

LIFESTYLE AND ANTHROPOMETRIC INDICES OF HYPERTENSIVE PATIENTS IN BICHI LOCAL GOVERNMENT AREA KANO STATE

Okeke P.N.¹, Ohadoma L.¹, Maduforo A.N.², Ezenwa H.C.³ and Ifeanyi-Uche, U.P.⁴

¹Department of Nutrition and Dietetics Imo State University, Owerri.

²Department of Nutrition and Dietetics, University of Nigeria, Nsukka.

³Department of Vocation Education, Abia State University, Uturu, Abia State.

⁴Department of Home Economics, Federal College of Education (Technical), Umunze.

Corresponding Author²Email: aloysius.maduforo@unn.edu.ng; Phone No: +2348033745621

Abstract

Background: Nutrition is a very crucial component in the management of hypertension. The diet of hypertensive patients needs to be critically assessed as well as the lifestyle changes that would encourage maintenance of good blood pressure control.

Objective: The study evaluated the lifestyle and anthropometric indices of hypertensive patients in Bichi Local Government Area, Kano State.

Method: A cross sectional study design was used. A total of 300 subjects were selected by simple random sampling by ballot without replacement. Validated questionnaire was used to collect information from the respondents while weighing scale, height meter and tape were used for anthropometric measurement. The mean, frequency, percentage and standard deviation of the data was obtained. The data was presented in tables and figures.

Result: The result of the study revealed that the average body mass index of the respondents was in the overweight range (28.37 ± 4.35) about 43% were overweight while 37% were obese. It was also discovered that 18% of the subjects' smoke, 20% consume alcohol daily and 65% of the subjects do not engage in any form of exercise.

Conclusion: The high prevalence of overweight and hypertension among patients (80%) was due to their poor dietary pattern and lifestyle. Therefore, there is need for a lifestyle and dietary modification to help them lose weight, obtain adequate diet and as well maintain a good blood pressure to prevent complications associations associated.

Keywords: *Hypertension, Lifestyle, Anthropometric Indices, Dietary Pattern.*

INTRODUCTION

High blood pressure is often referred to as a major public health problem in Nigeria and the "silent killer" because it can remain asymptomatic for years. Unmanaged hypertension can lead to poor health condition such as stroke, coronary artery disease and kidney failure (1, 2, 3). Morbidity and mortality rate increases as both systolic and diastolic blood pressure rises (2). Many people suffering from hypertension are undiagnosed and of those detected about two third are sub-optimally controlled (2, 3).

Hypertension affects approximately 24.8% of the global population with the range from 19.7% to 35.5% in different regions (3). Blood pressure is a measure of the force of the blood flowing against the walls of the arteries and when the pressure is high, it is referred to as hypertension. Hypertension

is one of the most common diseases that lead to hospitalization and a major risk factor for stroke, congestive heart failure, myocardial infarction, peripheral vascular disease and overall mortality. It is an elevated systolic and diastolic blood pressure greater than 140/90mmHg taken at three separate occasions, and in good position using a good functioning sphygmomanometer (4). This study evaluated the lifestyle and anthropometric indices of hypertensive patients in Bichi Local Government Area, Kano State.

Methodology

Study Design

The study adopted a cross sectional study conducted at three public hospitals in Bichi Local Government.

Sample Selection: A total of 300 adult male and female were selected from the out-patient department of the three hospitals.

Data Collection: Data was collected using a validated structured questionnaire. The dietary and feeding pattern was assessed using both questionnaire and 24hours dietary recall. Anthropometric indices were measured using documented standard method (5,6). The Body

Mass Index of the respondents was determined using $BMI = \text{Weight}/\text{Height}^2$ (m²). The respondents were thereafter classified as underweight, normal, overweight or obese using WHO classification (7).

Statistical Analysis: The mean, frequency, percentage and standard deviation of the data was obtained. The data was presented in tables and figures.

Results: The result of the demographic characteristics of the respondents (Table 1) revealed that majority (56%) were females, about 77% were married, 63% were Muslims, 12% did not attend formal education and 20% stopped at primary education.

Table 1: Demographic characteristics of the respondents

Parameter	Frequency	Percent
Age (years)		
20-30	100.00	33.30
31-40	94.00	31.30
41-50	74.00	24.70
>50	32.00	10.70
Total	300.00	100.00
Gender		
Female	132.00	44.00
Male	168.00	56.00
Total	300.00	100.00
Religion		
Christianity	105.00	35.00
Islam	190.00	63.30
Others	5.00	1.70
Total	300.00	100.00
Marital Status		
Single	28.00	9.30
Married	230.00	76.70
Widow/Widower	29.00	9.70
Divorced	13.00	4.30
Total	300.00	100.00
Education		
Primary	60.00	20.00
Secondary	103.00	34.00
Tertiary	101.00	33.70
No formal education	36.00	12.00
Total	300.00	100.00

Occupation of the respondents show that majority of the respondents had business/trading as their means of livelihood as shown in figure 1.

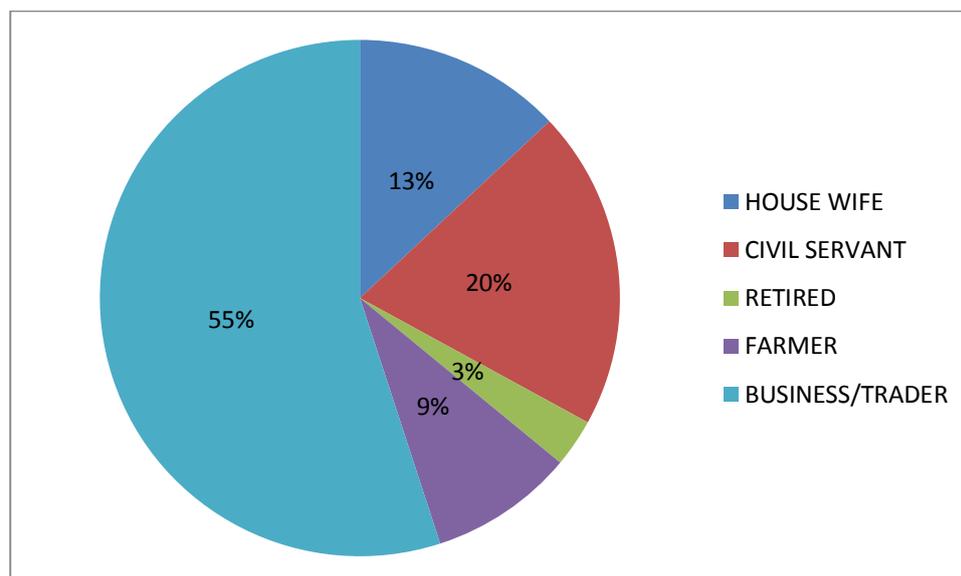


Figure 1: Occupation of Respondents

The anthropometric indices of the subjects shown in table 2, indicated that the average BMI of the respondents were in overweight range (25.0-29.9kg/m²).

Table 2: Anthropometric indices of the subjects

Variable	Mean ± Standard Deviation
Waist to Hip Ratio (WHR)	1.01±0.13
Body Mass Index (kg/m ²)	28.37±4.35
Hip Circumference (inches)	35.13±5.02
Circumference (inches)	35.26±4.28
Weight (kg)	71.54±10.69
Height (cm)	159.63±6.71

Table 3, showed the prevalence of overweight and obesity. The BMI of the subjects indicated that only 20% had normal weight, about 43% were overweight and 37% were obese.

Table 3: Prevalence of Overweight and Obesity

Body Mass Index (kg/m ²)	Frequency	Percentages (%)	Classification
18.5-24.9	60	20.00	Normal
25.0-29.9	130	43.33	Overweight
30.34.9	97	32.33	Class I Obesity
35-39.9	11	3.67	Class II Obesity
≥40	2	0.67	Class III Obesity
Total	300	100.00	

The food habits of the respondents summarized in table 4, revealed that majority of the subjects (38.7%) eat three meals daily, about 2% eats once a day. About 9% skips their breakfast while majority (57%) do not skip their meals. Also, 43% consumed snacks after a meal, 39% eats from fast foods and about 38% preferred fried foods.

Table 4: Food Habits of the Respondents

Variable	Frequency	Percentages
No of meals consumed daily		
Once	6	2.00
2times	92	30.70
3times	116	38.70
>3times	86	28.70
Total	300	100.00
Meals usually skipped		
Breakfast	27	9.00
Lunch	57	19.00
Supper	22	7.30
None	194	64.60
Total	300	100.00
Reasons for skipping meals		
No appetite	17	5.70
To lose weight	28	9.30
Lifestyle	35	11.70
No food	19	6.30
Others	30	10.0
Don't normally skip	171	57.00
Total	300	100.00
Consumption of snacks after a meal		
Yes	129	43.00
No	171	57.00
Total	300	100.00
Who prepares meals		
Self	36	12.00
Spouse	17	5.70
Child	36	12.00
House help	94	31.30
Fast food	117	39.00
Total	300	100.00
Method preferred for meal preparation		
Boiling	148	49.30
Baking	12	4.00
Frying	113	37.70
Roasting	4	1.30
Steaming	23	7.70
Total	300	100.00

The lifestyle characteristics of the respondents shown in table 5, revealed that 18% of the subjects' smokes, about 12% consumed up to three bottles of alcohol daily and 5.4% consumed more than three bottles of alcohol daily. It is also shown that majority of the subjects (65%) do not engage in any form of exercise.

Table 5: Lifestyle Characteristics of the Respondents

Variable	Frequency	Percentages
Smoking and other substances		
Yes	54	18.00
No	246	82.00
Total	300	100.00
Frequency of smoking		
Few sticks	13	4.30
½ packet	14	4.70
1 packet	16	5.30
>1 packet	11	3.70
Not at all	246	82.00
Total	300	100.00
Alcohol consumption		
Yes	108	36.00
No	192	64.00
Total	300	100.00
Quantity of alcohol consumed daily		
1 bottle	27	9.00
2 bottle	30	10.00
3 bottle	35	11.70
>3 bottle	16	5.40
Not at all	192	64.00
Total	300	100.00
Engages in exercise		
Yes	105	35.00
No	194	65.00
Total	300	100.00
Types of exercise		
Brisk walk	59	19.60
Running	16	5.30
Swimming	11	3.70
None	194	64.70
Others	20	6.70
Total	300	100.00

The food frequency consumption of cereals/root and tuber shown in table 6a, noted that about 60% of the subjects consumed rice daily, 46% eats bread daily and 21% eats semovita daily. Also 33% eats yam daily while only 2.3% consumed garri daily.

Table 6a: Food Frequency of Cereals, Roots, Tubers and Plantain by the Respondents

Food items	Daily F (%)	2-3times/week F(%)	4-6times/week F(%)	Once/week (F(%)	Never F(%)	Total F(%)
Corn flakes	8(2.7)	43(14.3)	84(28.0)	128(14.7)	27(12.3)	300(100.0)
Oats	22(7.3)	71(23.7)	88(29.3)	91(30.3)	28(9.3)	300(100.0)
Custard	10(3.3)	50(16.7)	90(30.0)	115(38.3)	35(11.7)	300(100.0)
Rice	179(59.7)	73(24.3)	39(13.0)	9(3.0)	0(0.0)	300(100.0)
Maize	107(35.7)	108(36.0)	76(25.3)	9(3.0)	0(0.0)	300(100.0)
Millet	78(26.0)	107(35.7)	83(27.7)	27(9.0)	5(1.7)	300(100.0)
Agidi	14(4.7)	46(15.3)	89(29.7)	114(38.9)	37(12.3)	300(100.0)
Bread	139(46.3)	96(32.0)	56(18.7)	8(2.7)	1(0.3)	300(100.0)
Semovita	63(21.0)	94(31.3)	90(30.0)	36(12.0)	17(5.7)	300(100.0)
Indomie	28(9.3)	33(11.0)	77(25.7)	155(51.7)	7(2.3)	300(100.0)
Spaghetti	156(52.0)	70(23.3)	52(19.0)	17(5.7)	0(0.0)	300(100.0)
Pap (koko)	116(38.7)	104(34.7)	66(22.0)	14(4.7)	0(0.0)	300(100.0)
Wheat	98(32.7)	100(33.3)	73(24.3)	29(9.7)	0(0.0)	300(100.0)
Marcaroni	102(34.0)	93(31.0)	74(24.7)	31(10.0)	0(0.0)	300(100.0)
Garri	7(2.3)	57(19.0)	92(30.7)	119(39.7)	25(8.3)	300(100.0)
Plantain	13(4.3)	83(27.7)	139(46.3)	65(21.7)	0(0.0)	300(100.0)

Yam	99(33.)	117(39.0)	76(25.3)	8(2.7)	0(0.0)	300(100.0)
Potatoes	93(31.0)	91(30.0)	77(25.0)	39(13.0)	0(0.0)	300(100.0)

In table 6b, the result indicated that about 60% of the subjects consumed fish daily, 32% eats egg daily, and 43% consumed meat offal daily. The table also showed that 5% of the subjects do not eat moi-moi, 34.3% eats beans daily and about 40% consumed soybeans daily.

Table 6b: Food Frequency Consumption of Legumes, meats and meat alternatives by the respondents

Food items	Daily F (%)	2-3times/week F(%)	4-6times/week F(%)	Once/week (F%)	Never F(%)	Total F(%)
Groundnuts	139(46.3)	92(30.7)	55(18.3)	11(3.7)	3(1.0)	300(100.0)
Beans	103(34.3)	117(39.0)	72(24.0)	8(2.7)	0(0.0)	300(100.0)
Soybeans	121(40.3)	84(28.0)	63(21.0)	25(8.3)	7(2.3)	300(100.0)
Moimoi	12(4.0)	76(25.3)	118(39.3)	79(26.3)	15(5.0)	300(100.0)
Beancake	70(23.3)	101(33.7)	99(33.0)	30(10.0)	0(0.0)	300(100.0)
Bambaranut	4(1.3)	27(9.0)	81(27.)	104(34.7)	84(28.0)	300(100.0)
Fish	181(60.3)	77(25.7)	34(11.3)	8(2.7)	0(0.0)	300(100.0)
Poultry	67(22.3)	101(33.7)	84(28.0)	45(15.0)	3(1.0)	300(100.0)
Beef	108(36.0)	102(34.0)	62(20.7)	28(9.3)	0(0.0)	300(100.0)
Goat meat	29(9.7)	90(30.0)	107(35.7)	72(35.0)	2(0.7)	300(100.0)
Offal	129(43.0)	102(34.0)	45(15.0)	22(7.3)	2(0.7)	300(100.0)
Snail	3(1.0)	28(9.3)	49(16.0)	127(42.3)	98(31.0)	300(100.0)
Periwinkle	4(1.3)	34(11.4)	50(16.7)	107(35.7)	0(0.0)	300(100.0)
Lean meat	29(9.7)	72(24.0)	124(41.3)	66(22.0)	9(3.0)	300(100.0)
Egg	41(31.7)	100(33.3)	104(35.7)	50(16.7)	2(0.7)	300(100.0)

In table 6c, 25.3% of the subjects take skimmed milk daily same as whole milk. About 44% consumed sugar daily, 19% consumed honey daily and 53% consumed sugarcane daily. The respondents also consumed fruits and vegetables. About 61% eats green leafy vegetables daily, 5% never consumed guava. Dates is the most consumed fruits (52%) as well as orange consumed by 43% of the subjects daily.

Table 6c: Food Frequency Consumption of Fruits, Vegetables, Sugars, Milk and Milk Products by the Respondents

Food items	Daily F (%)	2-3times/week F(%)	4-6times/week F(%)	Once/week (F%)	Never F(%)	Total F(%)
Dark green leafy vegetables	182(60.7)	70(23.3)	40(13.3)	6(2.0)	2(0.7)	300(100.0)
Waterleaf	55(18.3)	82(27.3)	110(36.7)	40(13.3)	13(4.0)	300(100.0)
Okro	139(46.3)	80(26.7)	71(23.7)	10(2.3)	0(0.0)	300(100.0)
Orange	128(42.7)	88(29.3)	59(19.7)	22(7.3)	3(1.0)	300(100.0)
Guava	20(6.7)	51(17.0)	74(24.7)	139(46.3)	16(5.3)	300(100.0)
Pineapple	42(14.0)	88(29.3)	102(34.0)	66(22.0)	0(0.7)	300(100.0)
Banana	8(2.7)	50(16.7)	106(35.3)	136(45.3)	0(0.0)	300(100.0)
Pawpaw	17(5.7)	40(13.3)	90(30.0)	141(47.0)	12(4.0)	300(100.0)
Dates (dabino)	157(52.3)	82(27.3)	52(17.3)	9(3.0)	0(0.0)	300(100.0)
Skimmed milk	77(25.3)	104(34.7)	95(31.7)	23(7.7)	2(0.7)	300(100.0)
While milk	76(25.3)	104(34.7)	83(27.7)	37(12.3)	0(0.0)	300(100.0)
Yoghurt	43(14.3)	100(33.3)	96(32.0)	61(20.3)	0(0.0)	300(100.0)
Ice cream	57(19.0)	92(30.7)	104(34.7)	47(15.7)	0(0.0)	300(100.0)
Honey	57(19.0)	63(21.0)	61(20.3)	89(29.7)	30(10.0)	300(100.0)
Jam	16(5.3)	35(11.7)	62(20.7)	86(28.7)	101(33.7)	300(100.0)
Sugar	133(44.3)	83(27.7)	57(19.0)	20(6.7)	7(2.3)	300(100.0)
Syrup	3(1.0)	8(2.7)	29(9.7)	92(30.7)	168(56.0)	300(100.0)
Sugar cane	159(53.0)	64(21.3)	67(22.3)	8(2.7)	2(0.7)	300(100.0)

DISCUSSION:

The high prevalence of overweight and obesity (80%) found in this study was not a surprise as 43% were overweight and 37% were obese. It is an established fact that overweight and obesity are risk factors for hypertension and other cardiovascular disease (8). However, losing about 10% of excess weight if overweight or obese is recommended for hypertensive patients (9,10) to maintain a good blood pressure control and to avoid hypertensive complications. The demographic characteristics of the respondents showed that majority of the respondents carry out business or trading activities as their means of livelihood. Another prominent occupation were civil service jobs which serve as the occupation of about 20% of the subjects. Reports have shown that most jobs in the civil service are sedentary and basically involve spending hours in the office sitting and this is a high predisposing factor to obesity (7).

The lifestyle characteristics of the hypertensive patients as observed in this study indicated that cigarette smoking, substance abuse, alcohol intake and physical inactivity are lifestyle factors that pose great risk to hypertensive patients. The result of this study showed that 18% of the respondents' smoke tobacco, 36% drink alcohol and 65% do not drink alcohol, 12% of the population drinks more than 3 drinks (3 beer bottles) daily. Studies have shown that alcohol intake above two drinks per day for men and one for women increases the risk of hypertension accordingly, in a dose dependent relationship (11, 12). Limiting alcohol intake to ≤ 2 drinks per day for man and ≤ 1 drink per day for women is recommended by the United States Dietary Guidelines (7). These habits invariably were not formed when they were diagnosed hypertensive but prior to this time by majority of smokers and alcoholics. Thus, it could be deduced that smoking and alcoholism contributed to subjects' development of hypertensive.

Scientific findings have established that physical activity of 30 minutes per day does decrease blood pressure by 4-9 mmHg (7). Also, it has been reported that increasing physical activity decreases the relative workload on the heart for all forms of activity, a benefit important for all forms of cardiovascular disease. Furthermore, increasing physical activity will facilitate weight management (9). It has been reported that the health benefits of cessation of smoking is realized almost immediately (9). Smoking cessation may be the most important change any individual can make to reduce the risk of hypertension and all forms of cardiovascular disease (8). However, it is important to note that all smoking cessation plans are equal, and it is recommended that each individual should

seek out a program that suits his or her need (9). Also, in order to achieve success in smoking cessation, the smoker should also be able to identify his or her reasons for quitting (8).

Food variety is important to ensure a quality diet and is therefore highly recommended in national food-based dietary guidelines of different countries. This study also estimated the dietary pattern and food habits. It indicated that foods consumed included animal proteins such as beef, fish and other types of meat, dairy products (especially tinned milk), tubers, legumes, cereals, fruits and green vegetables (Table 6a-6c). Increasing the variety of foods in the diets is crucial as it able to ensure an adequate intake of essential nutrients, resulting in good health.

The food habit of the respondents which has potential to affect hypertension included the consumption of foods from fast foods restaurants. Fast foods restaurants tend to contain higher salt and fats than recommended for hypertensive patients. Although the use of sodium restriction to manage BP has been a controversial issue in the past, recent consistent evidence has supported the efficacy of a reduction of sodium for controlling BP (13, 14, 15). It has been estimated that sodium modifications may reduce incidence of hypertension by as much as 17% (8,9).

The DASH trials have further supported the role of sodium in reduction in treatment for hypertension (8). Blood pressure control through sodium restriction could reduce the incidence of cardiovascular disease, renal disease, and stroke (8). DASH has 27% of calories as fat, including fat in or added to foods (9). The study also showed that about 38% of the respondents preferred frying as the method of their cooking meals. Fried foods tend to contain higher levels of trans fats and as well as higher fat content (8). Both are not good for hypertensive patients as higher fat intake will predispose them to obesity and higher intake of trans fats will predispose them to atherosclerosis (9).

Undesirable dietary factors were also identified which included eating snacks after a meal which predisposes them to excessive energy intake that could result to obesity as seen among the patients. There was also frequent sugar consumption among the patients, while only 61% of the respondents consumed green leafy vegetable daily. Vegetables are rich sources of micronutrients and fibre to the diet. Dietary recommendation for every adult individual is to consume at least 5 servings of fruits and vegetables daily (8).

Conclusion

The anthropometric indices and lifestyle hypertensive patients in Bichi local government area, Kano state, which was assessed, revealed that the prevalence of overweight and hypertension was 80% which is very high. Lifestyle factors discovered that poses a great risk for the patients include: smoking, sedentary lifestyle and excessive alcohol consumption. Undesirable dietary factors identified included eating from fast foods which predisposes them to high sodium and trans fat intake, eating snacks after a meal. There was also

frequent sugar/starch foods consumption among the patients, while only 61% of the respondents consumed green leafy vegetable daily. Therefore, there is high prevalence of overweight and obesity among the patients. However, there is need for a lifestyle and dietary modification to help them lose weight, obtain adequate diet as well maintain a good blood pressure to prevent complications. Also, patients should ensure regular medical check-up and seek for intervention as needed to avoid complications and sudden death.

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