature survey. **Oduogu SO:** methodology, conceptualization. **Bagbi BM:** formal analysis, review. The final manuscript was read and approved by all authors.

DATA AVAILABILITY

The data and material are available from the corresponding author on reasonable request.

CONFLICT OF INTEREST

None to declare.

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