

## Original Article

# Uptake and Discontinuation of Jadelle Implant Use in University of Calabar Teaching Hospital, Calabar, Nigeria

Odusolu Patience O, E. M. Eyong

Department of Obstetrics and Gynaecology, University of Calabar Teaching Hospital, Calabar, Nigeria

## Abstract

**Background:** Contraception is known to contribute to a reduction in maternal mortality rates directly. Jadelle implant is a long-lasting, reversible contraceptive that is safe, highly effective, and convenient. **Objectives:** The objectives of this study were to determine the sociodemographic profile, side effects, and reasons for discontinuation among users of Jadelle in the University of Calabar Teaching Hospital (UCTH), Calabar, Nigeria. **Methodology:** This was a 5-year retrospective study carried out at UCTH, Calabar, Nigeria. Case files of women who accepted and inserted Jadelle implant between January 1, 2013, and December 31, 2017, were retrieved, and data were extracted for the study. Descriptive and analytical statistics of the data using mean and standard deviation were done, and results were presented in frequency and percentage tables. **Results:** A total of 270 women accepted and inserted Jadelle implant during the period under review with a mean age of  $33.0 \pm 6.2$ . Majority of the clients were Christians 98.1%, and 85.9% had at least secondary school education. About half (49.6%) of these women had a desire for future fertility, whereas 49.7% have had four or more children. Sixty-one percent (61.5%) of the clients had previously used a form of contraception. Menstrual irregularities were the most commonly reported side effect (55.0%) as well as the most common reason for removal and discontinuation of the implant (43.3%). **Conclusion:** Jadelle is a highly effective, safe, and reversible method of contraception. The most commonly reported side effect was menstrual irregularities, which was also the most common reason for discontinuation in the UCTH, Calabar, Nigeria.

**Keywords:** Calabar, contraception, discontinuation, highly effective, Jadelle

## INTRODUCTION

Contraception is known to directly contribute to a reduction in maternal mortality rates. This is because a lot of pregnancies which ended in maternal mortality were unwanted. Thus, the prevention of unwanted pregnancies would lead to the prevention of maternal mortality related to them.<sup>[1,2]</sup>

Nigeria did not meet the Millennium Development Goals (MDGs) in general and MDG-5 in particular which was aimed at improvement of maternal health (with its accompanying targets).<sup>[3,4]</sup> We need to make concerted efforts to meet the Sustainable Development Goals (SDGs 2015–2030) in general and Goal 3 in particular (Good health and well-being for people), which is directly related to maternal and child health.<sup>[5]</sup>

Jadelle is a long-acting, reversible modern method of contraception. It was developed by the Population Council in the 1980s. It was subjected to multicenter trials in seven

countries from 1990. The outcome of these trials assured the safety and efficacy of Jadelle before it was approved for use in Europe, America, and parts of Asia.<sup>[6,7]</sup>

Jadelle is a hormonal implant which consists of two thin, cylindrical, flexible silicon rods (2.5 mm in diameter and 4.3 mm in length) each containing 75 mg levonorgestrel. It is a safe, affordable, highly effective, and convenient contraceptive method, currently labeled for 5 years of use.<sup>[8-13]</sup>

Each rod of Jadelle releases about 100  $\mu\text{g}/\text{day}$  of levonorgestrel in the 1<sup>st</sup> month of insertion. This reduces to about 40  $\mu\text{g}/\text{day}$  within 1 year after insertion. This reduces further to

**Address for correspondence:** Dr. Odusolu Patience O,  
Department of Obstetrics and Gynaecology, University of Calabar Teaching Hospital, Calabar, Nigeria.  
E-mail: [patodusolu@yahoo.com](mailto:patodusolu@yahoo.com)

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**How to cite this article:** Odusolu PO, Eyong EM. Uptake and discontinuation of jadelle implant use in University of Calabar Teaching Hospital, Calabar, Nigeria. *Niger J Med* 2020;29:286-90.

**Submitted:** 29-Sep-2019

**Revised:** 24-Mar-2020

**Accepted:** 19-Apr-2020

**Published:** 26-Jun-2020

### Access this article online

#### Quick Response Code:



**Website:**  
[www.njmonline.org](http://www.njmonline.org)

**DOI:**  
10.4103/NJM.NJM\_61\_20

about 30 µg/day within 3 years of insertion and then to about 25 µg/day by the end of the 5<sup>th</sup> year after insertion.<sup>[8,12,13]</sup>

The annual pregnancy rate per 100 users of Jadelle is 0.1 for the first 3 years, 0.4 in the 4<sup>th</sup> year, and 0.85 at the end of the 5<sup>th</sup> year of use. The Pearl index by the end of the 5<sup>th</sup> year of use is 0.17/100 women-years.

The contraceptive effect of Jadelle works by three major mechanisms of action which are ovulation suppression, thickening of cervical mucus, and induction of endometrial atrophy.<sup>[8,12,13]</sup>

The common side effects of Jadelle include irregular menstrual bleeding (heavy/light or frequent/infrequent), amenorrhea, application site reactions, headache, dizziness, breast pain, premenstrual syndrome, weight gain, urinary tract infection, pelvic pain, and anxiety.

Contraindications to the use of Jadelle include undiagnosed abnormal vaginal bleeding, breast tumors, benign/malignant liver disease, endometrial cancer, thrombosis/thromboembolic disorder, allergy to levonorgestrel, or other components of Jadelle implant.<sup>[8-15]</sup>

It is a provider-dependent method for both insertion and removal. It is usually inserted by a minor surgical procedure subdermally into the medial aspect of the nondominant arm. Removal also needs a minor surgery which may take a longer period than its insertion and may be more painful. Jadelle can be removed at any time of the menstrual cycle but must not be retained beyond 5 years after its insertion. Once the implants are removed, there is an almost immediate return of fertility.<sup>[12,13]</sup>

Jadelle was introduced into the family planning unit of the University of Calabar Teaching Hospital (UCTH) in 2005. Before then, our facility had previous experience with another implant (Norplant) which was withdrawn in 2005 shortly before the introduction of Jadelle. After insertion of Jadelle, the first follow-up visit is after 6 weeks and the second follow-up visit after 6 months. Thereafter, yearly follow-up visits are scheduled. During follow-up visits, the clients' weights and blood pressure are checked. They are also asked about the presence of side effects.

The clients are encouraged to present in the clinic at any time that they may develop side effects and not to wait for scheduled follow-up visits. Whenever pregnancy is suspected, a blood pregnancy test is carried out for confirmation.

The objective of this study were to determine the sociodemographic profile of Jadelle users, side effects and reasons for discontinuation of the product at the UCTH, Calabar, Nigeria.

## METHODOLOGY

This was a 5-year retrospective study carried out in the family planning clinic of the UCTH, Calabar, between January 1,

2013, and December 31, 2017. Case files of women who accepted and inserted Jadelle implant were retrieved, and data were extracted for the study. Data collected included the sociodemographic profile, reproductive history, previous method of contraception used, side effect profile, and reasons for discontinuation. The contraceptive efficacy of Jadelle was determined by the number of confirmed pregnancies which occurred during the period of the study.

## Statistical analysis

Data were entered into Excel, descriptive and analytical statistics of the data using mean and standard deviation were done, and results were presented in frequency and percentage tables.

## RESULTS

During the study period, 270 clients accepted and inserted a Jadelle implant as a method of contraception at the UCTH, Calabar, Nigeria.

The sociodemographic profile of these Jadelle users, as shown in Table 1, revealed that a majority (65.6%) of them belong to the age group of 30–39 years, 54 (20%) and 31 (11.5%) were 20–29 years and 40–49 years, respectively, and only 7 (2.6%) were teenagers.<sup>[10-19]</sup> The mean age of Jadelle users was  $33.0 \pm 6.2$ .

A vast majority (98.1%) were Christians, whereas 1.9% were Muslims. The majority (63.3%) of the Jadelle users (171, 63.3%) had tertiary level education, 63 (23.4%) and 34 (12.6%) had secondary and primary school education, respectively, whereas only 2 (0.7%) had no formal education.

The number of live children of the Jadelle users (10, 3.7%) had no children, 34 (12.6%) had 1 or 2, 171 (63.3%) had 3 or 4, whereas 55 (20.1%) had five or more living children.

The proportion of Jadelle users who still had a desire to have more children in the future was 134 (49.6%), whereas 128 (47.4%) had no desire to have more children and 8 (3.0%) were uncertain, as shown in Figure 1.

Out of the 270 users, 104 (38.5%) had never used any other method of contraception. Those who have previously used implants were 52 (19.2%), injectables 38 (14.1%), Intra uterine contraceptive device (IUCD) 24 (8.9%), whereas pills, condoms, and natural methods were 19 (7.0%), 22 (8.1%), and 11 (4.1%), respectively [Table 2].

During the study period, 131 (48.5%) Jadelle users reported side effects, whereas 43 (15.9%) reported no side effect. The most commonly reported side effect was menstrual irregularities (55.0%), followed by amenorrhea (24.4%) and 5 (3.8%) weight gain, whereas 22 (16.8%) had other side effects such as dizziness, skin changes, increased blood pressure, and abdominal bloating. However, 96 (35.6%) attended no follow-up visit after insertion of Jadelle, as shown in Figures 2 and 3.

**Table 1: Sociodemographic profile of Jadelle implant acceptors**

	Number of Jadelle users (%)
Age group (years)	
10-19	7 (2.6)
20-29	54 (20.0)
30-39	177 (65.6)
40-49	31 (11.5)
Mean±SD	33.0±6.2
Religion	
Christianity	265 (98.1)
Islam	5 (1.9)
Educational status	
None	2 (0.7)
Primary	34 (12.6)
Secondary	63 (23.4)
Tertiary	171 (63.3)
Live children	
0	10 (3.7)
1-2	34 (12.6)
3-4	171 (63.3)
≥5	55 (20.4)
Total	270 (100.0)

SD: Standard deviation

Figure 4 shows that 37 (13.7%) Jadelle users had their implants removed and discontinued usage during the study period.

The reasons for discontinuation were menstrual irregularities in 16 (43.3%), desire to get pregnant in 6 (16.2%), and excessive weight gain 5 (13.5%). Amenorrhoea and expiration of the implant were also reasons for discontinuation in 4 (10.8%) each, whereas other reasons such as raised blood pressure and skin changes were the reasons in 2 (5.4%) of them.

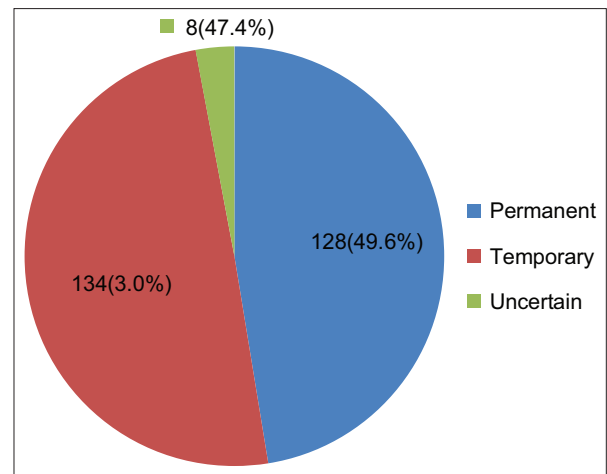
### DISCUSSION

The sociodemographic profile of these clients showed that majority (65.6%) of the Jadelle acceptors were aged between 30 and 39 years and the mean age was 33.0 ± 6.2.

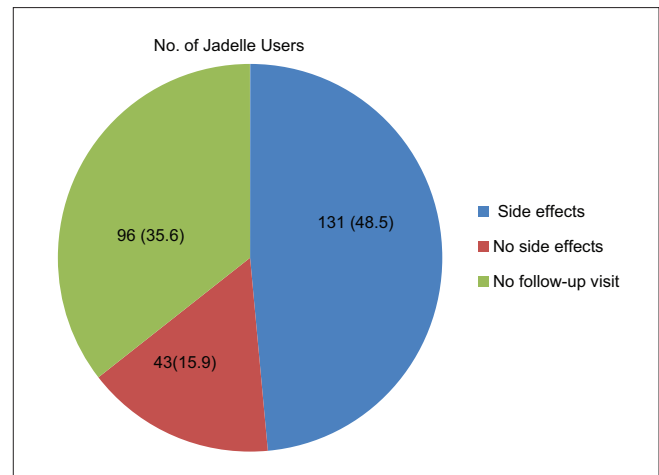
This is similar to studies done in Jos,<sup>[15]</sup> Port Harcourt,<sup>[9]</sup> Ogbomoso,<sup>[16]</sup> and Zaria.<sup>[17]</sup> Contrary to this, only seven teenagers were involved, which accounted for 2.6% of the clients. This is higher than the 0.4% of teenagers reported in a similar study in Jos<sup>[15]</sup> but lower than 7.5% reported in another study in Zaria.<sup>[17]</sup>

The Nigerian adolescents' use of family planning clinics is poor and even worse still is their use of long-acting reversible contraceptives (LARCs). This is because the family planning clinics are not adolescent-friendly and are thus used almost exclusively by married women.<sup>[18,19]</sup> However, the situation is different in many parts of America and Europe, where adolescents significantly use family planning clinics and LARCs such as implants.<sup>[20-22]</sup>

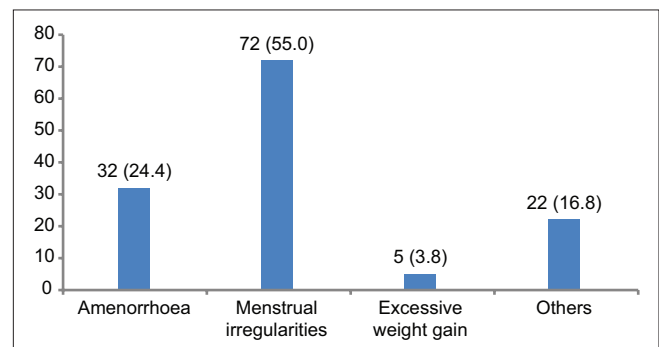
Among the Jadelle acceptors during the study period, 63.3% had tertiary education and 22.6% had secondary education;



**Figure 1: Mode of contraceptive usage by Jadelle users**



**Figure 2: Proportion of Jadelle users with side effects to those without side effects**



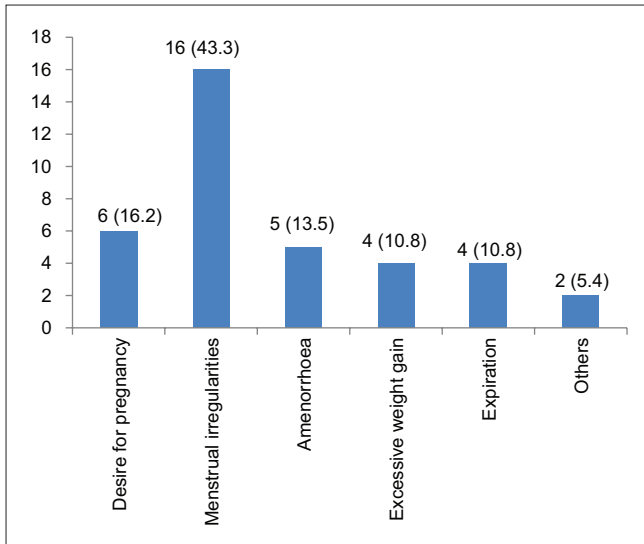
**Figure 3: Side effects among Jadelle users**

thus, 85.9% of the clients had at least secondary education or more. Christians were 98.1%, whereas 1.9% were Muslims. Both the above statistics are higher than the 73%, and 88.8% reported, respectively, from a similar study in Jos, Nigeria.<sup>[15]</sup> This study was based in the southern part of the country where there are predominantly Christians. However, it is

**Table 2: Previous contraceptive methods used**

Previous contraceptive method	Number of Jadelle users (%)
None	104 (38.5)
Condom	22 (8.1)
Implants	52 (19.2)
Injectables	38 (14.1)
IUCD	24 (8.9)
Pills	19 (7.0)
Natural	11 (4.1)
Total	270 (100.0)

IUCD: Intra uterine contraceptive device



**Figure 4: Reasons for discontinuation by Jadelle users**

known from previous studies that education and religion are strong predictors of the acceptance of modern methods of family planning. It was found that women, who had tertiary education, were more likely to accept modern family planning methods than the others. The Christians were also found to be more likely to accept modern family planning methods than the Muslims.<sup>[23-25]</sup>

Despite the fact that almost half (49.7%) of the clients had 4 children or more before using Jadelle implant [Table 1], almost half (49.6%) still had the desire to have more children in the future [Figure 1]. This is in agreement with the high total fertility rate in Nigeria, which is put at 5.7.<sup>[19,26]</sup>

Although the contraceptive prevalence rate in Nigeria is generally low,<sup>[18,19]</sup> our study shows that majority (61.5%) of our clients had previously used at least one method of contraception, with implants (19.2%) being the predominant method, followed by injectables (14.1%), IUCD (8.9%), and condom (8.1%).

This is different from a similar study in Jos, where 82% had previously used a modern method of contraception. These used predominantly the short-acting methods being injectables, oral contraceptive pills, and condom.<sup>[15]</sup>

During the study period, 37 (13.7%) discontinued Jadelle use. The most common reason for discontinuation (43.3%) was menstrual irregularities, which was not surprising since menstrual irregularities were also the most common (55.0%) reported side effect. Although these complaints are usually not life-threatening, they make life uncomfortable for these women, affecting their social and sexual lives. In addition, it is the added cost of buying sanitary pads frequently. However, this is different from a similar study in Jos, where the most common reason for discontinuation was the desire for more children.<sup>[15]</sup> This is also different from studies in both Zaria<sup>[17]</sup> and Port Harcourt,<sup>[9]</sup> where the most common reason for discontinuation was the expiration of the method.

The fact that only 37 (13.7%) discontinued the method whereas 131 (48.5%) had side effects supports the fact that complications do not always lead to discontinuation, especially when good counseling had been given preinsertion. This may also be due to the fact that the relatively most common side effect, being menstrual irregularities, usually remits within 6 months or with the use of medications.<sup>[27,28]</sup> Moreover, the most common side effects are experienced in all progestogen-only contraceptives.<sup>[29,30]</sup>

During the study period, 96 (35.6%) of the clients did not return for any follow-up visit. There was no way of confirming whether these clients had side effects/discontinued the method or not. This is a constraint of this study.

Only one woman was confirmed pregnant during the study period after 1 year 7 months of using Jadelle implant. This was a true failure as a pregnancy occurred remote from insertion and was confirmed by a blood pregnancy test. The Pearl index was 0.074, which shows high contraceptive effectiveness.

## CONCLUSION

Jadelle is a highly effective, safe, and reversible method of contraception. The most commonly reported side effect was menstrual irregularities, which was also the most common reason for discontinuation in the UCTH, Calabar, Nigeria. We recommend intensifying counseling and follow-up process by collecting clients' phone numbers and ensuring correct residential addresses during insertion. These measures will improve the return for follow-up and enable clients to be reached out to when the due follow-up period elapses.

Good preinsertion counseling and follow-up of the clients postinsertion will help in meeting the contraceptive needs of these women, which will ultimately help in reducing the maternal mortality ratio.

## Financial support and sponsorship

Nil.

## Conflicts of interest

There are no conflicts of interest.

## REFERENCES

- Canning D, Schultz TP. The economic consequences of reproductive health and family planning. *Lancet* 2012;380:165-71.
- Schultz TP, Shareen J. Family planning and women's and children's health: Consequences of an outreach program in Matlab, Bangladesh. *Demography* 2013;50:149-80.
- CEPAL – MDG Goals, Targets and Indicators. Available from: <https://www.cepal.org/ci-bin/getprod>. [Last accessed on 2019 Jan 15].
- Oleribe OO, Taylor-Robinson SD. Before sustainable development goals (SDG): Why Nigeria failed to achieve the millennium development goals (MDG). *Pan Afr Med J* 2016;24:156.
- Sustainable Development Goals. Available from: <https://sustainabledevelopment.un.org>sdg>. [Last accessed on 2019 Jan 15].
- Laphikanont W, Taneapanichskul S. Effects of Jadelle used in Thai women aged between 20 and 45 years in King Chulalongkorn Memorial Hospital. *J Med Assoc Thai* 2006;89:761-6.
- Ramchandran D, Upadhyay U. D. Implants. The Next Generation Report Series, No. 7. Baltimore: Info Project John Hopkins Bloomberg School of Public Health; 2007.
- Inyang-Etoh EC, Akpan AS. Side effect profile of Jadelle implant in Nigerian women during the first 12 months of usage. *Int J Reprod Contracept Obstet Gynecol* 2016;5:1461-6.
- Oranu EO, Ojule JD. A decade of Jadelle subdermal implant in a tertiary health institution in Port Harcourt, Southern Nigeria. *JBM* 2018;6:123-30.
- Abasiattai AM, Utuk NM, Inyang-Etoh EC. Subdermal contraceptive implants: Profile of acceptors in a tertiary hospital in Southern Nigeria. *Int J Gynaecol Obstet Neonatal Care* 2014;1:9-13.
- Eke AC, Alabi-Isama L. Long-acting reversible contraception (LARC) use among adolescent females in secondary institutions in Nnewi, Nigeria. *J Obstet Gynaecol* 2011;31:164-8.
- Bayer New Zealand Limited. Jadelle Medsafe Medicare Safety Data Sheet. Available from: <http://www.medsafe.govt.nz>. [Last accessed on 2010 Sep].
- Sivin I, Nah H, Waldman S. Jadelle Levonorgestrel Rod Implants: A Summary of Scientific Data and Lessons Learnt from Programmatic Experiences. New York: Production Council; 2002. Available from: <http://www.popcouncil.org/pdfs/Jadelle-monograph.pdf>. [Last accessed on 2010 Sep].
- Casey PM, Long ME, Marnach MI, Bury JE. Bleeding related to etonogestrel Subdermal implant in a U.S. population. *Contraception* 2011;83:426-30.
- Pam VC, Mutihir JT, Nyango DD, Shambe J, Egbodo CO, Karshima JA. Sociodemographic profiles and use-dynamics of Jadelle (Levonorgestrel) implants in Jos, Nigeria. *NMJ* 2016;57:314-18.
- Adeyemi AS, Owonikoko KM, Adekanle DA, Aworinde O. Subdermal contraceptive implants: Experience at a tertiary health institution in South-Western Nigeria. *Sahel Med J* 2018;21:137-40.
- Madugu NH, Abdu MA, Bawa U, Kalawole B. Uptake of hormonal implant contraceptives in Zaria, Northern Nigeria. *Open J Obstet Gynaecol* 2015;5:268-73.
- Abiodun OM, Balogun OR. Sexual activity and contraceptive use among young female students of tertiary educational institutions in Ilorin, Nigeria. *Contraception* 2009;79:146-9.
- Monjok E, Smesny A, Ekabua JE. Contraceptive practices in Nigeria: Literature review and recommendation for future policy decisions. *Open Access Contraception* 2009;79:146-9.
- Guazzelli CA, de Queiroz FT, Barbieri M, Torloni MR, de Araujo FF. Etonogestrel implant in adolescents: Evaluation of clinical aspects. *Contraception* 2011;83:336-9.
- Mestad R, Secura G, Allsworth JE, Madden T, Zhao Q, Peipert JF. Acceptance of long-acting reversible contraceptive methods by adolescent participants in the contraceptive CHOICE project. *Contraception* 2011;84:493-8.
- Lewis LN, Doherty DA, Hickey M, Skinner SR. Implanon as a contraceptive choice for teenage mothers: A comparison of contraceptive choices, acceptability and repeat pregnancy. *Contraception* 2010;81:421-6.
- Ankomah A, Anyanti J, Oladosu M. Myths, misinformation and communication about family planning and contraceptive use in Nigeria. *Open Assess J Contracept* 2011;2:95-105.
- Palamuleni ME. Socio-economic and demographic factors affecting contraceptive use in Malawi. *Afr J Reprod Health* 2013;17:91-104.
- Marrone G, Abdul-Rahman L, De Coninck Z, Johansson A. Predictors of contraceptive use among female adolescents in Ghana. *Afr J Reprod Health* 2014;18:102-9.
- National Population Commission (NPC) and ICF Macro. Nigeria Demographic Health Survey 2008: Key Findings. Vol. 11. Calverton, Maryland, USA: NPC and ICF Macro; 2009. p. 63-86.
- Friedlander E. Therapeutic options to unscheduled vaginal bleeding associated with long-acting reversible contraception. *Obstet Gynaecol Clin North Am* 2015;42:593-603.
- Hou MM, McNicholas C, Creinin MD. Combined oral contraceptive treatment for bleeding complaints with etonogestrel contraceptive implant: A randomized control trial. *Eur J Contracept Reprod Healthc* 2016;21:361-6.
- Akadri AA, Odelola OI. Progestogen – Only injectable contraceptive: Acceptor prevalence and client experience at Sagamu, Nigeria. *Niger Postgrad Med J* 2017;24:178-81.
- Adeyemi AS, Adekanle DA. Progestogen-only injectable contraceptive: Experience of women in Osogbo, Southwestern Nigeria. *Ann Afr Med* 2012;11:27-31.