







Majority of participants (53.8%) weighed between 61kg to 80kg. The minimum weight was 40.0kg while the maximum weight was 125.0kg with a mean weight of  $69.197 \pm 13.6832$  kg. The minimum of height of the participants was 1.39m, maximum height was 1.87m with a mean of  $1.6176 \pm 0.77$ m. Four fifth (83.5%) were within height range 1.50 to 1.69metres.

Body mass distribution of the participants. Only 40% (137) had normal weight for height while a quarter (25.7%) was either obese or morbidly obese. The minimum BMI was  $12.90 \text{ kg/m}^2$  and maximum BMI was  $44.30 \text{ kg/m}^2$  with mean BMI being  $26.4268 \pm 5.11 \text{ kg/m}^2$ .

Over four fifth of participants had normal blood pressure with only 5% having high blood pressure. Less than 2% had abnormal sugar, protein and PH in their urine. The minimum pH was 5.0 and maximum pH of 8.5 while mean pH was  $6.542 \pm 0.7887$ .

Females in this study had a higher prevalence of overweight 95(34.1%) as against 12 (19.4%) among male participants. The female participants also had higher differential obese and morbidly obese groups compared to male counterparts. The male participants in this study had normal BMI of 74.2% which is at least double of the percentage of women (32.6%) participants that had normal weight.

Females were also found to have a higher prevalence of Pre-High Blood Pressure- 28(90.32%), against 3(9.67%) for male and High Blood Pressure—among the females- 11(61.11%), males- 7(38.8%). The trend which puts females at higher risk of having abnormal (low or high) blood pressure is found to be statistically significant  $P = 0.027$

The descriptive statistics displaying the mean and standard deviation of continuous variables in the study.

The correlation between the variables. At 0.05 level of significance, it was observed that the age of the subjects has significant effect on the blood pressure ( $r = 0.012$ ) and also on the BMI (with a correlation co-efficient,  $r$ , of 0.043), i.e. a change in the age of a staff will have a significant effect on the blood pressure as well the BMI of the respondents. The sex of participants has significant effect on weight, females being at higher risk of being overweight, obese and morbidly obese  $P= 0.000$ . Blood pressure abnormality is also significantly associated with weight ( $P= 0.024$ ) and BMI ( $P= 0.018$ ). The higher the weight and BMI the higher the chances of developing raised blood pressure.

This study showed that job status (department/unit of staff) did not significantly affect prevalence of obesity, blood pressure and weight distribution pattern though the administrative staff in group 1 tended to have higher pre-high blood pressure, higher blood pressure, overweight and obesity compared to group 2 which is the professional group but the difference is not statistically significant.

## Discussion of results

The prevalence of obesity of 25.7% in this study is slightly higher than upper limit of 22.2% quoted for Nigerian population but lower to figure quoted in America. Our sampling may be skewed towards obese staff because of sampling method compared to the participants in Innocent study (Innocent I. C, 2013).The prevalence of obesity in 2013- 2014 was 35 percent among men and 40 percent among women, and between 2005 and 2014, there was an increase in prevalence among women, but not men, according to an American study. (Cynthia L, 2014), This is in agreement with the findings in this study which shows significance in the level of females being at higher risk of being overweight, obese and morbidly obese  $P= 0.000$ . A study showed that men in urban areas tended to have higher proportion of obesity compared to men in rural areas but showed that overall obesity is more prevalent among females. (M Alqarni SS, 2016). In another study, obesity is common among adult Nigerians residing in Lagos. However, its prevalence is higher in females and increases with age (Bello B. T, 2016) which is also in line with the findings in this study which reveals that a change in the age of a staff will have a significant effect on the blood pressure as well the BMI of the respondents i.e. the higher the age, the higher the chances of being overweight and developing high blood Pressure. In another study, obesity increased with age and this finding is consistent with reports in the literature. (Cameron AJ,2003, Bakari AG ,2007, Puepet FH, 2002, Adedoyin RA,2009].

The rate of overweight and obesity is higher among women than among men and in urban areas compared to rural areas (Agyemang C, 2015) is also in consistence with this study in which Group 2 which are the professionals are found to have the highest prevalence in Overweight -57 (53.27%), Obese-42 (50%) and Morbidly Obese - 4 (100%) this however is not statistically significant but should be of note.

In this study, women were more obese than men and this is in agreement with studies in the literature (Flegal KM,2008, Bakari AG ,2007, Puepet FH, 2002, Adedoyin RA,2009).

Obesity has been recognized as most important risk factor for developing hypertension. (Narkiewicz K.2006, Aneja A2004, Lee SH,2005, Diaz M.2002) which is in keeping with the result of this study where the correlation result of blood Pressure against the weight is significant 0.021.

The administrative staff compared to professional staff was heavier and had higher tendency to have pre-hypertension and hypertension and obesity compared to professionals. This might be because the professionals are likely to have better knowledge of good nutrition and thus feed nutritiously better than administrative staff group.

## **Recommendation**

It is important to carry out basic investigations on annual basis particularly for staff from 35years and above for early detection of disease condition and commence early intervention as prevalence of obesity and pre-hypertension and hypertension is higher at this age group.

Further study should be carried to show if the income of individual has any influence on the body weight.

Group 1 who are essentially hospital administrative staff should engage in more physical exercise and eat balance diet, eat less of junk food and eat more of fruits and vegetables.

Focus and emphasis should be on healthy diet which should include more fruits and vegetables, increase physical activity and exercises, weight reduction plans should be made for people that their BMI is above 24.9 kg/m<sup>2</sup>.

All individual with pre high Blood pressure and high blood pressure should be advised to get a digital sphygmomanometer for continuous monitoring at home; this will enable the patient to report early to the hospital if any abnormality is detected.

Our government should encourage more farmers to grow fruits and vegetables and provide loan to willing farmers so that we have more fruits and vegetables at affordable prices.

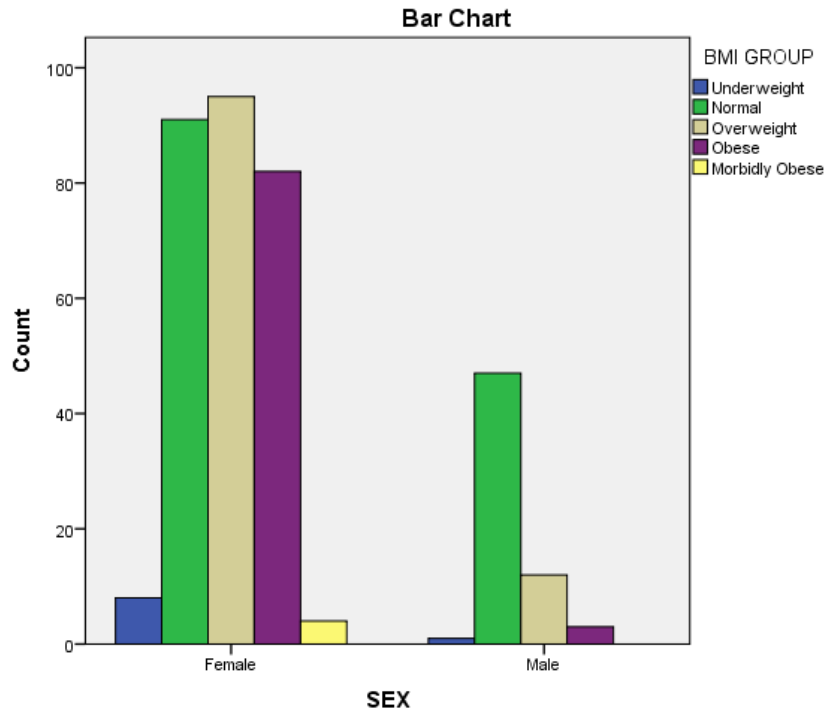
Women should discipline their appetite more especially when cooking for the family.

Nigeria government should assist the ministry of health to improve health education from national level to the grass root teaching on how to eat wisely and teach the ideal weight and importance of maintaining ideal weight should be thought in the media and social media.

## **Conclusion**

Age and body mass index are predictive factors for health indices. All staff above age 35 and with BMI in the obese range should check state of health especially blood pressure and urinary protein at least quarterly to detect onset of hypertension or proteinuria.

**Figures and table**



**Table 2.** Correlation table

		DEPARTMEN T	BLOOD PRESSUR E	WEIGHT	HEIGHT	BODY MASS INDEX	pH	AGE
DEPARTMENT	Pearson Correlation	1	.021	-.058	.171**	-.131*	.000	-.017
	Sig. (2-tailed)		.695	.289	.002	.016	.999	.749
	N	338	338	338	337	336	337	338
BLOOD PRESSURE	Pearson Correlation	.021	1	.123*	-.063	.129*	.066	.199**
	Sig. (2-tailed)	.695		.024	.250	.018	.228	.000
	N	338	340	340	339	338	339	340
WEIGHT	Pearson Correlation	-.058	.123*	1	.227**	.783**	.001	.108*
	Sig. (2-tailed)	.289	.024		.000	.000	.978	.047
	N	338	340	340	339	338	339	340
HEIGHT	Pearson Correlation	.171**	-.063	.227**	1	-.192**	-.062	.055
	Sig. (2-tailed)	.002	.250	.000		.000	.259	.316
	N	337	339	339	339	338	338	339
BODY MASS INDEX	Pearson Correlation	-.131*	.129*	.783**	-.192**	1	.053	.074
	Sig. (2-tailed)	.016	.018	.000	.000		.328	.174
	N	336	338	338	338	338	337	338
pH	Pearson Correlation	.000	.066	.001	-.062	.053	1	.038
	Sig. (2-tailed)	.999	.228	.978	.259	.328		.491
	N	337	339	339	338	337	339	339
AGE	Pearson Correlation	-.017	.199**	.108*	.055	.074	.038	1
	Sig. (2-tailed)	.749	.000	.047	.316	.174	.491	
	N	338	340	340	339	338	339	340

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\*Correlation is significant at the 0.05 level (2-tailed).

The above table shows the correlation between the variables. At 0.05 level of significance, it was observed that the age of the subjects has significant effect on the weight ( $r = 0.012$ ) and also on the BMI (with a correlation co-efficient,  $r$ , of 0.043), i.e., a change in the age of a staff will have a significant effect on the blood pressure as well the BMI of the respondents.

The table also shows that the weight has a significant relationship with the blood pressure (with a correlation co-efficient,  $r$ , of 0.012).

The correlation between the weight and the protein level showed a correlation co-efficient ( $r$ ) of 0.13. This implies that protein has a significant effect on the weight since protein aids cell growth.

## References

- [1]. Adedoyin RA, Mbada CE, Balogun MO, Adebayo RA, Martins T, Ismail S. Obesity prevalence in adult residents of Ile-Ife, Nigeria. *Nig Q J Hosp Med* 2009; 19:63–68.
- [2]. Agyemang Charles, Grace Frempong, Sandra Boatemaa. Obesity in Sub-Saharan Africa. In book: *Metabolic Syndrome*, Publisher: Springer International Publishing Switzerland, Editors: Rexford Ahima, pp.13 pages. 2015 DOI: 10.1007/978-3-319-12125-3\_5-1
- [3]. Amira C.O1, Sokunbi D.O.B, Sokunbi A. The prevalence of obesity and its relationship with hypertension in an urban community: Data from world kidney day screening programme
- [4]. Bakari AG, Onyemelukwe GC, Sani BG, Aliyu IS, Hassan SS, Aliyu TM. Obesity, overweight and underweight in suburban northern Nigeria. *Int J Diabetes Metabolism* 2007; 15:68–69.
- [5]. Bello BT, Amira CO, Braimoh RW, Nwizu CC. Obesity among adult Nigerians: Relationship with blood pressure, blood sugar, and proteinuria. *Saudi J Obesity* 2016; 4:68-74.
- [6]. Cynthia L. Ogden, Margaret D. Carroll, Brian K. Kit, et al. Prevalence of Childhood and Adult Obesity in the United States, 2011-2012
- [7]. Diaz M. Hypertension and obesity. *J Human Hypertens.* 2002; 16:S18 -S22.
- [8]. Flegal KM, Carroll MD, Ogden CL, Curtin LR. Prevalence and trends in obesity among US adults, 1999 – 2008. *JAMA* 2010; 303:235-241
- [9]. Innocent Ijezie Chukwuonye, Abali Chuku, Collins John, Kenneth Arinze Ohagwu. Prevalence of overweight and obesity in adult Nigerians – a systematic review *Diabetes, Metabolic Syndrome and Obesity: Targets and Therapy.* 2013; 6(4):43-47 doi: 10.2147/DMSO.S38626
- [10]. *Int J Med Biomed Res* 2012;1(2):104-110
- [11]. *International Journal of Medicine and Biomedical Research* Volume 1 Issue 2 May – August 2012 www.ijmbr.com © Michael Joanna Publications Original Article
- [12]. *JAMA.* 2014;311(8):806-814. doi:10.1001/jama.2014.732
- [13]. Lee SH, Kim YS, Sunwoo S, Huh BY. A Retrospective Cohort Study on Obesity and Hypertension Risk among Korean Adults. *J Korean Med Sci* 2005; 20:188-195.
- [14]. M Alqarni SS (2016) A Review of Prevalence of Obesity in Saudi Arabia. *J Obes Eat Disord* 2:2. doi: 10.21767/2471-8203.100025
- [15]. Puepet FH, Zoakah AL, Chuhwak EK. Prevalence of overweight and obesity among urban Nigeria adults in Jos. *Highland Medical Research Journal* 2002; 1:13–16.
- [16]. Toryila JE, Mohammed A, Adelaye AB, Achie LN, Tende JA. Prevalence of overweight and obesity among civil servants in Zaria, Nigeria. *Int Jor P App Scs* 2009; 3:60–65.