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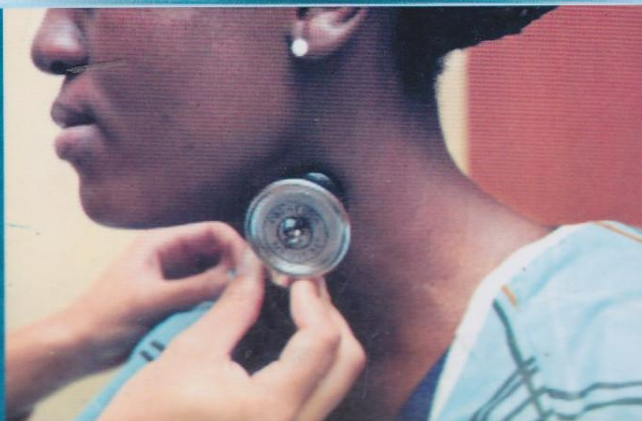
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ANTHROPOMETRIC CHARACTERISTICS, BLOOD PRESSURE PROFILE AND MEDICAL CONDITIONS OF MARRIED WOMEN ATTENDING THE FAMILY PLANNING CLINIC OF UUTH, UYO, SOUTHERN NIGERIA

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Key words: Anthropometric characteristics, Blood Pressure, medical conditions,

ABSTRACT

Background: Contraception is an essential tool in the fight against population explosion and its sequelae globally. The practice of contraception is influenced by several factors at different settings. Many side effects including weight gain, elevated blood pressure/other cardiovascular risks, etc have been linked to contraceptive use. This study was done to find out the anthropometric characteristics, blood pressure profile and medical conditions among married women aged 15-49 years who attended the family planning clinic of the University of Uyo Teaching Hospital, UUTH, Uyo, Akwa Ibom State, Nigeria.

Method: This was a cross-sectional descriptive study involving 165 married women aged 15-49 years who attended the family planning clinic of UUTH, Uyo between May and September 2013, recruited through simple random sampling technique. A semi-structured interviewer administered questionnaire was used to obtain information on socio-demographic characteristics, health conditions and other variables affecting contraceptive practice among the respondents. The height, weight, waist and hip circumferences were taken, body mass index (BMI) and waist-hip ratio (WHR) were calculated, and the blood pressure of the respondents were measured. The data obtained were analysed using the statistical package for social sciences (SPSS).

Results: The mean age of the subjects were 32:22(±5.26). The results obtained showed that the mean and standard deviation of the respondent's height, weight, systolic blood pressure (SBP) and diastolic blood pressure (DBP) were 159.7±10.3cm, 73±12.8cm, 117.0±11.3mmHg and 78.7±10.3mmHg respectively. Using BMI classification, 40.6% of the woman were obese, 38.2% were overweight while 21.2% were of normal weight. Using WHR classification, most (62.9%) of the respondents were obese while 32.1% had normal weight. About 25.5% of the women were hypertensive while 74.5% of them were normotensive, using JNC -7 classifications. Contraceptive use was significantly associated with BMI classification (P=0.000), blood pressure classification (P=0.000) and history of hypertension among the respondents (P=0.004).

Conclusion: The study showed that abnormal health conditions including obesity and hypertension exist among women seeking for contraceptive utilization. These conditions affect the efficacy of some contraceptive products and are aggravated by some contraceptives. Therefore careful screening through history taking and examination of contraceptive users by the providers to identify the problems and counsel the users appropriately on the suitable contraceptives, is highly recommended.

INTRODUCTION

Contraception is intentional prevention of pregnancy or conception through the use of various agents, devices, drugs, sexual practices and surgical procedures.^{1,3} According to WHO, contraception allows individuals and couples to anticipate and attain their desired spacing and timing of birth.⁴

The practice of contraception has been shown to be influenced by several factors including socio-demographic, socio-economic, socio-cultural factors as well as health status of the clients.^{5,6,7,8} Over the years, the health status of women seeking for contraceptive utilization has been of serious concern to health care providers especially in tertiary health facilities where contraceptive practice among women is supervised by medical specialists. This is due to the fact that certain health conditions interfere with the efficacy of some contraceptives or get aggravated with use of some contraceptives. For instance, overweight and obesity, which are major public health problems affecting increasing proportion of reproductive aged women worldwide, are said to affect every aspect of pharmacokinetics of hormonal contraceptives including absorption,

distribution, metabolism and elimination, leading to reduced efficacy of the contraceptives and high failure rate.^{9,10,11,12} Also, it has been shown in the United States of America that women with BMI >35 kg/m² are less likely to use contraceptives generally than women with BMI < 25kg/m².¹³⁻¹⁴ More worrisome is the fact that unintended pregnancy in obese women, as has been shown in several studies, is associated with higher pregnancy risk including high rate of caesarean section, gestational hypertension, gestational diabetes and pre-eclampsia in the mother; macrosomia, still birth, neural tube defects, orofacial defects, cardiac abnormalities and hydrocephalus in infants of obese mothers.^{11,15,16} Again hormonal contraceptives especially the combined oral contraceptive (COC) has been found to be associated with lots of cardiovascular risks including venous thromboembolism, myocardial infarction or stroke, in women with uncontrolled hypertension.^{15,17} Park, et al have found out in the studies done in the United States, British, Korea and by the WHO that prolonged use of COC is associated with rise in systolic and diastolic blood pressure.¹⁸ Apart from obesity and hypertension, several other medical conditions have been found to be associated with the

use of contraceptives among women.

This study was therefore done to identify medical conditions affecting married women who attended the family planning clinic of UUTH and determine their anthropometric characteristics and blood pressure profile. These measures were to serve as a guide in counselling the respondents on the suitable contraceptives to choose.

MATERIALS AND METHODS

Study Area

The study was carried out at the family planning clinic of the University of Uyo teaching hospital, UUTH, Uyo between May and September, 2013. UUTH is the only tertiary health facility in Akwa Ibom State. It serves a population of over four million people in the south – south and south – east geopolitical zones of Nigeria including Akwa Ibom, Cross river, Abia, Ebonyi and River states. The family planning clinic is located centrally within the hospital and runs from Mondays to Fridays from 8am to 4pm except on public holidays.

Sample Selection:

A total of 165 married women aged 15-49 years old who attended the family planning clinic of UUTH were recruited into the study using the formula:¹⁹

$$n = Z^2 P \frac{(1-P)}{m^2}, \text{ where}$$

Z – confidence level at 95% (standard values of 1.96)
m - 5% acceptable margin of error (Standard value 0.05)

P – Estimated prevalence of contraceptive use among married women in Nigeria (calculated using average of 4 national and local studies²⁰⁻²³) = 11.1%, thereby giving minimum sample size of 150 (to the nearest ten). This was rounded to 165 to compensate for non-response and incomplete response. A simple random sampling by balloting was used to select the subjects. The inclusion criteria were married female clients between 15-49 years who attended the family planning clinic during the period of the study as well as those who consented. The exclusion criteria included those who were below 15 years and above 49 years, non-consenting subjects and non-married women.

Data Collection

The data for the study were obtained from the respondents using semi-structured questionnaire which was administered to the respondents after the purpose, general contents and confidentiality of the study were explained to the respondents, and a signed consent obtained from them. The data

contained in the questionnaire include socio-demographic characteristics, health status and other variables that influenced contraceptive practice among the married women.

The following anthropometric measurement were taken: the subjects weights were taken using Salter bathroom weighing scale and recorded in kilogram (kg), corrected to the nearest 0.1kg. The height was taken with stadiometer and was recorded in metres (m), corrected to the nearest 0.1m. The body Mass Index (BMI) was calculated as:

$$BMI = \frac{\text{weight}(\text{kg}/\text{m}^2)}{\text{Height}^2}$$

and was classified using the WHO classification database on obesity, BMI and WHR.²⁴ The waist and hip circumferences were taken using measuring tape, and recorded in centimeters (cm), corrected to the nearest 0.1cm. The waist – hip ratio (WHR) was then calculated using the formula:

$$\frac{\text{Waist circumference (cm)}}{\text{Hip circumference (cm)}}$$

This was classified based on WHO classification database on obesity, BMI and WHR.²⁴ The blood pressure (BP) of the respondents was recorded using mercury sphygmomanometer and stethoscope and was recorded in millimeter mercury (mmHg), corrected to the nearest 2mmHg and classified according to JNC-7 classification of adult blood pressure.²⁵

Data Analysis: The data collected from the study were analysed using statistical package for social sciences (SPSS) version 17.0. The frequency and percentage of socio-demographic and other variables were determined. Tables were used to show distribution of data. The level of statistical significance was taken as $P < 0.05$.

Ethical clearance: Approval for the study was obtained from the research and ethical committee of the University of Uyo teaching Hospital before the commencement of the study.

Consent: A signed consent was obtained from each respondent after careful explanation of the contents of the questionnaire and the purpose of the study. Participation in the study was voluntary and confidentiality was upheld.

RESULTS:

A total of hundred and sixty five (165) married women were recruited for the study. The results obtained from the respondents are presented below:

Table 1: Sociodemographic characteristics of married women attending the Family planning clinic of UUTH

Characteristics	Frequency (n=165)	Percentage (%)
Age Group (years):		
15-19	2	1.2
20-25	18	10.9
26-30	45	27.3
31-40	93	56.4
41-49	7	4.2
Residence:		
Urban	122	73.9
Rural	43	26.1
Educational Level:		
No formal education	10	6.1
Primary education	13	7.9
Secondary education	45	27.3
Post secondary education	97	58.8
Employment status:		
Unemployed	44	26.7
Employed	121	73.3
Religion:		
Christianity	159	96.4
Islam	4	2.4
Traditional religion	2	1.2
Ethnic group:		
Hausa	4	2.4
Yoruba	9	5.5
Igbo	16	75.2
Ibibio/Annang/oron	124	75.2
Other	12	2.7
Parity:		
1-2	47	28.5
3-4	83	56.3
	35	21.2
Sex of respondents children		
All males	25	15.2
All females	17	10.3
Males and females	123	74.4

The respondents' age ranged from 15-49 years, with mean age and standard deviation of 32.22±5.56. Majority of the married women were in the age bracket 31-40 years. About three quarters (73.9%) of the women resided in the urban areas while 26.1% of them resided in the rural areas. Most (58.8%) of the respondents had post secondary education while 41.3% of them had lower levels of education (secondary, primary and non-formal education).

About three quarters (73.3%) of the respondents were employed while 26.7% of them were unemployed. Almost all (97.6%) of the married women were Christians. Greater percentage (75.2%) of the respondents were from Ibibio/Annang/Oron ethnic groups while others were of Hausa, Yoruba, Igbo and unspecified tribes. Most of the married women (50.3%) were of lower parity (para < 5) while 74.5% of them had children of both sexes.

Table 2: Medical conditions of married women attending the family planning clinic of UUTH.

Characteristics	Frequency (n=165)	Percentage (%)
History of Hypertension		
Yes	22	13.3
No	143	86.7
History of diabetes mellitus		
Yes	11	6.7
No	154	93.3
History of Heart disease		
Yes	7	4.2
No	158	95.8
History of cancer		
Yes	6	3.6
No	159	96.4
History of fibroid		
Yes	8	4.8
No	156	95.2
History of ovarian cyst		
Yes	10	6.1
No	135	93.9

Table 2 shows medical conditions of the respondents. Only 13.3%, 6.7%, 4.2%, 3.6%, 4.8% and 6.1% of the respondents gave history of hypertension, diabetes mellitus, heart disease, cancer, uterine fibroids and ovarian cyst respectively.

Table 3: Anthropometric and blood pressure profile of married women attending the family planning clinic of UUTH.

Characteristics	Mean ± Standard Deviation	
Height (cm)	159.7± 8.2	
Weight (kg)	73.6± 12.8	
Systolic blood pressure (SBP) (mmHg)	117.0±11.3	
Diastolic blood pressure (DBP)(mmHg)	78.7± 10.3	

Characteristics	Frequency	Percentage (%)
BMI classification+		
Normal	35	21.2
Overweight	63	38.2
Obese	67	40.6
Waist-hip Ratio classification++		
Normal	53	32.1
Obese	112	67.9
Blood pressure classification+++		
Normotensive	123	74.5
Hypertensive	42	25.5

- WHO classification of body weight according to body mass Index (BMI)²⁴

→ WHO classification of body weight according to waist-hip ratio (WHR).²⁴

→→ Classification of adult blood pressure according to JNC-7²⁵.

Table 3 shows anthropometric and blood pressure profile of the married women attending the family planning clinic of UUTH. The mean and standard deviation of the height, weight, systolic and diastolic blood pressure of the respondents in the study were 159.7 ± 10.3 , 73.3 ± 12.8 , 117.0 ± 11.3 and 78.7 ± 10.3 respectively. Using BMI classification, a significant percentage of the women (40.6%) in the study were

obese, 38.2% were overweight while 21.2% were of normal weight. Using WHR classification, most (67.9%) of the respondents were obese while 32.2% had normal weight. About one quarter (25.5%) of the married women in the study were hypertensive while 74.5% of them were normotensive according to JNC-7 blood pressure classification.

Table 4: Association between some anthropometric factors, blood pressure measurements and medical conditions of the respondents and, methods of contraception used

Factors	Methods of contraception used				Total	Statistical tests and values
	Hormoneal n(%)	IUCD n(%)	Barrier n(5)	Sterilization n(5)		
BMI						
Classification	25(71.4)	10(28.6)	0(0.0)	0(0.0)	25(21.2)	$X^2 = 26.82$
Normal weight	45(71.4)	18(28.6)	0(0.0)	0(0.0)	63(38.2)	Df 6
Over weight	25(37.3)	5(7.2)	5(3.0)	2(3.0)	67(40.6)	P=0.000
Obese						
Waist Hip Ratio						
Normal	28952.8	22(41.5)	3(4.5)	0 (0.0)	53 (32.1)	$X^2 = 1.772$
Obese	60(53.6)	45(40.2)	4(3.6)	3 (2.7)	112 (67.9)	Df 3
						P = 0.621
BP	88(71.5)	31 (25.2)	4 (3.3)	0 (0.0)	123 (74.5)	$X^2 = 43.63$
Classification	7 (16.7)	32 (76.20)	1 (2.4)	2 (4.8)	42(25.5)	Df 3
Nomotensives						P = 0.000
Hypertensives						
Hypertension history	6 (27.3)	16 (72.7)	0 (0.0)	0 (0.0)	22 (13.3)	$X^2 = 13.42$
Yes	89 (62.2)	47 (32.9)	5 (3.5)	2 (1.4)	143 (86.7)	Df 3
No						P = 0.004
Diabetes	4 (36.4)	7 (63.6)	0 (0.0)	0 (0.0)	11 (6.7)	$X^2 = 3.74$
History	91 (59.1)	56 (36.4)	5 (3.2)	2 (1.3)	154 (93.3)	Df 3
Yes						P = 0.291
No						
Cancer History	2 (33.3)	4 (66.7)	0 (0.0)	0 (0.0)	6 (3.6)	$X^2 = 2.35$
Yes	93(58.5)	59 (37.10)	5 (3.1)	2 (1.3)	159 (1.3)	Df 3
No						P=0.502
History of a Cyst	4 (40.0)	6 (60.0)	0 (0.0)	0 (0.0)	10 (6.1)	$X^2 = 2.65^c$
Yes	91 (58.7)	57 (36.8)	5 (3.2)	2 (1.3)	155993.9)	DF 3
No						P=0.448
History of Fibroid	4 (50.0)	4 (50.0)	0 (0.0)	0 (0.0)	8 (4.9)	$X^{21.065}$
Yes	91 (58.0)	59 (37.6)	5 (3.20)	2 (1.3)	157(95.2)	Df 3
No						P = 0.786

Table 4 shows association between some anthropometric factors, blood pressure profile, medical conditions of the respondents and, the contraceptive methods used by the respondents in the study. Contraceptive use was significantly associated with BMI of respondents ($P = 0.000$), blood pressure classification of respondents ($p = 0.000$) and history of hypertension among respondents ($P = 0.004$).

DISCUSSION

In this study, the average height and weight of the

respondents were 159.7 ± 8.2 cm and 73.6 ± 12.8 kg respectively. Further anthropometric evaluation showed that, using BMI classification, most contraceptive users were obese (40.6%), followed by overweight respondents (38.2%) while normal weight respondents were the least users of contraceptives (21.1%). Also statistical analysis showed that there was a significant statistical association between BMI classification and the contraceptive methods used by the respondents ($P = 0.000$). A further perusal into the cross tabulation of BMI with the contraceptive methods used showed

that obese respondents were the least users of hormonal contraceptives, the highest users of IUCD and the only users of barrier contraceptives and female sterilization. This is not surprising as studies have shown that while obesity is a relative contraindication in hormonal contraception, it does not contradict the use of other contraceptive methods.^{9,26-28}

Also using WHI classification, greater percentage of the respondents (67.9%) were obese while lower percentage (32.1%) were of normal weight. Though this finding bears resemblance to BMI classification above, there was however no statistically significant association between WHR classification and contraceptive methods used by the respondents ($P=0.62$). Overall, these anthropometric findings showed that even though most contraceptive practitioners in this study had abnormal BMI and WHR, these abnormal findings did not prevent the respondents from using contraceptives. Similar findings have been documented in other students.^{26,28-29}

Evaluation of the respondents blood pressure showed that average systolic and diastolic blood pressure were 117.0 ± 11.3 mmHg and 78.7 ± 10.3 mmHg respectively. The study showed that majority of the contraceptive users (74.5%) were normotensive while a lower percentage (25.5%) of them were hypertensive. Moreover there was a statistically significant association between blood pressure classification and the contraceptive methods used ($P=0.000$). While the hypertensive were the least users of hormonal contraceptive (16.7%), the normotensives were the most users of hormonal contraceptives, as normotension is not a contraindication to hormonal contraceptive, as documented in other studies.^{17,26,29}

It was also found out that hypertensives were the highest users of IUCD and the only users of female sterilization, possibly due to the fact that these methods of contraception were compatible with hypertension.^{26-27,29} The study also revealed that while fewer percentage of the married women gave history of some medical conditions including hypertension (13.3%), diabetes mellitus (6.7%), heart disease (4.2%), cancer (3.6%), uterine fibroid (4.5%) and ovarian cyst (6.1%), only hypertension as a variable had statistically significant association ($P=0.004$) with contraceptive methods used. Again while those who gave history of hypertension were the least users of hormonal contraceptives, most of the hormonal contraceptive users had no history of hypertension. Also those who had history of hypertension were the greater users of IUCD as this

contraceptive method had no contraindication with hypertension.^{25,27,29}

Identification of these abnormal health indices helped to counsel the respondents on the appropriate choice of contraceptives to make, the type of lifestyle to adopt, the treatment to be given and the referral and follow-up as the case may be.

CONCLUSION

The study has shown that abnormal medical history, anthropometric and blood pressure pattern exist among women seeking for contraceptive practice. These conditions influence the choice of contraceptives used by the women. It is therefore recommended that contraceptive providers should carefully screen women seeking for contraception through history and examination to identify these abnormal health indices and counsel the contraceptive users on appropriate contraceptive choice to make.

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