RESEARCH ARTICLE

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Self-monitoring of Blood Pressure: Awareness, Practice, Perceived Barriers and Associated Sociodemographic Factors Among Adult Hypertensives Attending a Tertiary Hospital in South-South Nigeria

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Abstract

Background and Aim: Self-monitoring of blood pressure (SMBP) is helpful in blood pressure (BP) status categorization and emerging evidence shows its beneficial impact on BP control. The study assessed the awareness and practice of SMBP and its associated sociodemographic factors among adult hypertensives in Southern Nigeria.

Materials and Methods: The study was cross-sectional and questionnaire based. Eligible adult hypertensive patients attending a tertiary hospital in South-South Nigeria were randomly recruited from the cardiology clinic over one year.

Results: Of the 364 hypertensive adults studied, the mean (± standard deviation) age was 59.34 (±14,308) years, males (192, 52.7%) and urban dwellers (273, 75%). A total of 287 (78.8%) were aware of SMBP, and 240 (65.9%) practiced it. Most (75, 60.5%) of the respondents who did not practice SMBP had no specific reason not to. Of the respondents who practiced SMBP, 226 (94.2%) owned a BP monitoring device, and 135 (56.3%) kept records of their BP readings, out of which 83% (112/135) cross-checked with clinic readings. The practice of SMBP was significantly associated with marital status ($P = 0.038$), education ($P < 0.001$), residence ($P = 0.011$), average monthly income ($P = 0.020$), and access to healthcare insurance ($P = 0.042$) but not with age, sex, and occupation.

Conclusion: The awareness and practice of SMBP were high in this study. However, almost half of the respondents who practiced SMBP neither kept records nor cross-checked home BP with clinic readings, thus limiting the added clinical support offered by SMBP. Healthcare providers must continue educating patients to maximize the benefits of SMBP.

Keywords: Self-monitoring of blood pressure, self-measured blood pressure, hypertension, out-of-office blood

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INTRODUCTION

About 1.39 billion adults globally live with hypertension, making it the foremost modifiable cardiovascular risk factor worldwide.[1] Despite efforts to prevent and control hypertension, the proportion of persons with uncontrolled blood pressure (BP) is daunting.[2] The burden of hypertension in Nigeria is high and still growing, and it remains difficult to estimate the exact burden with burden.[3] However, a recent nationwide survey in Nigeria reported an age-standardized prevalence of 38.1% for hypertension. [4]

Hypertension is a leading cause of non-communicable disease-related premature mortality and morbidity. It accounts for 8.5 million deaths worldwide, chiefly from stroke, ischaemic heart disease, and chronic kidney disease.[5] However, there is an uneven spread in the burden of hypertension across regions and nations.[2] There are burden-related disparities between high-income and low- and middle-income countries. Indeed, the monstrous health-related and economic consequences of hypertension noted in many low- and middle-income countries are attributable to the low awareness, treatment, and control rates compared with high-income countries.[6]

As part of efforts to improve BP control, several organizations including the International Society of Hypertension,[6] the European Society of Hypertension,[7] and the Nigerian Hypertension Society[8] have included out-of-office BP monitoring in their practice guidelines for the management of hypertension. Self-monitoring of blood pressure (SMBP) is a form of out-of-office BP monitoring. It involves the regular measurement and recording of BP by an individual outside the clinical or public settings using a personal monitoring device. Several factors may hinder the effective practice of SMBP. These factors include lack of awareness, ownership of measuring devices, BP measurement without record keeping, and lack of clinical support.

SMBP aids the categorization of BP status. It helps to identify individuals with masked and white-coat hypertension separate from true hypertensives and true normotensives. SMBP is also helpful in decision making regarding treatment, whether by self-titration of antihypertensive medications or with support from healthcare practitioners. Indeed, emerging evidence supports the beneficial impact of SMBP on BP control, especially with clinical support.[9]

Easily operated validated electronic BP devices are recommended for home-based SMBP. Although these devices are becoming increasingly available and accessible, there is inadequate data on the knowledge and practice of SMBP in many low- and middle-income countries, such as Nigeria. More data on SMBP among persons with hypertension in Nigeria need to be collected. This study aims to close some gaps by providing data on the knowledge, practice and perceived barriers to SMBP and the associated sociodemographic factors among adult hypertensive patients receiving tertiary healthcare in Delta State, Nigeria.

MATERIALS AND METHODS

Study design: The study was cross-sectional and descriptive in design.

Study setting: The study setting was Delta State University Teaching Hospital, Oghara, Nigeria. Oghara, a suburban town, is the capital of the Ethiope West local government area, one of 25 in the state. Delta State University Teaching Hospital is a 150-bedded public tertiary healthcare facility owned by the Delta State Government. It receives medical referrals from other hospitals within the State and neighboring States (Anambra, Bayelsa, and Edo). Cardiology clinics run weekly on Mondays and Wednesdays at the Consultant Medical Outpatient Department (MOPD). An average of 40 patients with hypertension are seen weekly at the Delta State University Teaching Hospital MOPD.

Study population: Hypertensive patients attending the Delta State University Teaching Hospital Consultant Medical Outpatient Department (Delta State University Teaching Hospital MOPD), Oghara, who met the study eligibility criteria, were recruited. The diagnosis of hypertension was as per the patient's medical record, and it is defined as a BP reading of 140/90 mmHg and above or the use of antihypertensive medications irrespective of BP reading. Hypertensive patients aged 18 years and above who had attended at least two cardiology clinic visits at Delta State University Teaching Hospital MOPD and provided written informed consent participated in the study. Patients visiting the MOPD for the first time, presenting to the clinic after being lost to follow-up for at least one year, adjudged incapable of self-care, and declined to partake in the study were excluded. The Delta State University Teaching Hospital Health Research Ethics Committee on Jul 13, 2021 provided ethics approval [approval number: HREC/PAN/2021/016/0327] to conduct the study. The general conduct of the study was guided by the Helsinki Declaration as revised in 2013.[10]

Sample size determination and sampling procedure: The calculated minimum sample size employed the Cochrane formula[11]: $n = 1.96^2p\ (1 - p)/d^2$. Using the prevalence of hypertension among adults in the Delta State of 29.3%,[12] and assuming a 95% confidence interval (CI), 5% error margin, and 10% non-response rate, the calculated minimum sample size was 350.

A list of potential study participants was extracted from the case files on each cardiology clinic day. Eligible study participants were then randomly selected by balloting. Informed consent was obtained from the selected patients before administering

the study questionnaire. The case files of recruited patients were marked to avoid reselection. The study participant identification and a recruitment process continued until the sample size was attained. Data collection spanned between July 2021 and June 2022.

Study instrument and data collection: Data collection was by self-administered and interviewer-administered (for patients who were not literate) questionnaires. The study questionnaire comprised three sections that elicited data on (a) sociodemographic characteristics, (b) risk factors/comorbidities, and (c) SMBP, defined as the measurement of BP by the patient outside clinic settings, either at home or within the community. The sociodemographic characteristics assessed included respondents' age, sex, educational status, marital status, occupational status, monthly income, and access to health insurance. The second part of the questionnaire assessed behavioral risk factors such as smoking, alcohol consumption, unhealthy diet consumption, and comorbidities such as diabetes mellitus, renal disease, and stroke. The last part of the questionnaire assessed the awareness, attitude, practice and perception of SMBP.

Dependent and independent variables: The dependent variables were awareness of SMBP, ownership of a personal BP monitor, attitude toward SMBP, perception of SMBP, and the practice of SMBP.

Independent variables were age, sex, marital status, educational level, place of residence, occupational status, monthly income, health insurance, comorbidities, and duration of hypertension.

Statistical analysis

Obtained data were coded and analyzed using the International Business Machine Statistical Package for Scientific Solutions (IBM SPSS) version 23 (IBM SPSS Corp., Armonk, NY, USA). Descriptive and inferential analysis of the data collected was performed. Categorical and continuous variables were presented as frequency, percentage, and mean and standard deviation of the mean, respectively. Bivariate analysis using chi-square and student t-tests tested the association between categorical variables and the difference in means, respectively. A statistically significant *P*-value was <0.05.

RESULTS

Of the 380 questionnaires distributed, 364 (95.8%) were completed.

Sociodemographic characteristics

The study population's age range was 20-94 years, with a median age of 61 years. The mean (± standard deviation) age was 59.34 (±14.31) years, and the 95% CI for the mean was 57.87-60.82 years. The modal age group was 60-69 years; 102 (28.0%) respondents. A total of 192 (52.7%) of the respondents were males. The majority of the respondents were married (*n* = 274; 75.3%), had a tertiary level of education (*n* = 205; 56.3%), lived in urban settings (*n* = 273; 75.0%), were gainfully employed (*n* = 188; 51.6%), and had no access to healthcare insurance (*n* = 296; 81.3%) (Table 1). The mean duration of hypertension is 7.18 (± 8.09) years.

Behavioral risk factors and comorbidities

Eight (2.2%) respondents were current smokers, while 72 (19.8%) admitted drinking alcohol. One hundred and thirty-eight (37.9%) respondents exercised at least thrice weekly, while 63 (17.3%) added salt to already cooked meals. The following comorbidities were reported to be present: diabetes mellitus (*n* = 73; 20.1%), dyslipidemia (*n* = 95; 26.1%), eye disease (*n* = 62; 17.0%), heart disease (*n* = 102; 28.0%), kidney disease (*n* = 12; 3.3%) and stroke (*n* = 18; 4.9%).

The source of information and awareness of SMBP

Most respondents (*n* = 197; 54.1%) reported healthcare providers as the source of information on SMBP. Other sources of information on SMBP included family/friends (*n* = 76; 20.9%), the internet (*n* = 11; 3.0%), school/seminar/conferences (*n* = 7; 1.9%), and unsure (*n* = 73; 20.1%).

A total of 287 (78.8%) of the respondents were aware of SMBP, while 240 (65.9%) reported they checked their BP outside the clinic setting (Figure 1). Among respondents who were aware of SMBP, 231 (80.5%) put it into practice. The association between awareness and practice of SMBP was statistically significant (χ^2 = 127.94, df = 1; *P* < 0.001).

Ownership of BP monitoring device and practice of SMBP

Of the respondents who practice SMBP, 226 (94.2%) reported they had personal BP monitors: electronic (*n* = 187; 82.7%), anaeroid (*n* = 12; 5.3%), and mercury (*n* = 27; 11.9%) sphygmomanometers. The remaining 14 (5.8%) respondents

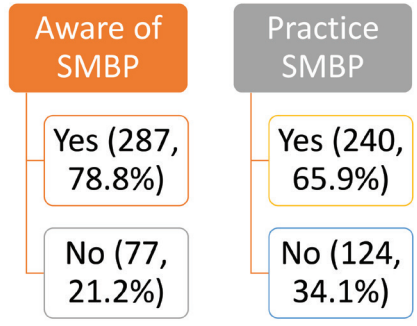

Figure 1: Awareness and practice of self-monitoring of blood pressure

SMBP: Self-monitoring of blood pressure

that did not have personal BP monitors had access to one within their community: seven (50.0%) had access to an electronic device, one (7.1%) to anaeroid, and six (42.9%) to mercury sphygmomanometer. All the respondents that did not practice SMBP had no personal BP monitoring device. The association between ownership of a BP monitoring device and the practice of SMBP was statistically significant (χ^2 = 307.99, df = 1; $P < 0.001$).

Reasons for and pattern of the practice of SMBP

Table 2 shows the practice of SMBP as reported by the respondents. One hundred and eleven (46.3%) respondents who practiced SMBP were personally motivated to do so, while 85 (35.8%) reported they did so because of advice from their healthcare providers. Ninety (37.5%) of the respondents checked their BP at home at least once daily, while 59 (24.5%) reported irregular SMBP. While 86 (35.8%) had no specific time of the day when they checked their BP, 90 (37.5%) did so in the mornings. One hundred and thirty-five (56.3%) respondents kept a record of their BP checks, out of which 112 (83.0%) cross-checked the self-monitored BP with clinic records. As shown in Table 2, 21 (18.8%) of the respondents who cross-checked SMBP with clinic records do so always, while 10 (8.9%) rarely cross-check.

Barriers to the practice of SMBP

As shown in Figure 2, 124 (34.1%) of the respondents do not practice SMBP. Seventy-five (60.5%) respondents had no specific

Table 1. Sociodemographic profile of the study population

Variable	Category	Frequency (*n*=364)	Percentage (%)
The age group (years)	<40	34	9.3
	40-49	55	15.1
	50-59	81	22.3
	60-69	102	28.0
	≥70	92	25.3
Sex	Male	192	52.7
	Female	172	47.3
Marital status	Single	20	5.5
	Married	274	75.3
	Widowed	67	18.4
	Divorced	3	0.8
Education	No formal	23	6.3
	Primary	59	16.2
	Secondary	77	21.2
	Tertiary	205	56.3
Residence	Urban	273	75.0
	Rural	91	25.0
Occupation	Employed	188	51.6
	Unemployed	66	18.1
	Retired	105	28.8
	Student	5	1.4
Average monthly income (NGN)	<30,000	132	40.9
	30,000-100,000	133	41.2
	≥100,000	58	18.0
	Missing	41	-
Access to healthcare insurance	Yes	68	18.7
	No	296	81.3
The duration of hypertension (years)	<5	149	47.0
	5 - 10	105	33.1
	>10	63	19.9
	Missing	47	-

NGN: Nigerian Naira

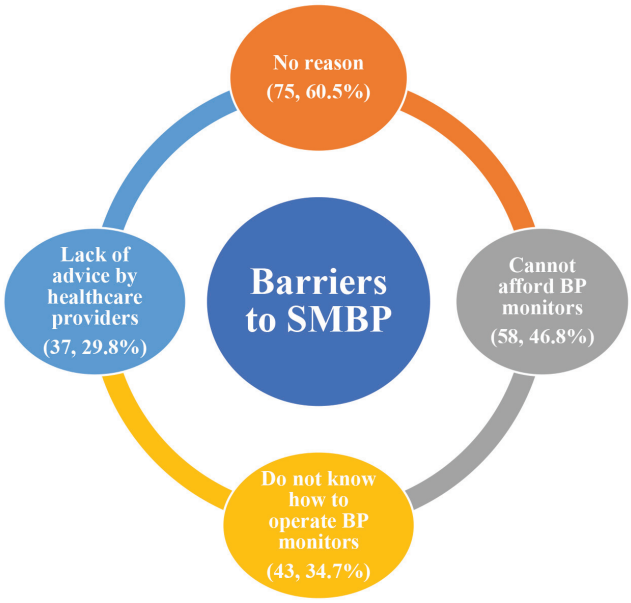

Figure 2: Barriers to the practice of self-monitoring of blood pressure

SMBP: Self-monitoring of blood pressure, BP: Blood pressure

Table 2. The practice of self-monitoring of blood pressure (SMBP)

Practice of SMBP	Category	Frequency (%) (*n*=240)
Reasons for SMBP	Personal motivation	111 (46.3)
	Advice by healthcare providers	86 (35.8)
	Advice from family/friends	27 (11.2)
	Own a BP monitoring device	16 (6.7)
Frequency of SMBP	At least once daily	90 (37.5)
	At least once weekly	77 (32.1)
	At least once monthly	14 (5.8)
	Irregularly	59 (24.5)
Timing of SMBP	Morning	90 (37.5)
	Evening	16 (6.7)
	Morning and evening	48 (20.0)
	No specific time	86 (35.8)
Keep a record of BP checks	Yes	135 (56.3)
	No	105 (43.7)
Cross-check SMBP record with clinic BP*	Yes	112 (83.0)
	No	23 (17.0)
How often do you cross - Check SMBP with clinic BP records**	Always	21 (18.8)
	Sometimes	81 (72.3)
	Rarely	10 (8.9)

*n=135, **n=112, SMBP: Self-monitoring of blood pressure, BP: Blood pressure

reason for not practicing SMBP. Other barriers are shown in Figure 2 (multiple responses applied).

Perception and attitude toward SMBP

Three hundred and ten (86.4%) and 303 (83.2%) respondents thought self-monitoring of BP was important and beneficial, respectively. A significantly higher proportion of respondents who did not know if SMBP was important (39, 32.5%) or beneficial (41, 33.1%) did not monitor their BP at home (Table 3). While 206 (56.6%) of the respondents felt that SMBP was accurate, 41 (11.3%) thought it was not accurate, and 117 (32.1%) respondents were unsure of its accuracy. Two hundred and fifty-nine (71.2%) respondents stated they would recommend the practice of SMBP to others, 22 (6.0%) would not, and 83 (21.8%) were undecided. The association between the perception of SMBP and its practice was statistically significant (Table 3).

Association between the practice of SMBP and sociodemographic profile

The practice of SMBP did not differ based on age, sex, and occupation. The sociodemographic characteristics significantly associated with the practice of SMBP were marital status (P = 0.038), education ($P < 0.001$), residence (P = 0.011), average monthly income (0.020), and access to healthcare insurance (0.042) (Table 4). A significantly higher proportion of respondents who had been hypertensive for at least five years practiced SMBP (Table 4), and the mean duration of hypertension was significantly higher among those who practiced SMBP than those who did not ($P < 0.001$).

DISCUSSION

This study shows that almost four-fifths (78.8%) of the study population were aware of SMBP. Edah et al.,[13] in a study of hypertensive patients attending Jos University Teaching Hospital, Nigeria, reported a 73.7% awareness rate of SMBP. However, a lower SMBP awareness rate of 43.4% was reported by Konlan et al.[14] among hypertensive patients receiving a tertiary level of care in Korle-Bu, Ghana. In this study, the majority (54.1%) of the respondents received information on SMBP from healthcare providers. Konlan et al.[14] Also reported that most (46.4%) of their study population received information on SMBP from their healthcare providers. The practice of SMBP was significantly associated with its awareness in this study. Thus, there is a need to increase awareness by all means possible: healthcare providers, family/friends, and the mass media.

Two-thirds (65.9%) of the respondents in this study practiced SMBP. Despite the similar SMBP awareness rate, the practice of SMBP in this study was higher than the 44.6% reported by Edah et al.[13] The explanation for the observed difference in the prevalence rate of SMBP is not immediately apparent.

However, a sizeable (46.3%) number of the respondents in this study who practiced SMBP attributed it to personal motivation. In contrast, three-fifths (60.5%) of the respondents who did not practice SMBP had no reason for not doing so. This underscores the need to keep creating awareness among patients with hypertension, as the gains of practicing SMBP are well established.

Although a majority (94.2%) of the respondents who practiced SMBP owned a BP monitoring device, less than a tenth (6.7%) reported they did so because of ownership of the device. In the same vein, respondents who did not practice SMBP were ascribed to lack of funds to buy a BP monitor (46.8%) and the inability to operate the monitor (34.7%). Indeed, it is noteworthy that the practice of SMBP was significantly associated with its awareness and ownership of BP monitoring devices. Although not explored in this study, the content of the information on SMBP available to the general public, and hypertensive patients in particular, should emphasize the use of validated electronic sphygmomanometers, which are relatively cheap and easy to operate as no special skills are needed.

Although there are no consensus guidelines on the schedules for SMBP, some studies have recommended that home BP be checked at least four times in the week preceding the clinic visit. The BP readings should be recorded, averaged, and cross-checked with the clinic BP reading.[15] This recommendation implies that measuring BP at home without clinical support is not enough. Almost half of the respondents in this study did not keep records of BP. Also, some respondents who kept their BP records did not cross-check with the clinic readings. Thus, many respondents who practiced SMBP may not get the added value from clinical support.[9] The non-adherence to recommended schedules may be because the respondents needed to be better versed in maximizing the benefits of SMBP, especially as about a fifth were unsure of their source of information. Also, the inertia of getting clinical support may be fueled by the perception of the accuracy of SMBP. Only about half of the respondents in this study thought SMBP was accurate.

The mean age of those who practiced SMBP and those who did not was similar in this study. Indeed, the practice of SMBP was similar by the age group. In the same vein, sex was not significantly associated with SMBP practice. This observation was similar to the reports from similar study populations in Northern Nigeria and Ghana.[13,14]

Like the study by Konlan et al.,[14] the practice of SMBP in this study was significantly higher among married respondents. Previous reports have also linked the practice of SMBP with the level of education.[13,14] While the practice of SMBP was significantly higher among respondents with a tertiary level of education in this study, Edah et al.[13] reported a significant association for those with at least secondary education. However, it is not known if the observation by Edah et al.[13] would have mirrored this study if the level of education was further subclassified, as in this study. Indeed, there is no evidence that formal education positively influences health-seeking behaviors, as observed in these studies.

A significantly higher proportion of urban dwellers practiced SMBP, whereas a higher proportion of rural dwellers did not. The observed association was statistically significant. Similarly, respondents' monthly incomes was significantly associated with the practice of SMBP. A higher proportion of those who earned less than the monthly minimum wage (₦30,000) did not practice SMBP and vice-versa. Konlan et al.[14] also reported

Table 3. Association between practice and perception and attitude toward SMBP

Variable	Category	Frequency	Practice SMBP		Chi-square	*P*-value
			Yes *n*=240 (%)	No *n*=124 (%)		
Is SMBP important?	Yes	310 (86.4)	227 (94.6)	83 (66.9)	54.917	<0.001
	No	6 (1.6)	4 (1.7)	2 (1.6)		
	Don't know	48 (13.2)	9 (3.8)	39 (32.5)		
Is SMBP beneficial?	Yes	303 (83.2)	224 (93.3)	79 (63.7)	52.406	<0.001
	No	7 (1.9)	3 (1.3)	4 (3.2)		
	Don't know	54 (14.8)	13 (5.4)	41 (33.1)		
Is SMBP accurate?	Yes	206 (56.6)	178 (74.2)	28 (22.6)	113.013	<0.001
	No	41 (11.3)	29 (12.1)	12 (9.7)		
	Don't know	117 (32.1)	33 (13.8)	84 (67.7)		
Will you recommend SMBP to others?	Yes	259 (71.2)	208 (86.7)	51 (41.1)	92.747	<0.001
	No	22 (6.0)	13 (5.4)	9 (7.3)		
	Undecided	83 (22.8)	19 (7.9)	64 (51.6)		

SMBP: Self-monitoring of blood pressure

Table 4. Association between the practice of SMBP pressure and sociodemographic profile and duration of hypertension of respondents

Variable	Category	Practice SMBP		Chi-square (*P*-value)
		Yes (*n*=240)	No (*n*=124)	
The age group (years)	<40	18 (7.5)	16 (12.9)	6.482 (0.166)
	40-49	37 (15.4)	18 (14.5)	
	50-59	59 (24.6)	22 (17.7)	
	60-69	71 (29.6)	31 (25.0)	
	≥70	55 (22.9)	37 (29.8)	
	Mean age (± SD)	59.3 (±13.98)	59.5 (14.97)	-0.129† (0.332)
Sex	Male	129 (53.8)	63 (50.8)	0.284 (0.594)
	Female	111 (46.3)	61 (49.2)	
Marital status	Single	14 (5.8)	6 (4.8)	8.446 (0.038)
	Married	190 (79.2)	84 (67.7)	
	Widowed	34 (14.2)	33 (26.6)	
	Divorced	2 (0.8)	1 (0.8)	
Education	No formal	10 (4.2)	13 (10.5)	35.065 (<0.001)
	Primary	25 (10.4)	34 (27.4)	
	Secondary	45 (18.8)	32 (25.8)	
	Tertiary	160 (66.7)	45 (36.3)	
Residence	Urban	190 (79.2)	83 (66.9)	6.523 (0.011)
	Rural	50 (20.8)	41 (33.1)	
Occupation	Employed	128 (53.3)	60 (48.4)	6.660 (0.084)
	Unemployed	36 (15.0)	30 (24.2)	
	Retired	74 (30.8)	31 (25.0)	
	Student	2 (0.8)	3 (2.4)	
Average monthly income (NGN)	<30,000	80 (36.0)	52 (51.5)	7.811 (0.020)
	30,000-100,000	96 (43.2)	37 (36.6)	
	≥100,000	46 (20.7)	12 (11.9)	
	Missing	18	23	
Access to healthcare insurance	Yes	52 (21.7)	16 (12.9)	4.133 (0.042)
	No	188 (78.3)	108 (87.1)	
The duration of hypertension (years)	<5	88 (41.7)	61 (57.5)	11.046 (0.004)
	5-10	71 (33.6)	34 (32.1)	
	>10	52 (24.6)	11 (10.4)	
	Missing	29	18	
	Mean (± SD)	8.8 (9.11)	4.9 (4.81)	3.639† (<0.001)

†Student t-test, SMBP: Self-monitoring of blood pressure, SD: Standard deviation, NGN: Nigerian Naira

that the practice of SMBP was associated with income level, increasing with higher incomes.[14] This association is not surprising considering that owing a BP monitor comes at a financial cost. Indeed, 46.8% of those who did not practice SMBP in this study reported lacking money to buy BP monitors. Added to the burden of low income is out-of-pocket spending on health. In this study, less than one-fifth of the respondents had access to healthcare insurance and a significantly higher proportion of respondents without access to healthcare insurance did not practice SMBP.

Study limitations

The study is limited in its questionnaire-based cross-sectional design because recall bias cannot be ruled out. Thus, the generalizability of the study inferences is limited. This study is also limited in not measuring respondents' BP to determine their control status and how it relates to the practice of SMBP.

CONCLUSION

This study has a high awareness rate of SMBP and owning a BP monitoring device. Although two-thirds of the respondents checked their BP outside the clinic settings, about half needed to keep records and cross-check with clinic readings. The lack of record keeping and comparison of home BP checks with clinic readings can limit the added clinical support offered by SMBP. Thus, healthcare providers must continue to inform the public of the importance of including SMBP in the care of hypertensive patients and emphasize the added benefits if correctly done.

The practice of SMBP in this study was significantly higher among respondents who were married, had a tertiary level of education, lived in urban areas, had access to healthcare insurance, and earned more than the minimum monthly wage in Nigeria of thirty thousand naira (₦30,000).

Ethics

Ethics Committee Approval: The Delta State University Teaching Hospital Health Research Ethics Committee on Jul 13, 2021 provided ethics approval [approval number: HREC/PAN/2021/016/0327] to conduct the study.

Informed Consent: Informed consent was obtained from the selected patients before administering the study questionnaire.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: E.M.U., E.J.O., P.O., Concept: E.M.U., E.J.O., P.O., Design: E.M.U., E.J.O., P.O., Data Collection or Processing: E.M.U., E.J.O., P.O., Analysis or Interpretation: E.M.U., E.J.O., P.O., Literature Search: E.M.U., E.J.O., P.O., Writing: E.M.U., E.J.O., P.O.

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