

The Rise and Fall of Female Sterilization in Jos, Nigeria: A Cause for Concern

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Abstract

Background: Female sterilization is a permanent form of contraception offered to women who have completed their family size. Other methods are all temporary and meant to be reversible. A high-quality female sterilization service was introduced in Jos with the assistance of training in counseling and minilaparotomy under local anesthesia in May 1985. After training, female sterilization became available for couples desiring it on completion of family size. **Materials and Methods:** This was a retrospective study of all clients who had female sterilization for contraception between 1985 and 2019. The clinic register was retrieved and evaluated for acceptances of all contraceptive methods within the period and trends observed. **Results:** Over the 35 years, a total of 29,167 new clients accepted modern family planning methods. Out of these, a total of 5167 were female sterilizations, constituting 17.7% of the new acceptors. The temporary methods of contraception constituted 82.3%. The other methods used were the intrauterine device 8357 (28.7%), the oral pills 5125 (17.6%), the injectables 5235 (17.9%), and the contraceptive implants 5283 (18.1%). Although female sterilization was 4th among the five methods studied, there was however a gradual decline in its acceptance from a peak of 36.1% in 1992 to 1.4% in the year 2018. **Conclusion:** The acceptance of female sterilization rose to a peak in 1992 and declined to the lowest level in 2018, occasioned in part by the introduction of varieties of contraceptive implants providing long acting, reversible, and cheap contraception.

Keywords: Contraceptive implants, contraceptive methods, female sterilization, Jos, Nigeria

INTRODUCTION

Family planning is a cost-effective way of preventing maternal and child mortality. It can reduce maternal mortality by (preventing) reducing unintended pregnancies which could lead to unsafe abortions, and also reduce the proportion of pregnancies and births at risk. It has been estimated that meeting the unmet need for family planning would prevent about one-quarter to one-third of all maternal deaths.¹ Accessible and effective family planning services including female sterilization may avert up to 35% of maternal deaths.²

Modern contraceptives are used for child spacing or to limit family size. Permanent methods of contraception are used to limit family size since they are considered irreversible. The permanent methods are vasectomy in the male and bilateral tubal ligation/occlusion in the female. The permanent methods of contraception and the long acting methods contribute significantly to the contraceptive prevalence rates (CPR) of any country. CPR being the percentage of all women of reproductive age using (or whose partner is using) a modern

method of contraception at a certain point in time. Worldwide, about 190 million couples use surgical sterilization as a safe and reliable method of contraception.³ About half of the British couples aged 35–44 years are using either male or female sterilization as their method of contraception.⁴ Permanent methods of contraception offer a number of benefits compared to other methods. It does not have the recurrent direct or indirect cost associated with reversible methods.⁵ In addition, problems such as compliance, side effects, availability, and convenience are eliminated.⁶ For women, there is evidence to show that bilateral tubal ligation reduces the risk of ovarian cancer.⁷ Female sterilization has been shown to be

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safe in sub-Saharan Africa when done according to standard practice.⁸⁻¹⁰ Female sterilization is an effective method with a failure rate of <1%, and despite this, the uptake of female sterilization remains very low in Nigeria, with reviews reporting incidences of 1%–3.15%.^{11,12} This is probably due to the great desire for large families, poor understanding of the overall benefits, misconceptions, and the limited availability of this method of contraception.¹³

An earlier study in Jos University Teaching Hospital, Nigeria, showed increasing acceptability of female sterilization over time when the Access to Voluntary Safe Contraception (AVSC) assisted the department in establishing this service in May 1985 including the training of counselors and doctors in female sterilization by minilaparotomy under local anesthesia, making the procedure readily available and affordable to clients.¹⁴ The cost of female sterilization from inception in 1985 to 2004 was free to clients. This was because it was fully supported by the Association for Voluntary Surgical Contraception (AVSC). With sustainability in mind, a fee of N500.00 (\$1.4) was introduced and remained the cost from 2005 to 2011. This was again reviewed to N1000.00 (\$2.8) from 2012 to 2015 and then to N2000.00 (\$5.6) from 2016 to 2019. The cost was subsidized by the institution to make it affordable to all clients. However, over time, acceptance has witnessed a decline after enjoying a period of increase [Figure 1]. The reason for the decline is not easily predictable. The number of women delaying childbearing until later in life may be increasing, there being the possibility of starting a new relationship later on in life (in their 30s or 40s), and so keeping their fertility options open may be a good idea.

Other reasons may be the increased availability and variety of long acting equally effective reversible contraceptives particularly the contraceptive implants (Implanon Classic, Implanon NXT, and Jadelle) may partly be responsible for this trend. Different reasons may have been advanced in other studies for this decline. The long acting reversible contraceptive methods may be excellent alternatives to surgery (interval or postpartum bilateral tubal ligation) as they provide a level of contraceptive efficacy that is comparable with sterilization over a long period of time.¹⁵⁻¹⁷ In addition, despite comprehensive counseling by health providers, about 2%–6% of women who had sterilization in developed countries and 0.2% in developing countries are estimated to seek information about reversal,¹⁸ but the actual rate may be substantially higher. In developing countries, women's potential interest in restoration of their fertility is most likely underestimated, considering the inaccessibility or cost of such services and the lack of knowledge about them.¹⁸ This could have been avoided if they had opted for a long acting reversible method. A study in the UK shows that discussion of alternative, reversible methods of contraception at the sterilization counseling appointment may help to reduce the number of women undergoing the procedure.¹⁹

The introduction of contraceptive implants to the contraceptive mix in the family planning clinic has increased the options of

long acting reversible methods a woman could choose from. Data have shown that contraceptive implants are very effective and safe, with evidence suggesting no serious health events when compared to women who used no hormonal methods or women in the general population.²⁰ Implants require very little user compliance or motivation when adequately counseled. Therefore, the use effectiveness rates are almost equal to their theoretical effectiveness.

This study aims to compare the trends of uptake of female sterilization and contraceptive implants and demonstrate the pattern of declining female sterilization uptake and corresponding increase in uptake of contraceptive implants in Jos University Teaching Hospital, Jos, Nigeria.

MATERIALS AND METHODS

This was a retrospective study of all the period under review, between January 1985 and December 2019, a 35-year duration. The records of the various contraceptive methods were accepted in the family planning clinic, and the case notes of the clients who had female sterilization (voluntary surgical contraception) were retrieved and analyzed for daily, monthly, and yearly acceptance of the various contraceptive methods in the facility. To the yearly trend in the acceptance rate for each family planning method for total acceptance, monthly and yearly distribution, and compared with other methods of contraception in the clinic. The spermicidal agents, and the condoms were excluded from the analysis for inconsistent supply, and the condoms also collected from the clinic for other reasons as the prevention of mother to child transmission of human immunodeficiency virus infection. The spermicidal agents are also not used exclusively for contraception, but as vaginal lubricants for sexual intercourse.

RESULTS

A total of 29,167 new clients accepted modern family planning methods in the family planning unit of the hospital. Out of these, 5167 were female sterilizations, constituting 17.7% of the new acceptors of family planning methods. The temporary methods of contraception constituted 82.3%. The other methods used were the intrauterine device 8357 (28.7%), the oral pills 5125 (17.6%), the injectables 5235 (17.9%), and the contraceptive implants 5283 (18.1%) [Table 1 and Figure 2]. Between 1985 and 2000, female sterilization accounted for 22.4% of all contraceptive methods used. By the year, 1992, it constituted 36.1% of all contraceptive methods. The yearly trend of the acceptance demonstrated that there was a gradual increase in acceptance of female sterilization and was highest in 1992. From this year, the acceptance rapidly declined to about 100 in 1997, leveled off in 2009, and then began to decline again to the lowest acceptance rate in 2018 [Figure 3]. Although female sterilization was 4th among the five methods studied, there was however a gradual decline in acceptance of contraceptive methods from a peak in 1992 with 36.1% of the methods to the lowest ebb

in 2018 of 1.4% [Figure 3]. The acceptance of contraceptive implants (long acting reversible methods) increased as the decline in female sterilization declined as from 2006 when Implanon was introduced and joined by Jadelle in 2007. While the acceptance of the contraceptive implants gradually increased, female sterilization gradually declined over the years [Figure 3]. The acceptance of the intrauterine devices demonstrated a relatively constant acceptance rate after an initial high acceptance between the years 1985 and 1991. All the hormonal contraceptives combined (Implants, Oral Pills, and Injectables) demonstrated higher acceptance compared with female sterilization throughout the period of study, except around 1994 when this was similar [Figure 4].

By 1985, female sterilization was more accepted than the Implants (Norplant). Between 1995 and 2005, the gap in acceptance was markedly reduced though female sterilization was preferred. From 2006, the implants superseded female sterilization, that is, when the Implanon implant was introduced. With further introduction of Jadelle in 2007, the preference for the implants further encouraged acceptance of the implants to the detriment of female sterilization.

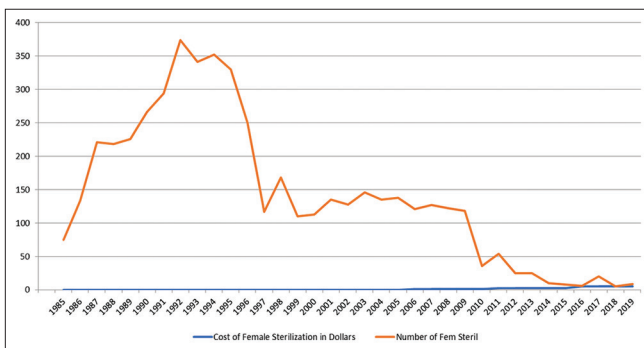


Figure 1: The trends in cost and number of female sterilization over the 35 years' period of review. The cost of female sterilization within the period has just been a token for the procedure. It ranged from being free at inception (zero Naira from 1985 to 2004, N500 from 2005 to 2011, N1,000 from 2012 to 2015, N2,000 in 2016–2019). The cost is heavily subsidized by the institution, being a training institution where regular and routine posting of residents takes place including the family planning clinic. The cost of contraceptive implants remained consistently higher than the female sterilization in the period under review

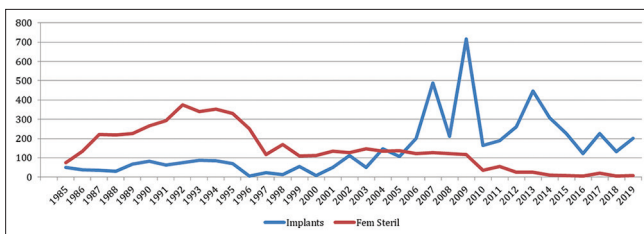


Figure 3: The trend of the contraceptive method mix in Jos showing the rise and fall of female sterilization. Female sterilization was more accepted compared with the Norplant implant. But with the introduction of more varieties of implants (Implanon, Jadelle and Implanon NXT), acceptance now was in favor of the implants. The cross-over is shown in 2006 with the introduction of the new implants

Female sterilization fared well among all the other contraceptives between 1985 and 2005, but plummeted thereafter to become the lowest by 2018. The oral contraceptive pills also declined markedly but became higher than female sterilization by 2015 [Figure 5].

DISCUSSION

Between 1992 and 1997, female sterilization had the prime position among other contraceptive methods. From inception in

Table 1: Acceptance of methods of contraception in the facility (1985-2019)

Contraceptive acceptance	n (%)
Intrauterine devices	8357 (28.7)
Contraceptive implants	5283 (18.1)
Injections	5235 (17.9)
Female sterilization	5167 (17.7)
OCPs	5125 (17.6)
Total	29,167 (100.0)

OCP – Oral contraceptive pills

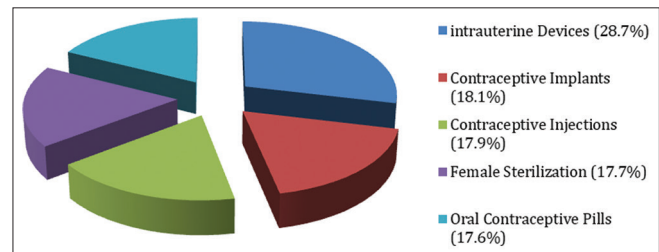


Figure 2: Female sterilization amongst other contraceptive methods 1985–2019. The acceptance rates of the contraceptive methods were very similar considering the whole duration of the study between 17.6% and 17.9%. Only the intrauterine devices showed a higher level of acceptance within the period, 28.7%. However, the yearly trends showed fluctuations in acceptances, except the intrauterine devices which showed relative consistency in trend

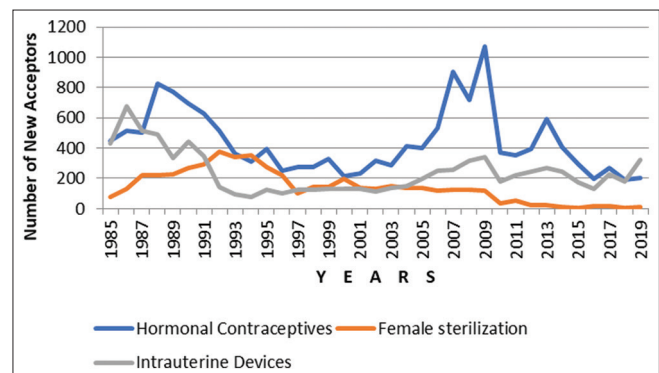


Figure 4: Comparative acceptance of female sterilization compared with intrauterine devices and hormonal contraceptives (Implants, Oral Pills and Injectables). Female sterilization started off lower than both the hormonal contraceptives and the intrauterine devices. But by 1992, the female sterilization became higher than both of them. Between 1992 and 2004, the acceptances were relatively similar. After 2004, female sterilization began to decline reaching very low acceptance levels by 2018

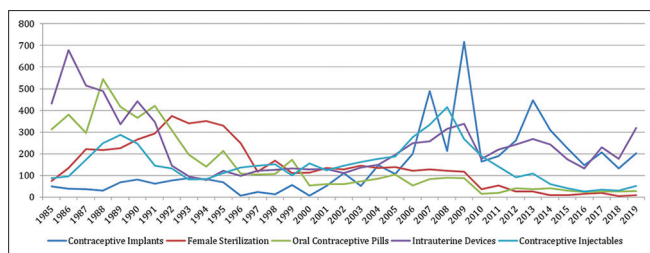


Figure 5: The acceptance of female sterilization compared with other methods of contraception in the facility. Female sterilization fared well among all the other contraceptives between 1985 and 2005, but plummeted thereafter to become the lowest by 2018. The oral contraceptive pills also declined markedly but became higher than female sterilization

1985 to 2000, female sterilization for family planning had been accepted by about a quarter of the clients, intrauterine devices 3858 (27.1%), the Oral Pills 3831 (26.9%), the Injectables by 2291 (16.1%), and the Norplant implants 672 (4.7%). The cumulative acceptance rates of the contraceptive methods were very similar considering the whole duration of the study between 17.6% and 17.9%. Only the intrauterine devices showed a higher level of acceptance within the period, 28.7%. However, the yearly trends demonstrated variable fluctuations in acceptances, except for the intrauterine devices which showed relative consistency in trend.

By 2000, almost 16 years after the integration of female sterilization into the contraceptive method mix, the cumulative contribution had risen to about 22.4%. The peak acceptance was recorded by 1994 when acceptance was almost 46%. The reason for the rapid acceptance and growth was attributable to expansion of the services, convenience, effectiveness, cost-effectiveness, and safety. It required no further supplies or action once the procedure had been accomplished and there were no long-term side effects. In addition, there was the choice of having the procedure postpartum, where unmet need was highest, and as an interval procedure. The specific training of service providers on counseling was ensured as this was a permanent method with no prospect for reversal once done. Minilaparotomy under local anesthesia has made female sterilization available in more settings; and from more providers.

Other reasons for the rapid growth in acceptance were that the AVSC, in conjunction with other organizations concerned with improving women's health invested a lot in the training of health-care personnel in this direction. A large number of health-care providers benefited from these trainings in Jos and its environs. The provision of consumables namely surgical sutures, gauze, surgical gloves antiseptics to mention a few, also accompanied these trainings for the provision of safe and effective female sterilization procedures for desiring clients. Minilaparotomy kits were also provided to training institutions to effectively train doctor/nurse teams in service provision of minilaparotomy under local anesthesia for female sterilization. The training played a central role in assuring the quality of sterilization services.

The services were provided at minimal and affordable cost bearing in mind sustainability. The demand therefore increased over the years, only showing some decline in the years when industrial actions adversely affected the health-care services nationwide. Over the first 16 years, female sterilization enjoyed tremendous patronage. It clearly surpassed the temporary methods such as the injectables, the spermicidal agents, and the male condoms. It posed a stiff challenge to the oral pills and the intrauterine devices. Thus, by the year 2000, female sterilization in Jos was said to be number one and fast growing.¹⁴ The opposite is the case today.

After enjoying the aura of the increasing initial trend, a reducing trend was observed soon after this. Such decline in acceptance for tubal sterilization has been observed in the United States despite a 4% increase in population of women 15–44 years.¹⁵ Similar decline has also been observed in other countries such as Norway, Australia, and the United Kingdom where reduction by 67%, 60%, and 68.5%, respectively were observed over different time periods.^{16,17} Many compounding factors may still be responsible for this decline in the acceptance of contraceptive methods in Nigeria. Some of these factors are sociocultural, religious, sectional, and political. Female surgical contraception is today an established component of many family planning units across the country. In addition to other modern methods of contraception introduced in the facility, the Association for Voluntary Surgical Contraception (AVSC)-assisted numerous facilities including our department to establish a high quality female sterilization services.²¹

However, with the introduction of more contraceptive implants into the scene, a gradual decline in the acceptance of female sterilization began to manifest. This is clearly demonstrated in this study. In addition, in 2013, the Federal Government of Nigeria through the Federal Ministry of Health, deemed it fit to provide the contraceptive methods free of charge to clients in all states of the country. This was a welcome idea since it addressed the issue of cost, for which some clients were unable to obtain the method of their choice. This gesture did not extend to the female sterilization procedure. Thus, clients drifted from the choice of female sterilization to free, reversible and effective long-acting methods. The trend was also observed in an earlier study in the centre,²² but the decline had not deteriorated to the current dismal level.

CONCLUSION

Female sterilization once the most acceptable method of contraception for clients who had completed their family size, the situation appears to have changed. Women are now opting to use the contraceptive implants with similar effectiveness but reversible, with durations of the use of between 3 years for Implanon and 5 years for Jadelle; and which are relatively free. It appears that female sterilization has now gone back to where it started, that is, in high-risk obstetric cases, such as ruptured uterus, classical cesarean section, and in cases of

three or more previous cesarean sections where it is considered dangerous for the patient to carry further pregnancies for the fear of spontaneous uterine rupture. This will definitely make a dent on CPR being one of the main elevators of the rate.

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Conflicts of interest

There are no conflicts of interest.

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