



ORIGINAL ARTICLE

CLINICO – DEMOGRAPHIC PROFILE OF PARTICIPANTS IN A MEDICAL SCREENING EXERCISE IN AN URBAN REGION, SOUTH-SOUTH, NIGERIA

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ABSTRACT

Introduction: There is a rise in non-communicable diseases (NCDs) in developing countries like Nigeria with attendant health consequences. This in part is attributable to the adoption of western habits to traditional ways of life. We seek to screen for over-weight, obesity and hypertension in residents of urban Calabar Metropolis in Nigeria.

Methods: Urban residents of Calabar metropolis were enlightened on the study protocol and were evaluated for hypertension by measuring their blood pressure while seated. Their height and weight were measured using a stadiometre and their body mass index (BMI) calculated and placed in the respective categories.

Results: Two hundred and twenty six subjects were screened, with more males (61.9%) than females (38.1%) participating. Most of them had normal BMI readings, 28.3% were overweight while 17.3% were obese. Hypertension accounted for 37.2% of screened subjects.

Conclusion: Overweight, obesity and hypertension are on the rise in our environment. Regular screening to detect these conditions and intervene is necessary to checkmate morbidity and mortality associated with them.

Key words: Overweight, Obesity, Hypertension, Urban, Calabar – Nigeria.

INTRODUCTION

Not all health problems show symptoms in their early stages. Screening in medical practice is a strategy used in a population to identify the presence of undiagnosed diseases in individuals by detecting the likely and symptoms associated with such diseases. Obesity is a risk factor for major causes of death from cardiovascular disease, some cancers and diabetes. Obesity has also been linked with many sources of morbidity, including osteoarthritis, gall bladder disease, sleep apnea and respiratory impairment¹. Excess weight is a risk factor for cancers of the colon, rectum, prostate, gall bladder, biliary tract, breast, cervix, endometrium and ovary. It is associated with concerns of quality of life including diminished mobility and social stigmatization. Emerging evidence has shown that Non-communicable diseases (NCDs) affect developing nations more than the developed ones².

The Nigerian population is becoming more overweight and obese. These changes affect

both rural and urban dwellers but it is more pronounced in the urban populace². These changes are brought about by changes in dietary habit, with the adoption of westernized diet³. Facilitation of social acceptance of fast food by the global media outlets and advert billboards has potentiated this nutritional transition³. The morbidity and mortality of systemic hypertension related complications are on the rise in Nigeria³. We sought to determine the prevalence of overweight, obesity and hypertension among adults in an urban setting in South-South Nigeria.

A faith based organization has its annual yearly men's week which occasionally involves medical screening. For the 2015 weekly activities, medical screening was carried out in two urban locations of Ediba Qua Town and Marian hill, both in urban Calabar metropolis.

Calabar is the capital city of Cross River State in the South-South geopolitical zone of Nigeria. Participants were informed of the screening protocol and were encouraged to participate in it.

The exercise was voluntary and at no cost to participants. Volunteers had their weight, height and blood pressure measured.

METHODOLOGY

Participants were addressed on the procedure for the medical screening and what they would be evaluated for. They were informed that each participant's results would be discussed. Subjects were reminded that confidentiality was of utmost importance in the entire exercise. Participants who came for the outreach were attended to after giving a verbal consent.

Participants' weight was measured to the nearest 0.1kg while wearing light clothing without shoes using a portable stadiometre. The height was measured with subjects standing erect with no shoes, headgear or cap to the nearest 0.1cm using a stadiometre. The body mass index was then calculated by dividing the weight in kilogram over the square of the height in meters. Blood pressure was measured with participants seated and relaxed after 5 minutes using an Accoson mercury sphygmomanometer. Hypertension was defined based on the Seventh report of the Joint National Committee on Prevention, detection, evaluation and treatment of high blood pressure (JNC7) classification, as systolic blood pressure greater than or equal to 140mmHg and/or diastolic blood pressure equal to or greater than 90mmHg⁴. Those who could not stand erect, ill persons and pregnant women were excluded from the screening exercise.

The statistical package for social sciences (SPSS) version 22 statistical software was used for data analysis.

RESULTS

A total of two hundred and twenty six participants were enrolled for this study. One hundred and forty subjects representing 61.9% of the study participants were males while 38.1% were females. Majority, 52.7% belonged to the 18-38 year age group followed by the 39-59 year range with 38.1%. The least participants were persons who were sixty 60 years and above who were just 9.3% of the total. About a third of

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the participants, 31.4% had normal blood pressure reading at the time of study, the same number were pre-hypertensive while 37.2% had blood pressure readings suggestive of hypertension. Most of the study subjects, 51.3% had normal BMI range of 18.5-24.9 kg/m², 28.3% were overweight while 17.3% were obese.

Table 1: Frequency Distribution of Participants

Variables	Frequency	Percentage
Sex		
Male	140	61.9
Female	86	38.1
Age Category		
18-38	119	52.7
39-59	86	38.1
60 above	21	9.3
Blood Pressure Category		
Normal (<120/80)	71	32.4
Pre-hypertension(120-39/80-)	71	31.4
Hypertension (≥140/90)	84	37.2
Hypertension		
Yes	84	37.2
No	142	62.8
BMI Category		
< 18.5	7	3.1
18.5-24.9	116	51.3
25-29.9	64	28.3
≥30	39	17.3

Table 2 show that the mean age, systolic blood pressure (SBP) and diastolic blood pressure (DBP) were significantly higher in males as compared to females (42.614.2 Vs 32.4 12.5, 129.822.4 Vs 121.9 21.7, 80.3 13.8 Vs 76.5 13.9, $P < 0.05$).

Also, the presence of hypertension was significantly higher in males than females, $P < 0.05$.

Table 2: Demographic and Clinical Characteristics

Variables	Males (40),%	Females (N=86),%	p-value
Age (years)	42.56±14.22	32.38±12.46	0.0001
Systolic BP (mmHg)	129.79±22.39	121.86±21.72	0.009
Diastolic BP (mmHg)	80.32±13.76	76.51±13.87	0.046
Weight (Kg)	70.40±13.55	68.49±17.64	0.391
BMI (Kg/m ²)	24.82±4.41	26.38±6.59	0.53
Blood Pressure Category			
Normal (<120/80)	36 (50.7)	35 (49.3)	0.009
Pre-hypertension(120-9/80-)	42 (59.2)	29 (40.8)	
Hypertension (≥140/90)	62 (73.8)	22 (26.2)	
BMI Category			
< 18.5	4 (57.1)	3 (42.9)	0.239
18.5-24.9	73 (62.9)	43 (37.1)	
25-29.9	44 (68.8)	20 (31.3)	
≥30	19 (48.7)	20 (51.3)	

There was positive correlation between Body mass Index (BMI) with age, systolic blood pressure and diastolic blood pressure, $P < 0.05$.

Table 3: Correlation of BMI with Selection Variables

Variables	Correlation value (R value)	p-value
Age (years)	0.193**	0.004
Systolic BP (mmHg)	0.241**	0.0001
Diastolic BP (mmHg)	0.349**	0.0001

Table 4: Clinical Parameters of Participants Based on HTN Category

Variable	Normal BP (n=71), SD,%	Pre-HTN (n=71), SD,%	HTN (n=84), SD,%	P-value
Age (years)	29.71 + 11.32	35.92 + 13.34	48.63 + 11.36	0.243
Weight (kg)	63.30 + 13.74	70.26 + 14.07	74.55 + 5.27	0.058
BMI (kg/m ²)	23.16 + 4.74	25.61 + 5.36	27.16 + 5.27	0.302
Age Category				
18 – 38	58 (81.7%)	46 (64.8%)	15 (17.9%)	
39 – 59	11 (15.5%)	20 (28.2%)	55 (65.5%)	<0.0001
60 above	2 (2.8%)	5 (7.02%)	14 (16.7%)	
BMI Category				
< 18.5	4 (5.6%)	2 (2.8%)	1 (1.2%)	
18.5 – 24.9	53 (74.6%)	33 (46.5%)	30 (35.7%)	<0.0001
25 – 29.9	7 (9.9%)	28 (39.4%)	29 (34.5%)	
30 above	7 (9.9%)	8 (11.3%)	24 (28.6%)	

Table 4 shows that the mean age, weight and BMI were higher in participants with hypertension but this was not statistically significant. However, 65.5% of participants in the middle age group (39-59 years) had hypertension, ($p < 0.05$) while over 60% of the participants with hypertension were either obese or had frank obesity (25-29.9, $\geq 30 \text{ kg/m}^2$, $p < 0.05$).

DISCUSSION

We had more male participants in our study. This was not surprising as the screening exercise took place during the men's group yearly activities of a faith based organization. Our study revealed that 28.3% of study participants were overweight. This figure fell within the range of 20.3% - 35.1% obtained in a systematic review among adults in Nigeria.⁵ It was lower than the prevalence of 31.1% and 38% obtained in other Nigerian studies^{6,7}. The overweight value was higher than that obtained in studies in neighbouring Benue State 22%, Kalabari in Rivers State 22.95, Zaria 18.5% and Jos 17.2% respectively.^{8,9,10,11}

The prevalence rate of 17.3% of participants being obese was in conformity with other studies.^{5,6} In contrast, it was lower than values of

47.26% and 26% and higher than values obtained in same regional studies.^{7,8,9,10,11} Majority of the participants were of normal weight category corroborating other studies.^{6,7,8} A similar study revealed a relatively low rate of 28.77% study participants belonging to the normal weight category. The least participants belonging to the underweight category was reflected in similar studies.^{6,8,9} Most persons are now abandoning their traditional ways of life in preference to western habits. This is reflected in their choice of meals and physical habits. People now engage more in white collar jobs which are mostly sedentary in nature. Majority resides in urban areas and there is extra pressure to meet human needs in urban dwellers than the rural ones in Nigeria. The pressure of paying for house rent, utility bills, transportation amongst others are more on urban residents. Their counterparts in the rural areas are mostly involved in agrarian activities which entail lots of walking and physical labour. They also eat less of western diets as availability is unlikely and the cost is usually out of the reach of the rural dwellers who are mostly peasants. A combination of the above mentioned factors may make urban residents prone to be overweight, obese and at a higher risk of developing hypertension and other related cardiovascular diseases.

A review study by Ogah et al, gave the overall prevalence rate of hypertension among urban Nigerians to be between 8%-46.4%¹². The finding of 37.2% prevalence rate in our study fell within this range. However, it was higher than values obtained in similar studies in Nigeria with prevalence rates of 33.1%, 32.3%, and 22.7% respectively^{13, 14, 15}. It was comparatively lower than studies in Abak, neighbouring Akwa Ibom State 62.8%, Ogbomoso in South-Western Nigeria 50.5% and Enugu 42.2% in South Eastern Nigeria.^{16,17,18}

More males had hypertension than females in our study corroborating findings from other studies,^{13,16,17,18} in which male gender has been shown to be one of the traditional risk factors associated with hypertension. Sola et al in a rural-urban study in Nigeria had almost the

same percentage of males and females with hypertension¹⁵. Another study showed that females had a double prevalence rate of hypertension than their male counterparts. More male participants were overweight than females in our study. There was a higher percentage of females being obese than males, which was consistent with other studies.^{9,10}

As in other studies^{15,16,17,18} hypertension increased with age in our study finding. Also obesity and overweight increased with age. This finding was in agreement with a similar study.⁶ The plausible explanation may be that as people grow old, their blood vessels gradually become hardened with associated arteriosclerosis. People also become less physically active as they grow older and age. Increasing age also comes with obesity in some persons as a result of excess accumulation of fat.

CONCLUSION

The incidence of overweight, obesity and hypertension are common in our environment and may rise further in future. These conditions can easily be screened for. There should be sustained public awareness to highlight the importance of screening and detecting these conditions so as to avoid associated complications. This measure could improve on the health status of the populace as the burdens of these conditions on society are enormous.

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