A 10- YEAR EXPERIENCE WITH COPPER T INTRAUTERINE DEVICE (IUD) IN ABUJA, NIGERIA.

[1]**Ayogu ME**, [2]**Omonua KI**, [3]**Ayogu MC**

[1]Department of Obstetrics and Gynaecology, University of Abuja
Teaching Hospital, Abuja, Nigeria
[2]College of Health Sciences, Department of Obstetrics and Gynaecology, University of Abuja /
Department of Obstetrics and Gynaecology, University of Abuja Teaching Hospital, Abuja, Nigeria
[3]African Cohort Studies (AFRICOS), Defence headquarters Medical Center, Asokoro, Abuja, Nigeria.

ABSTRACT

BACKGROUND: The Intrauterine contraceptive device has been shown to be an effective form of long acting reversible contraception. Despite this however, its uptake in Nigeria has not reached the optimum level.

OBJECTIVE: The objective of this study was to determine the rate, pattern of uptake and reasons for discontinuation of use of the intrauterine contraceptive device at the University of Abuja Teaching hospital, Abuja.

MATERIALS AND METHOD: A retrospective study of record cards of all the women who attended the family planning clinic between January 2007 and December 2016. Data on socio-demographic characteristics, acceptance rate, discontinuation rate and reasons for discontinuation of the IUD were extracted.

RESULTS: Out of 3251 acceptors of various family planning methods, there were 1241 acceptors of IUD within the study period, giving an IUD acceptance rate of 38.2%. The contraceptive prevalence rate in relation to the number of deliveries (22,955) within the study period was 14.2%. Overall, IUD was the commonest form of contraceptive used (38.2%). The most frequent users of the IUD were women aged 35 years and above (43.5%), while the least users, (0.3%) were the teenagers. Acceptance rate of IUD was highest amongst women who were Para 4 (27.4%) and most of the women (99%) were married. The IUD was the most commonly used contraceptive in the first 5 years with more than 50% of women using the method by the third year. It subsequently became the second most commonly used contraceptive after the subdermal implant in the last 5 years**.** The average discontinuation rate was 12.1% and the commonest reason was the desire to get pregnancy 55 (36.7%) women. The mean duration of use of IUDs in this study was **2.9+/- 1.6 years.** A pearl index of 0.02 was recorded.

CONCLUSION: The contraception prevalence rate is low in our center however, the IUD is among the most common methods utilized by the clients. It is effective and has a low discontinuation rate.

KEY WORDS: Copper T-380AIUD, acceptance rate, discontinuation rate, Abuja

SHORT TITLE: Experience with copper T intrauterine contraceptive device in Abuja.

INTRODUCTION

According to the National Demographic Health Survey (NDHS 2013), the fertility level in Nigeria is quite high at a rate of 5.5.[1] This is responsible for the country's rapid population growth. Also, the contraceptive prevalence rate for Nigeria was 15% for any method and 10% for modern methods in 2013.[1] This situation is largely due to a culture that is highly supportive of large family size, misconceptions about family planning methods including beliefs that people who use contraceptives end up with health problems or permanent infertility and male child preference. Other major factors identified are related to financial and facility based factors.[2]

The provision of effective contraception is fundamental to the practice of women's health care. The continued high maternal mortality rate in Nigeria has been attributed to high fertility rates and consequent high parity with many of these pregnancies being unwanted.[3,4,5] and uptake of contraception has been shown to significantly impact these factors thereby reducing maternal mortality.[5] In order to avoid this, availability and use of appropriate contraceptive methods for family planning is important.[5]

Correspondence to: Dr Kate Ifeoma Omonua
College of Health Sciences, Department of Obstetrics and
Gynaecology, University of Abuja
Email: kateodogwu@yahoo.com
Tel: +234 703 466 5935.

The Copper T-380A intrauterine device (IUD) is the most commonly used reversible method of contraception worldwide and has been found to be highly effective.[7] It can be inserted as an interval procedure, after an abortion or immediate postpartum. It is also a viable choice for emergency contraception (EC).[8] Probable mechanisms of action include prevention of fertilization by stimulation of a cytotoxic inflammatory reaction that is spermicidal, restriction of sperm motility by an increased copper concentration in cervical mucus[7] and irritation of the lining and wall of the uterus by a foreign body making it difficult for an embryo to implant.[8]

In addition to its high efficacy rate, the advantages of the Copper T-380A are a prolonged duration of use, it's not user dependent, does not interact with other drugs, is not affected by changes in medical supply, has no hormonal side effect, has no effect on breast feeding and return to fertility is immediate.[8, 10, 11] It is therefore an ideal method of contraception for women in developing regions because of the aforementioned reasons and also its affordability and convenience.[10, 12] Research has shown that its effectiveness can be maintained for up to 12 years.[7,13]

Even though the occurrence of side effects is one of the common reasons for removal,[6] the reported discontinuation rates in Nigeria ranges from 2.8-42.9% with a major reason for discontinuation being desire for pregnancy.[14]

The Copper - T 380 A IUD over time has become one the most common forms of contraception taken up by our clients. It is hoped that the knowledge gained in this research would provide better insight and when applied, would facilitate an improved service delivery in the family planning clinic.

OBJECTIVES

The objectives of this study were to determine the acceptance rate and trend of use of copper T intrauterine contraceptive device (IUD), to examine the characteristics of women using this mode of contraception and the reasons for its removal at the University of Abuja Teaching Hospital, Abuja.

MATERIALS AND METHODS

This was retrospective descriptive study of all clients seen at the family planning clinic of University of Abuja Teaching Hospital, Abuja, Federal Capital Territory. The names and family planning clinic numbers of all users of contraceptives between 1 January, 2007 and 31 December, 2016 was obtained from the family planning register. This was then used to retrieve their family planning record cards from which the following information was obtained using a proforma: the age, parity, marital status, level of education, religion. With the Uptake and use of IUDs as the focus of the study, information on its acceptance rate, its discontinuation rate and also reasons for discontinuation were extracted. All the IUDs inserted were the Copper T 380A (Cu T 380A). Data analysis was done using SPSS version 20 software and results expressed in numbers and percentages.

RESULTS

Over the 10-year period, there were 1241 acceptors of IUCD among the 3251 clients using one form of contraceptive or the other. This gave an IUCD acceptance rate of 38.2%. The contraceptive prevalence in relation to the number of deliveries (22,955) within the study period was 14.2%.

Table 1 shows that overall; IUD was the commonest form of contraceptive used. This was followed by subdermal implants and injectables which were taken up by 976(30%) and 679(20.9%) of clients respectively.

Table 1: Overview of the various forms of contraception provided by the family planning clinic during the period under review.

METHOD	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Total	%
IUD	80	96	252	150	110	120	101	115	106	111	1241	38.2
Injectables	81	61	66	71	175	81	40	31	37	36	679	20.9
Implants	9	28	65	48	70	133	113	158	174	178	976	30.0
Pills (COC)	53	29	33	28	23	22	30	17	20	24	279	8.6
BTL	11	7	12	9	9	0	0	1	1	0	50	1.5
Condom	8	2	2	4	2	2	4	0	1	1	26	0.8
Vasectomy	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	242	223	430	310	389	358	288	322	339	350	3251	100

Figure 1: Overview of the various forms of contraception provided by the family planning clinic during the period under review.

Pattern of uptake of contraceptives

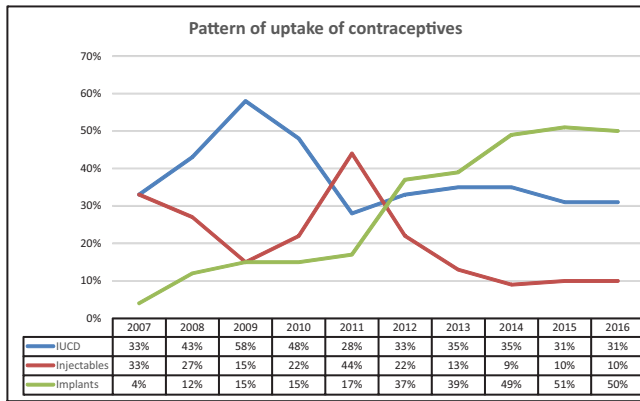|	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
IUCD	33%	43%	58%	48%	28%	33%	35%	35%	31%	31%
Injectables	33%	27%	15%	22%	44%	22%	13%	9%	10%	10%
Implants	4%	12%	15%	15%	17%	37%	39%	49%	51%	50%

Figure 1 illustrates the trend of uptake of various contraceptives. The demand for it has gone up and down as shown in **Figure 1.** It shows the change in the commonest form of contraceptives used. In the first 5 years, the IUD was the most common with more than 50% of women using the method by the third year. This number subsequently reduced over the next 2 years to stabilize at about 30% user rate. The number of women using the Implants has however increased progressively and by the year 2016, the subdermal implants were the commonest form of contraceptives used by about 50% of clients. Only about 10% of clients used the injectable contraceptives by the 10th year under review. There was no vasectomy done during the period under review.

The socio-demographic characteristics of the clients are shown in Table 2. The age group with the highest acceptance rate (33.5%) was women who were greater than or equal to 35 years of age. This was followed by women aged 30 to 34 years (29.4%). Twenty-seven percent had 4 children, 25.5% had 3 children and 16.7% had 2 children. Only 1% of the clients did not have any child and the same percentages of clients were single. The other 99% were married. Majorities (70.6%) of the clients were Christians and 53.7% and 24.1% had secondary and tertiary education respectively.

Table 2. Socio-demographic Characteristics of all Study Clients:

Characteristics	N(3251)	Percent
Age group		
15-19	25	0.8
20-24	325	10.0
25-29	856	26.3
30-34	956	29.4
=35	1089	33.5
Parity		
0	31	1.0
1	286	8.8
2	544	16.7
3	829	25.5
4	875	27.0
=5	686	21.0
Religion		
Christianity	2294	70.6
Islam	906	27.9
Not specified	51	1.5
Level of Education		
None	250	7.7
Primary	472	14.5
Secondary	1747	53.7
Tertiary	782	24.1
Marital Status.		
Single	31	1.0
Married	3220	99.0

Table 3 shows the age distribution of clients who used the IUD as a form of contraception. The rate of uptake decreased with decreasing age. The highest rate was 43.5% in the 35 years and above group while the least, (0.3%) was in the 15-19 age groups. Twenty five percent of them had 5 or more children, 27.4% had 4 children and 26.2% had 3 children. About 7(0.6%) of the clients using the IUD were para 0.

Table 3: Age and parity distribution of clients who took up the IUD

Characteristic	n(1241)	Percent
Age distribution		
15-19	4	0.3
20-24	73	5.9
25-29	263	21.2
30-34	361	29.1
=35	540	43.5
Parity		
0	7	0.6
1	94	7.6
2	164	13.2
3	325	26.2
4	340	27.4
=5	311	25.0

The reasons for discontinuation of IUD by users during the period under review is shown in table 4. The average discontinuation rate was 12.1% and the commonest reason was the desire to get pregnant 55(36.7%), followed by expiration of the IUCD in 30(20%) cases. In 37 (24.6%) cases, reason for removal was occurrence of complications like menorrhagia, abnormal vaginal discharge, lower abdominal pain, waist pain and dysmenorrhea.

Table 4: Reasons for removal of IUD among clients in UATH

Reasons	N	Percent
Desirous of pregnancy	55	36.7
Re-insertion after expiration	30	20.0
Menorrhagia	14	9.3
No reason	13	8.7
Abnormal vaginal discharge	9	6.0
Husband's request	6	4.0
Lower abdominal pains	6	4.0
Waist pain	5	3.3
Dysmenorrhea	3	2.0
Missing tag	2	1.3
Menopause	3	2.0
Weight gain	1	0.7
Pregnancy	3	2.0
Total	**150**	**100**

Table 5 shows the duration of use of IUDs. The mean duration of use of IUDs is this study was **2.9+/-1.6 years.** About half (49.5%) of the clients used the IUCD for 2 years or less while only 20.1% used the device for more than 5 years

Table 5: Duration of IUD use by the clients

Duration (years)	n(1241)	Percent
1-2	614	49.5
3-4	377	30.4
≥5	250	20.1

Three (2%) pregnancies were recorded in this study, giving a pearl index of 0.02. This led to the removal of the IUCDs as the clients presented before 12 weeks of gestational age. In one of the patients, the IUD was found in the cervical canal and following its removal the pregnancy was carried to term. She had a normal delivery and baby had congenital no abnormality. The second patient had an ectopic gestation which was managed by a laparotomy and the third patient who had an intrauterine pregnancy had an iatrogenic rupture of membranes during IUD removal, which led to a termination of the pregnancy.

DISCUSSION
There were 3251 acceptors of family planning of one method or the other. This gave an IUD acceptance rate of 38.2% making it the most commonly accepted method of contraception in our center. This compares favourably with figures from Benin Nigeria.[15] However, higher acceptance rates were reported by Igwegbe et al[2] and also in a study done in Lagos by Adegbola et al.[16]
The trend in uptake of IUD shows that the demand for this popular form of modern contraception has plateaued in our center, making it the second most commonly used contraceptives. Reasons for this trend seems unclear and similar result was obtained by Adako and colleagues[17] who tried but failed to show that provision of free family planning services affected uptake of IUDs.

The overall contraceptive prevalence for the study period was low(14.2%).Similar contraceptive prevalence rate was reported by the Nigerian National Demographic Health Survey (2013).[1]This low uptake rate may be due to the fact that family

164

planning is still a contentious issue in our environment and because of traditional beliefs, cultural beliefs and social behavior of a society.[18] The acceptability of IUD can be increased by health education, good clinical management, adequate counseling, careful client selection and provision of free services.

The most frequent users of contraception in this study were women who were 35 years and above. The finding is at variance with the finding of the study done in Sokoto where the peak age group of IUD use was 30-34 years.[19] However, this is in keeping with the report by other investigators[14,20] and may be due to early marriage and child bearing in that part of the country, such that at third decade of life the desired family size is attained.[14] This is also the age at which most women defer child bearing in order to pursue their careers hence the need for contraception so as to prevent unwanted pregnancies. There were 4 (0.3%) teenagers that accessed IUD in this study. This scenario is a reflection of the fact that integration of adolescent reproductive health care into our system still poses a challenge. In time past, there has been some worry about the use of IUDs in nulliparous or adolescent women due to difficulties with fitting the IUD through the cervical os, fear of expulsion of the IUD and the higher risks of pelvic inflammatory disease (PID) and infertility.[21] Arguments for these have however shown that data for all the above nay have been misrepresented and that the consequence of limiting access to long term contraceptive by this group of women includes the occurrence of unintended pregnancies and its sequelae.[2]

The World Health Organisation (WHO)[22] and American College of Obstetrician and Gynaecologists (ACOG)[23] have also advised use of IUDs among adolescents since the benefits far outweigh the risks. According to ACOG, the right of the adolescent is also one that should not be undermined and she should be allowed to have a choice regarding the use of contraceptives. This is representative of a reproductive justice framework for contraceptive counseling where there is equity, universal coverage and lack of coercion.[23] Reduction in risk of sexually transmitted infections (STIs) amongst the adolescents can be achieved by screening for STI's

before IUD insertion and concomitant use of the male or female condoms.[22,23]

Thus, based on the aforementioned reasons some well selected adolescents and nulliparous women were offered IUDs in this study. About 90% of acceptors were multiparous and this report is similar to the study by Igwe in Abakaliki.[14] This represents the peak period of their reproductive life and with possible satisfaction with their family size, the women who had previously refused this form of contraception because of prevailing negative perception concerning future pregnancies with the use of IUD, now begin to take it up since they were no longer desirous of fertility.

The predominance of Christians in this study may be attributed to religious beliefs. Take for example, the use of family planning to control birth/population is hardly accepted by some Muslim faithful.[24] The fact that almost all our clients (99%) were married is not surprising in our environment where most parents discourage pre-marital sex and therefore the use of contraception by single ladies.[24,25] It may also be due to the existing cultural and religious restrictions on pre-marital sex and the general misconception that associates adolescent contraception with sexual permissiveness.[5,26]

This study revealed that 77.8 % of the acceptors of one form of contraception or the other attained at least a secondary education. Thus, it showed significant positive association with contraceptive uptake in women who had completed secondary school or more. Our finding of a greater proportion of the acceptors being educated is in agreement with the observation and prediction by experts that well educated African couples are more likely to accept modern methods of contraception than the less educated ones.[1,5, 14, 19,20] This may be linked with the role of female education in empowering women through enhancing their autonomy and participation in decision-making and positively modifying health-seeking behavior.

The average discontinuation rate of IUD was 12.1% and this falls within the range of reported discontinuation rates of 2.8-42.9% in Nigeria.[2,14,29] The most common reason for discontinuation of IUD in this study was the desire for pregnancy 55 (36.7%).This reason is in agreement with other

165

studies,[2,14,,27,28,29,30] but not consistent with the work done in Jos where the commonest reason for discontinuation was abdominal pain.[31] In 37 (24.6%) cases, reason for removal was occurrence of complications like menorrhagia, abnormal vaginal discharge, lower abdominal pains, waist pain and dysmenorrhea. Missing IUD string is another rare complication that can prompt the removal of IUD but this was not recorded during the period of review. Three (2%) pregnancies were recorded among IUCD acceptors in this study, giving a pearl index of 0.02. However, this is lower than what was documented in the study conducted in the southern part of Nigeria by Ojule et al.[30]

Currently, the Levonorgestrel releasing intrauterine system (LNG-IUD) has been described as one of the most significant developments in gynecological practice in the twentieth century and has been developed and licensed for five years of use. It has an exceptionally low pregnancy rate (Pearl index 0.11), and substantially reduces the amount and duration of menstrual bleeding and dysmenorrhea.[5] Unfortunately, this it is not yet readily available in our center and reasons for this borders on cost, with inability of the government to provide it at a subsidized price. With its favourable side effect profile, provision of this form of contraceptive may encourage greater use of this form of contraception.

CONCLUSION

Intra Uterine Devices are among the safest and most effective forms of contraceptives available. The contraception prevalence is low in our center and the IUD is the most common method utilized by the clients. Its use is related to maternal age, parity and literacy level. In spite of its long duration of action most of the reversal was due to the desire to get pregnant. We therefore recommend that there should be improvement in female education and public enlightenment through the mass media on the benefits and importance of family planning. Provision of free IUDs and services will enhance its utilization, and inclusion of devices like Levonorgestrel intrauterine system which reduce menstrual loss in addition to having a long duration of action will be of great value.

REFERENCES
1. National population commission and ICF Macro. Nigeria Demographic and Health Survey; Calcertom (Maryland) National Population Commission and ICFMacro,2013.
2. Igwegbe AO, Ugboaja JO, Monago EN. A ten year clinical experience with intrauterine contraceptive devices in Nigeria tertiary health Institution. IJMMS Nov 2010; 2:347-53.
3. Umoiyoho AJ, Abasiattai AM, Udoma EJ et al. Community perception of the causes of maternal mortality among the Annangs of Nigeria's South-East Coast.Trop J Obstet Gynaecol 2005;22:189-92.
4. Etuk SJ, Ekanem AD. Knowledge, attitude and practice of family planning amongst women with unplanned pregnancy in Calabar, Nigeria. Niger J PhysiolSci2003; 18: 65-71.
5. Abasiattai AM, Bassey EA, Udoma EJ. Profile of intrauterine contraceptive device acceptors at the university of Uyo teaching hospital, Uyo, Nigeria. Ann Afr Med 2008; 7:1-5.
6. Egede JO, Onoh RC, Umeora OUJ, et al. Contraceptive prevalence and preference in a cohort of south–east Nigerian women. Patient preference and adherence 2015; 9:707-14.
7. Kaneshiro B, Aeby T. Long-term safety, efficacy, and patient acceptability of the intrauterine Copper T-380A contraceptive device. Int J Womens Health 2010; 2: 211–20.
8. Kathpalia SK, Singh MK, Grewal DS. Non palpable intrauterine device threads: Is it a cause for worry? Med J Armed Forces India 2017; 73: 85–7.
9. Espey E, Ogburn T. Long-acting reversible contraceptives: intrauterine devices and the contraceptive implantObstetGynecol2011;117:705-19.
10. Family health international Network. 2000; 20:1-20.
11. Martin-Loeches M, Orti RM, Monfort M, et al. comparative analysis of the modification of sexual desire of users of oral hormonal contraceptives and intrauterine contraceptive devices. Eur J ContraceptReprod Health Care 2003; 8:129–34.
12. Ojiyi EE, Dike EI, Anolue FC,et al. Complications of Intrauterine Contraceptive Devices (IUCD) Among Users in Orlu, Nigeria. Webmed Central, Obstetrics and Gynaecology 2011; 2:1-11WMC002557.
13. United Nations Development Programme, United Nations Population Fund, World Health Organisation and World Bank Special Programme of Research, Development and Research Training in Human Reproduction. Long-term reversible

166

contraception. Twelve years of experience with the TCu380A and TCu220C. Contraception 1997; 56:34.

14. Igwe NM. Intrauterine contraceptive device use in Abakaliki, southeast Nigeria: A 5-year review. Trop J Med Res 2016; 19:138-43.

15. Aisien AO. Intrauterine contraceptive device (IUCD): acceptability and effectiveness in a tertiary institution. Afr J Med Med Sci 2007; 36:193-200.

16. Adegbola O, Ogedengbe OK. The acceptance rate of intrauterine contraceptive device (IUCD) amongst family planning clinic users in Lagos University Teaching Hospital (LUTH). Nig Q J Hosp. Med 2008; 18:175-80.

17. Adako O, Okunfulure FO. Demand for Long Acting Reversible Contraceptives and Associated Factors among Women Accessing Family Planning Service in ARFH Model Clinic Ibadan, South West Nigeria. Adv Practice Nurs 2016; 1:117. doi:10.4172/2573-0347.1000117.

18. Isah AY, Nwobodo EI. Family planning practice in a tertiary health Institution in North-Western Nigeria. Niger J Clin Pract 2009; 12:281-3.

19. Ibrahim M, Okolo RU. Profile of contraceptive acceptors in Usman Danfodio University Teaching Hospital, Sokoto, Nigeria. Niger Med Pract 1997; 33:9-13.

20. Taingson MC, Adze JA, Bature SB, et al. Trend of modern contraceptive uptake and its predictors among women accessing family planning service in a tertiary hospital in Northwestern Nigeria, 2000–2014. Trop J Obstet Gynaecol 2017; 34:201-6.

21. Smith SA The Use of Intrauterine Devices (IUDs) in Adolescents and Nulliparous Women: A Systematic Review. J Women's Health Care 4:277. doi:10.4172/2167-0420.100027.

22. Wildemeersch D, Goldstuck N, Hasskamp T, Jandi S, Pett A. Intrauterine device quo vadis? Why intrauterine device use should be revisited particularly in nulliparous women? 2015:6 Pages 1-12

23. ACOG COMMITTEE OPINION; Committee on Adolescent Health CareLong-Acting Reversible Contraception Work Group; Number 735, May 2018.

24. Hardee K, Elizabeth L. Population, Fertility and Family planning in Pakistan. A Program in Stagnation. Population Action International 2007; 4: 1-12.

25. Ojule JD, Macpepple DA. Family Planning Practice in a Tertiary Health Institution in Southern Nigeria. WAJM 2011; 30: 178-81.

26. Umoiyoho AJ, Abasiattai AM, Umoh AV, et al. Sexual activity and contraception awareness among adolescents in the South- south geopolitical zone of Nigeria. MSJM 2004; 4: 27-31

27. Okunlola M, Owonikoko K, Roberts O, et al. Discontinuation pattern among IUCD users at the family planning clinic, University College Hospital, Ibadan. J Obstet Gynaecol 2006; 26: 152-6.

28. Mutihir JT, Ujah IA, Uduagbamen PF, et al. Indications for removal of intrauterine contraceptive devices in Jos, North-central Nigeria. Niger J Clin Pract. 2006; 9:105-8.

29. Anyaka C, Ocheke A, Shambe I, et al. Discontinuation Pattern Among Intrauterine Contraceptive Device at Jos university Teaching Hospital, Jos. J Gynaecol Obstet 2016; 4: 53-6.

30. Ojule JD, Oranu EO, Nnah EW. Intrauterine Contraceptive Use Port-harcourt, Southern Nigeria: A Retrospective Analysis. Br J Med Med Res 2014; 4: 3132-9.

31. Ohihoin AG, Mutihir JT, Ujah AO. Tolerability of the Copper-t Intrauterine device by Acceptors at Jos University Teaching Hospital , Jos, North Central Nigeria. Br J Med Med Res 2017; 21:1-5.