Full length Research paper

A ten year clinical experience with intrauterine contraceptive device (IUCD) in a Nigerian tertiary health institution

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The prevalence of contraceptive use is still very low in Nigeria and the intrauterine contraceptive device (IUCD) is a common long term and reversible method of family planning. A ten year retrospective study of IUCD acceptors at the family planning clinic of Nnamdi Azikiwe University Teaching Hospital Nnewi was carried out. The socio-demographic characteristics, side effects/complications, duration of use, and reasons for discontinuation were analyzed. There were 861 IUCD acceptors among 1345 family planning clients giving the IUCD acceptance rate of 64.1%. Also 36.8% had used it previously. The mean age and number of living children were 30.7±5.7 years and 4.2±1.9, respectively. Both the mean age of the limiters (34.5 vs 29.0 years) and their number of living children (6.0 vs 3.5) were significantly higher than those for spacers (p = 0.00). Almost all the clients were married, majority (89.3%) had secondary and or tertiary education and 70.2% were spacers. The mean duration of use was 3.1±1.9 years. Most of the clients (82.4%) did not experience any side effect/complication. The common side effects/complications were vaginal discharge (7.7%), menorrhagia (1.9%), and missing IUCD (1.9%). In multivariate analysis the duration of use correlated positively with the number of living children (p = 0.00) while age had no effect on the duration of use (p = 0.025). Clients with secondary and or tertiary education reported side effects more than those with lesser level of education. The desire for pregnancy (36%) was the commonest reason for its discontinuation and the average discontinuation rate was 55.1%. The contraceptive prevalence in relation to the number of deliveries within the study period was low (12.4%) . There is great need to intensify motivation and health education on the availability and benefits of IUCD. Also provision of free commodity and services shall improve its utilization and promote maternal health.

Key words: Family planning, IUCD, utilization.

INTRODUCTION

Family planning is the conscious effort by a couple to limit or space the number of children they want to have through the use of contraceptive methods (NDHS, 2008). Despite its known benefits and strategic role in reducing maternal and infant mortalities, its acceptance and utilization is low especially in developing countries.

Worldwide 585 women die every year from the complications of pregnancy and childbirth and 99% of them occur in developing countries (Court, 1996). Nigeria contributes 2% of the world population and 10% of the

world maternal mortality. From the 2008 Nigeria demographic and health survey, the maternal mortality in Nigeria is currently estimated at 545 per 100,000 live births. The risk of dying in pregnancy in Nigeria is 1 in 24 and the characteristics of a typical maternal death in Nigeria is a neglected primigravida and an over confident multipara.

This burden of maternal health can be alleviated through effective modern family planning measures. The contraceptive prevalence in Nigeria is still very low 15% (NDHS, 2008) in spite of the high knowledge and awareness of contraception (Orji and Onwudiegwu, 2002; Igwegbe et al., 2009), and deteriorating national economy. The total fertility rate in Nigeria of 5.7 has not

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changed since the 2003 National demographic and health survey. Religious and cultural practices such as early age of female marriage, desire for large families and male children, and some misconceptions about contraceptive use are responsible for the poor improvement in the prevalence of contraceptive use in developing countries (Adinma and Nwosu, 1995; Okonofua, 1996).

Intrauterine contraceptive device (IUCD) is a reversible and effective contraceptive method and is the commonest method utilized in many hospitals in Nigeria (Ozumba and Ibekwe, 2001; Aisien, 2007; Adegbola and Ogedengbe, 2008). Modern IUCDs are impregnated with copper or levonorgestrel (progestogen) to improve its contraceptive efficacy and reduce the side effects. The commonly available IUCD in Nigeria is the copper impregnated IUCD T380A model. The levnorgestrel-releasing intrauterine system (LNG-IUS) reduces menstrual loss and is more popular in developed countries (Shimoni, 2010).

The IUCDs stimulate marked inflammatory reaction in the uterus. The concentration of the macrophages and leucocytes, prostaglandins and various enzymes in both uterus and tubal fluids interfere with the transport of spermatozoa and ova. They also prevent implantation should a healthy fertilized ovum reach the endometrial cavity.

In spite of the popularity of IUCDs, there is still reluctance on the part of women to utilize this method because of some perceived side effects. Some women attribute any medical or incidental illness to the IUCD thus leading to its discontinuation. However the known complications associated with the use of IUCD include its displacement, expulsion from the uterus, perforation of uterus, abnormal uterine bleeding, accidental and ectopic pregnancies. The perceived fear of these complications, contribute to its discontinuation and hinder the acceptance.

In Nigeria, the contraceptive prevalence is low and the IUCD is a popular method of family planning. It is thereby considered pertinent to evaluate the users, its acceptance, discontinuation, effectiveness, side effects and complications as a family planning method with the view of counseling and scaling up the family planning services in the community.

MATERIALS AND METHODS

This is a retrospective study of IUCD acceptors seen at the family planning clinic of Nnamdi Azikiwe University Teaching Hospital Nnewi, Anambra State between 1 January, 2000 and 31 December, 2009.

Out of the 861 family planning clients who accepted IUCD for contraception within the study period, 816 case files were available for the study. These case files were retrieved from the Records department and using a Proforma form, data was obtained on the age, number of living children, level of education, duration and complications of IUCD usage. Other variables that were analyzed

include previous contraceptive use and the reasons for its discontinuation. Data analysis was done with Epi info statistical package, version 3.3.2. Descriptive statistics was used to analyze all the variables while the student's t-test was used to determine the difference of mean between populations. Bivariate contingency tables were used to determine the association of the socio-demographic factors and other variables with the duration of use and the likelihood of reporting complications utilizing the Pearson's chi-square at 95% confidence interval. A p-value of 0.05 was taken as significant. In order to determine the influence of some socio economic variables on the duration of use when the other factors were controlled for, we constructed a linear regression model using the factors being tested as the independent variables. Data were presented in tables and charts.

RESULTS

Over the review period, there were 861 acceptors of IUCD among the 1345 family planning clients seen in our family planning clinic, giving an IUCD acceptance rate of 64.1%. Attendance to the family planning clinic remained low in relation to the number of deliveries during the period under review with no particular trend over the years (Figure 1). The sociodemographic profile of the clients is shown in Table I. Acceptance was highest among the age group of 25 to 29 years (285; 34.9%) followed by 30 to 34 years (207; 25.4%). The mean age was 30.7±5.7 years. Almost all the clients were married (813; 99.6%). The mean number of living children of the clients was 4.2+/-1.9 and most of them had 2 to 4 living children (420; 51.5%). Majority (89.3%) of the clients had acquired secondary and or tertiary education, and 70.2% were spacers while 29.8% were limiters. The mean age and number of living children of the limiters were 34.5 ± 5.3 years and 6.0 ± 1.9 respectively while that for spacers were 29.1 ± 5.1 years and 3.5±1.8 respectively. There was significant difference between the mean age (t-test = 7.86; p=0.00) and parity (t-test = 10.48; P = 0.00) of the limiters and the spacers.

Table 2 shows the duration of use and the complications reported by the clients. The duration of use ranged from 6 months to 10 years with a mean duration of 3.1 ± 1.9 years. Most (672; 82.4%) of the clients reported no complications and among the clients (144; 17.6%) that had some side effects/complications, vaginal discharge (63; 7.7%), menorrhagia (24; 1.9%) and missing IUCD (24; 1.9%) were the commonest. In univariate analysis, both increasing number of living children (P = 0.00) and age (P = 0.00) positively correlated with increasing duration of use of IUCD however, only number of living children was independently correlated with increasing duration of use in multivariate analysis.

Table 3 shows the influence of sociodemographic factors and other variables on the duration of use of IUCD. The likelihood of using IUCD for more than 2 years significantly increased with increasing number of living children and was highest among the grandmultiparae. Although the percentage of clients who had used the IUCD for more than 2 years was more among the married
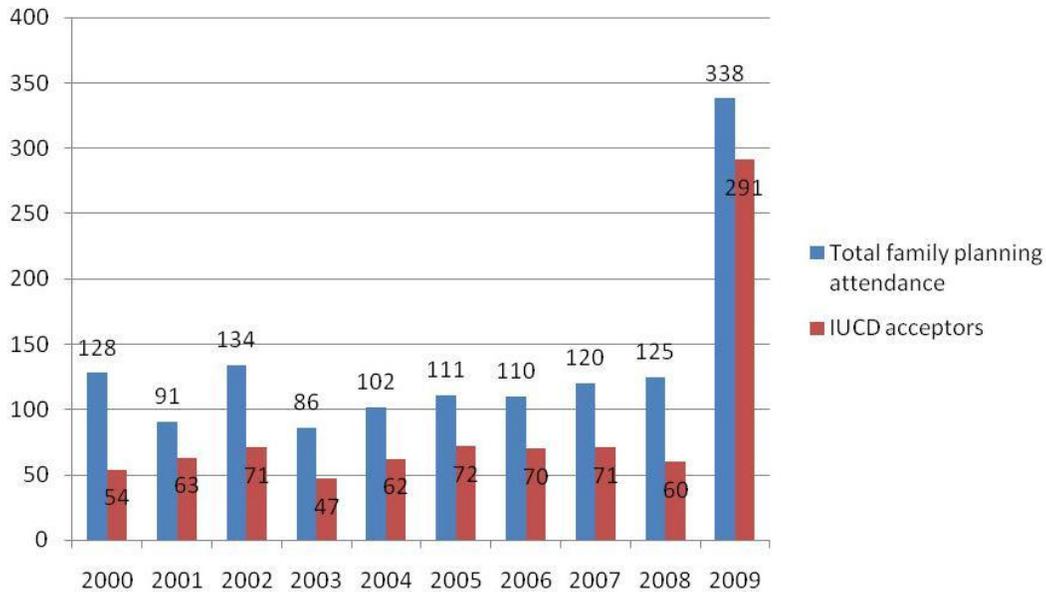
Figure 1. Yearly distribution of IUCD acceptors and total attendance at FP clinic.

Table 1. Sociodemographic characteristics.

Socio-demographic variable	N=816	%
Age (yrs)		
< 20	3	0.4
20-24	99	12.1
25-29	285	34.9
30-34	207	25.4
35-39	153	18.8
40 and above	69	8.5
No. of living children		
1	72	8.8
2-4	420	51.5
5 and above	324	39.7
Educational level		
No formal	1	0.4
Primary	84	10.3
Secondary and above	729	89.3

Table 2. Duration and complications of IUCD Usage.

Duration of use (yrs)	N=816	%
<1-2	444	54.4
3-4	201	24.6
5 and above	171	21.0
Side effects/Complications		
None	672	82.4
Vaginal discharge	63	7.7
Menorrhagia	24	2.9
Missing IUCD	24	2.9
Abdominal pain	18	2.2
Menopause	12	1.5
Expulsion	3	0.4

clients, those who had acquired at least secondary education and those that reported being satisfied with the method, these differences were not statistically significant. Also the presence of complications did not significantly affect the duration of use ($X^2 = 0.90$; OR = 1.21; P = 0.34).

Table 4 shows the influence of sociodemographic factors and other variables on the likelihood of reporting complications. Clients who had secondary education were more likely to report complications than those with

lesser level of education ($X^2 = 6.94$; 0R = 0.32; P = 0.01). Also the likelihood of reporting complications increased with increasing age ($X^2 = 9.28$; df = 3; P = 0.025). However, there was no significant association between number of living children, marital status, reason for use and history of previous contraceptive use on the likelihood of reporting complications.

Table 5 shows the trend of previously used contraceptive methods. A history of previous use of contraceptive was obtained from 14.0% (144) of clients, of which IUCD was the commonest method used previously (42; 36.8%), followed by male condom (39; 34.2%), and the billings method (12; 10.5%).

Figure 2 shows the reasons for IUCD removal. The average discontinuation rate was 55.1% and the main

Table 3. Influence of socio-demographic factors on the duration of use of IUCD.

Socio-demographic factors	Duration of use		Chi square	Odds ratio	df	p-value
	2 years	> 2 years				
No. of children	No (%)	No (%)				
1	69 (95.8)	3 (4.2)	122		2	0.00*
2-4	267 (63.6)	153 (36.4)				
5 and above	108 (33.3)	216 (66.7)				
Educational level						
No formal/primary	39 (44.9)	48 (55.1)	3.19	0.65		0.07
Secondary/tertiary	405 (55.6)	324 (44.4)				
Marital status						
Married	441 (54.2)	372 (45.8)	1.02	0.00		0.25
Single	3 (100.0)	0 (0.0)				
Satisfaction						
Yes	432 (53.9)	369 (46.1)	3.05	0.29		0.08
No	12 (80.0)	3 (20.0)				
Complications						
Yes	84 (58.3)	60 (41.7)	0.9	1.21		0.34
No	360 (53.6)	312 (46.4)				

* significant.

Table 4. Influence of socio-demographic factors and other variables on complications.

Sociodemographic factors	Complications		Chi square	Odds ratio	df	p-value
	Yes (%)	No (%)				
No. of children						
1	9(12.5)	63(87.5)	2.11		2	0.35
2-4	72(17.1)	348(82.9)				
5 and above	63(19.4)	261(80.6)				
Age						
< 20 years	0	3(100.0)				
20-29 years	66(17.2)	318(82.8)	9.28		3	0.025*
30-39 years	57(15.8)	303(84.2)				
40 years	21(30.4)	48(69.6)				
Educational level						
No formal/primary	6(6.9)	81(93.1)	6.94	0.32		0.01*
Secondary/tertiary	138(18.9)	591(81.1)				
Marital status						
Married	144(17.7)	669(82.3)	0.00			1.00
Single	0(0.0)	3(100.0)				
Reason for use						
Limiting birth	51(21.0)	192(79.0)	2.34	1.37	-	0.13

Table 4. Continued.

Spacing birth	93(16.2)	480(83.8)			
Previous contraceptive use					
Yes	24(21.1)	90(78.9)	0.80	1.29	0.37
No	120(17.1)	582(82.9)			
Duration of use					
<2years	84(18.9)	360(81.1)	0.90	1.21	0.34
2 years	60(16.1)	312(83.9)			

* Significant.

Table 5. Previous contraceptive use.

Previous contraceptive use	N=114	%
IUCD	42	36.8
Condom	39	34.2
Billings	12	10.5
Oral contraceptive pills	9	7.9
Calendar method	6	5.3
Injectables	6	5.3

reasons for discontinuation were desire for pregnancy (n = 294; 36.0%) and presence of complications (n = 114; 14.0%).

DISCUSSION

The number of clients (1345) who attended the Family Planning clinic over the ten years period is quite low when compared with the total deliveries within the same period (10,850) given a family planning prevalence of 12.4%. This shows a low level of contraceptive practice in the community as previously observed by Udigwe et al. (2002). The increased number of clients and the intrauterine contraceptive device (IUCD) acceptors in 2009 was as a result of community mobilization and campaign by the Society for Family Health (SFH) during which the IUCD commodity and services were provided free of charge.

Among the family planning clients in this hospital, 64.12% accepted IUCD as a method of family planning. The same rate was reported by Udigwe et al. (2002). Similar IUCD acceptance rate were observed in Lagos (Adegbola and Ogedengbe, 2008), Ibadan (Okunlola et al., 2006) and in Enugu (Ozumba and Ibekwe, 2001). Lower IUCD acceptance rate of 42% were recorded in Benin City (Aisien 2007) and Port Harcourt (Ojule et al., 2010) all in Nigeria. These variations in hospitals and communities could be attributed to the methods of

counseling and sponsored campaigns by various Non Governmental Organizations (NGOs).

In this study majority of the IUCD acceptors (47.0%) were in their third decade of life and had 2 to 4 living children. This is a reflection of early marriage and the consequent child bearing in our environment. Previous studies in this environment had shown a 74.7% prevalence of teenage marriage and 2.2% of teenage births (Igwegbe and Udigwe, 2001) . Awareness and practice of family planning should be intensified to limit the number of births and the obstetrics and social consequences of grandmultiparity. Being an urban area and a tertiary health centre, majority of the clients had secondary or tertiary education. Illiteracy level is usually lower in urban areas.

The indications for family planning are usually for spacing or limiting births. This could be influenced by maternal age, parity/number of living children, socioeconomic status, and literacy level. It was observed from this study that 70.2% of IUCD acceptors used this method for spacing births. This is not surprising as majority was less than 30 years of age and had less than five children. This is also reflected in the duration of use of IUCD for less than three years. This short duration of use has been reported by Mutihir et al. (2006) in Jos, Nigeria for a commodity designed to last for ten years thereby suggesting the manufacture of a shorter acting and perhaps cheaper IUCD. The number of living children is the only variable that is positively related to the duration of use of IUCD in the study. Clients who have many children are more likely to use IUCD for more than two years and for limiting births.

That IUCD is a safe and effective method of family planning (Aisien, 2007; Shimoni, 2010) is also demonstrated in the study. Majority was satisfied with the method and 82.4% did not experience any side effect or complications associated with its usage. Also 36.8% have used IUCD previously corroborating its popularity and high rate of acceptance. Similarly, Udigwe (2006) reported that 64.1% of IUCD users would choose it again. Vaginal discharge, menstrual abnormalities, lower abdominal pain, missing IUCD and expulsion were the
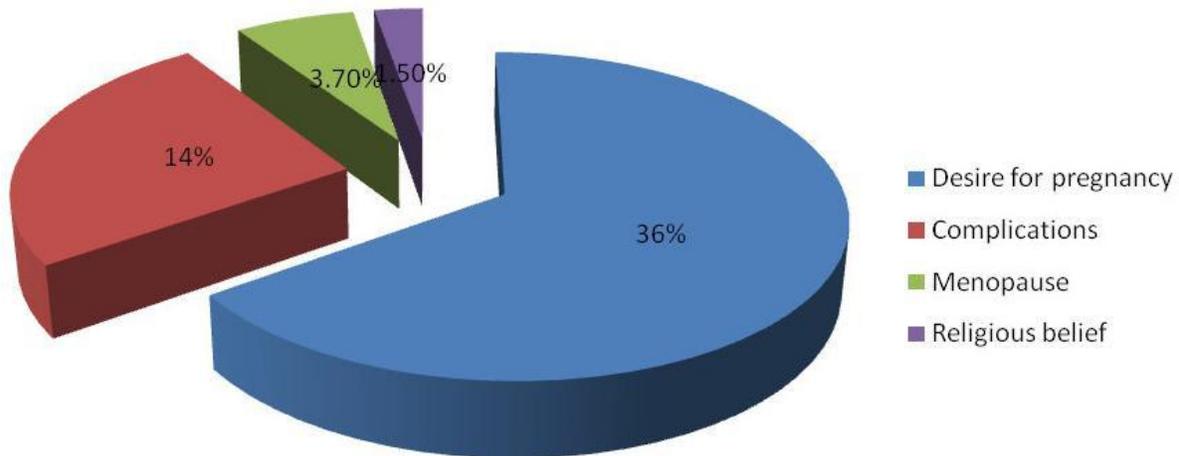
Figure 2. Reasons for removal of IUCD.

reported side effects and complications in only 17.6% of clients. Most of the side effects were treatable and tolerable, and were not the leading indication for its discontinuation. No pregnancy was recorded in this review though accidental and ectopic pregnancies have been reported (Jimoh, 2004; Adegbola and Ogedengbe, 2008) with the use of IUCD. From univariate analysis, clients with secondary or tertiary education reported more complications/side effects than clients with no formal or primary education. Less educated females are usually timid, of lower socioeconomic status and would report only life threatening complication and also less compliant to regular follow up visits.

The average discontinuation rate of 55.1% recorded in this study is relatively high. The IUCD discontinuation rates vary with the duration of use. It has been reported as 10 to 14% at the first year of use (Okunlola et al., 2006; Adegbola and Ogedengbe, 2008) and 2.8% after five years (Okunlola et al., 2006). Also a high discontinuation rate of 24.9% at one year and 38.3% at the end of two years were noted in Benin, Nigeria (Aisien, 2007). A four year cumulative discontinuation rate of 47% was reported in Lagos (Adegbola and Ogedengbe, 2008). The high discontinuation rate shows that many clients were spacers and would have had more than one IUCD insertions within the ten years of review. Being more of spacers, the desire for pregnancy was the commonest reason for discontinuation from this study. The other reasons were due to the complications and menopause. About 14% had their IUCD removed because of the side effects and complications. Religious belief which is peculiar to Roman Catholics accounted for only 1.5% of cases. Though husband's disapproval (Okunlola et al., 2006; Mutihir et al., 2006; Igwegbe et al., 2009) is a known constraint to the use of contraceptives in Nigeria and developing countries, no client reportedly discontinued on this account. The husband's approval is usually assured of before inserting the IUCD in this

hospital. The husbands are usually invited when necessary for further counseling.

Conclusion

The contraceptive prevalence is low and the IUCD is the most common method utilized by the clients. In spite of its long duration of action, majority used it for spacing births. The duration of its use is positively related to the number of living children. Sustained motivation, health education on the availability and benefits of IUCD, and provision of free commodity and services shall increase its utilization and improve maternal health in the community.

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