

Discontinuation Patterns Among Women Using Jadelle Contraceptive Devices in a Tertiary Hospital in South-South Nigeria

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Abstract: *Introduction:* The Jadelle subdermal contraceptive implant is a widely used hormonal contraceptive consisting of two rods, each consisting of a Levonorgestrel-releasing core encased in thin-walled silicon-rubber tubing. Our study examined the prevalence and discontinuation patterns of Jadelle among women in a Southern Nigerian Hospital. *Materials and Methods:* A review of the discontinuation patterns among Jadelle contraceptive device users in the University of Uyo Teaching Hospital over 3 years was carried out. The Case files of all clients who used Jadelle implant over the period were retrieved and analyzed. *Results:* Out of 2,980 clients using different contraceptive methods during the study period, 231 clients (7.8%) used the Jadelle implant. Of the 198 (85.7%) case notes available, most (52%) of them were aged 30-34 years, had attained a tertiary level of education (50.4%), and were grand-multiparous (50%). Fifty-six (56.6%) percent of clients used Jadelle for birth spacing while 44.5% used it for limiting family sizes. The most common menstrual pattern at 24 months follow-up was Amenorrhea (50%). Sixty clients (30.3%) discontinued the method for reasons which include the desire for pregnancy (48.3%), side effects (25%), change of method (11.5%), and husbands' view (5%). Discontinuation was more among the younger clients less than 36 years (86.7%). *Conclusion:* The Jadelle contraceptive device is associated with a number of side effects, however, the major reason for discontinuation was the desire for pregnancy, followed by the complications arising from Jadelle use. There is a need for more detailed client and spousal counseling, especially on the side effects of Jadelle to reduce discontinuation due to them.

Keywords: Contraception, Family Planning, Jadelle, Side Effects, Discontinuation

1. Introduction

The clear evidence that contraception poses fewer risks than pregnancy has resulted in an ever-increasing variety of effective methods for fertility regulation despite the side effects. [1] Recent advances with improved efficacy in contraceptive methods have led to a reduction in unwanted pregnancies, high parity, maternal morbidity and mortality. Previous studies in our environment showed subdermal implants and Barriers were the most preferred contraceptive

method among family planning clinic attendants and secondary school students respectively. [2, 3] Norplant, a first-generation subdermal implant showed that subdermal implants are a very effective long-term reversible method of contraception that may be difficult to remove, hence newer systems consisting of fewer rods that required less traumatic insertion and renewal techniques were developed. [4, 5]

The Jadelle contraceptive device is one of the most widely used hormonal contraceptives in the world today. [6] It is a system that is made up of two implantable 43mm rods, each consisting of a drug-releasing core encased in thin-walled

silicone rubber tubing seated at both ends, each consisting of 75mg Levonorgestrel with a calculated mean daily in-vivo release rate of about 100ug/day in first month followed by a decline to about 40ug/day at 12months, then to about 30ug/day at 24months before stabilization thereafter at about 30ug/day. [7, 8] Peak Levonorgestrel concentrations are attained in about 2 to 3 days following Jadelle implant placement, after which the mean concentrations decline progressively to stabilize in the last 3 years of use. [9]

The Jadelle contraceptive device has 2 main mechanisms of action, which include inhibition of ovulation by action on the hypothalamus and pituitary to suppress or reduce the surge of Luteinizing Hormone (LH) that triggers ovulation, and the production of viscous cervical mucus that impairs sperm penetration. [9-12] Other mechanisms of action include the suppression of endometrial function, interference with the implantation of the fertilized ovum, and reduction of the natural production of progesterone by the ovary during the Luteal Phase. [13] Jadelle implants are a long-term (up to 5 years) reversible method of contraception. Both implants are removed at the end of the fifth year through a minor surgical procedure and a new implant may be inserted at the same time if the client desires to continue contraceptive protection. [11, 13]

Jadelle contraceptive device is associated with a number of side effects. These include irregular menstrual bleeding, intermenstrual spotting, heavy menstrual bleeding, and amenorrhea. Other side effects include nausea, vomiting, breast tenderness, and weight and mood change. [14]

Despite the acceptance of the Jadelle contraceptive device among family planning clients, discontinuation of the method had been observed. The reasons why some women discontinue Jadelle use had never been studied among its acceptors at the University of Uyo Teaching Hospital, and these informed the need for this study.

2. Material and Methods

2.1. Study Area

The Family Planning Clinic in the University of Uyo Teaching Hospital is managed by a dedicated nursing team and a resident Doctor under the supervision of a Consultant. It operates all weekdays and attends to all women who either present voluntarily or are referred from the postnatal clinic and other health centers. After general counseling on the various methods of contraception available, the clients are allowed to make informed choices. They are then offered method-specific counseling and assessed for their eligibility for their method of choice and advised accordingly. Every woman on contraception is followed up in this clinic.

2.2. Data Collection and Analysis

This was a retrospective study of clients who used Jadelle implants at the family planning unit of the University of Uyo Teaching Hospital Uyo, Nigeria over 3 years (1st of January 2017 to 31st of December 2019). The primary source of data

was the family planning clinic attendance register of the unit at the University of Uyo Teaching Hospital. The record cards were retrieved using clients' registration numbers from the family planning unit of the Hospital for a detailed study. Information extracted from the register includes but is not limited to the date of presentation, clients' age, Educational status, Parity, occupation, marital status, the previous contraceptive method used, the reason for choosing Jadelle, and side effects and reason for discontinuation.

The data obtained were entered into an Excel spreadsheet and analyzed with the STATA pack version 12. Continuous data were summarized using measures of central tendency and measures of dispersion, categorical variable was summarized using frequency proportions. Results were presented using tables and charts.

2.3. Limitations of the Study

The research is a product of secondary data analysis and human errors of transfers are not impossible.

3. Results

During the 3-year period, 2980 clients were using different methods of contraception in the family planning unit of the University of Uyo Teaching Hospital. 231 (7.8%) clients used Jadelle as a form of long-acting contraception. However only 198 case files were available from the medical records and were analyzed.

The sociodemographic characteristics of the Jadelle users are shown in Table 1. Most Jadelle users were between the ages of 30-34 years (52%), married (82.3%), completed tertiary education (50.4%), and were civil servants (41.9%). While 50 clients (25.3%) were grand multiparous, only 2 (1.0%) were nulliparous. The most common contraceptive method used before Jadelle insertion was the intrauterine contraceptive device (24.7%). (Table 2) There were no complications with the insertion procedure and no pregnancy occurred in users during the study period.

One hundred and twelve (56.6%) clients used Jadelle for birth spacing, while eighty (40.4%) used it to limit family size. Six (3%) were uncertain as to why they were using the method (Table 3). Out of 198 patients on Jadelle contraceptive, 78 (39.4%) had side effects while 120 (60.6%) had none.

The common side effects were menstrual irregularities, amenorrhea, heavy menstrual bleeding, and hypomenorrhea. (Table 4).

Sixty (30.3%) clients discontinued the method during the period of study. Common reasons for discontinuation were desire for another pregnancy (48.3%), side effects (25.0%), change of method (11.7%), and husband's view (5.0%) among others. The reasons for discontinuing Jadelle varied significantly within the age of the clients. Fifty-two (86.7%) women who discontinued were less than 36 years, had at least secondary educational status (>80%), 2 or more living children (55% of clients), and were Christians (91.7%) (Table 5).

Table 1. Sociodemographic Characteristics of Jadelle Users.

| Variables | Frequency | Percentage |
|-------------------|-----------|------------|
| Age (Years) | N = 198 | 100% |
| < 25 | 6 | 3.0% |
| 25-29 | 20 | 10.1% |
| 30-34 | 103 | 52.0% |
| 35-39 | 55 | 27.8% |
| ≥ 40 | 14 | 7.1% |
| PARITY | | |
| 0 | 2 | 1.0% |
| 1 | 4 | 2.0% |
| 2 | 30 | 15.1% |
| 3 | 60 | 30.3% |
| 4 | 52 | 26.3% |
| ≥ 5 | 50 | 25.3% |
| EDUCATIONAL LEVEL | | |
| None | 4 | 2.0% |
| Primary | 15 | 7.6 |
| Secondary | 79 | 40.0% |
| Tertiary | 100 | 50.4% |
| MARITAL | | |
| Single | 10 | 5.1% |
| Married | 163 | 3% |
| Widow/divorced | 25 | 12.6% |
| Total | 198 | 100% |
| OCCUPATION | | |
| Housewife | 30 | 15.2% |
| Trader | 50 | 25.3% |
| Civil servants | 83 | 41.9% |
| Others | 35 | 17.6% |
| TOTAL | 198 | 100% |

Table 2. Previous Methods of Contraception (Most Recent Contraception Used).

| | | |
|----------|-----|-------|
| None | 19 | 9.6% |
| Condom | 22 | 11.1% |
| COC | 32 | 16.2% |
| DMPA | 40 | 20.2% |
| Implanon | 36 | 18.2% |
| IUCD | 49 | 24.7% |
| TOTAL | 198 | 100% |

Table 3. Indications for use of Jadelle (Reasons of Jadelle Usage).

| | | |
|-------------------------|-----|-------|
| Child spacing | 112 | 56.6% |
| Permanent contraception | 80 | 40.4% |
| Uncertain | 6 | 3.0% |
| TOTAL | 198 | 100% |

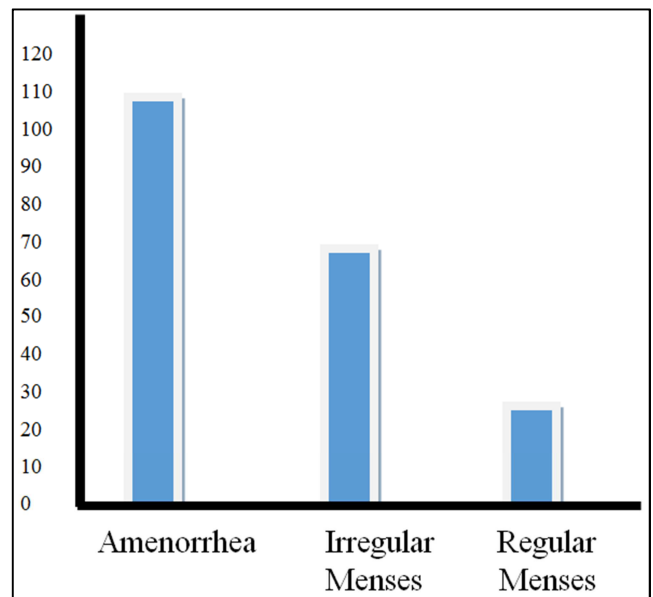
Table 4. Side Effects from Jadelle contraceptive device use.

| Side Effects | Yes | No | 100% (Yes) |
|--------------------|-----|-----|------------|
| Alopecia | 6 | 192 | 3.0% |
| Irregular bleeding | 62 | 136 | 31.3% |
| Heavy bleeding | 37 | 161 | 18.7% |
| Light bleeding | 24 | 174 | 12.1% |
| Headache | 15 | 183 | 7.6% |
| Breast tenderness | 4 | 183 | 2.0% |
| Chloasma | 6 | 192 | 3.0% |
| Acne | 7 | 191 | 3.5% |

Table 5. Discontinuation from Jadelle contraceptive device use (N=60).

| Reasons for Discontinuation | Frequency | Percentage |
|-----------------------------------|------------|------------|
| Desires pregnancy | 29 | 48.3% |
| Side effects | 15 | 25.0% |
| Husband's view | 3 | 5.0% |
| Menopause | 2 | 3.3% |
| No reason | 4 | 6.7% |
| Change of method | 7 | 11.7% |
| Total | 60 (30.3%) | 100% |
| Age of discontinuation of Jadelle | | |
| ≥ 36 | 8 | 13.3% |
| ≤ 35 | 52 | 86.7% |
| TOTAL | 60 | 100% |
| Educational Status | | |
| None | 3 | 5% |
| Primary | 8 | 13.3% |
| Secondary | 25 | 41.7% |
| Tertiary | 24 | 40.0% |
| Total | 60 | 100% |
| Number of Living Children | | |
| None | 1 | 1.7% |
| 1-2 | 26 | 43.3% |
| ≥ 3 | 33 | 55.0% |
| Total | 60 | 100% |
| Religion | | |
| Christian | 55 | 91.7% |
| Muslim | 36 | 5.0% |
| Others | 2 | 13.3% |
| TOTAL | 60 | 100% |

The most common bleeding pattern at twelve months was amenorrhea (54.6%) followed by an irregular menstrual cycle and a regular bleeding pattern. (Figure 1) At twenty-four months however, the commonest bleeding patterns were amenorrhea (50%) followed by irregular menstrual cycles (39.4%), and a regular menstrual cycle (10.6%). Others are heavy bleeding (18.7%), and spotting (12.1%) at twenty-four months.

**Figure 1.** Menstrual Pattern of Jadelle users at 1-year follow-up.

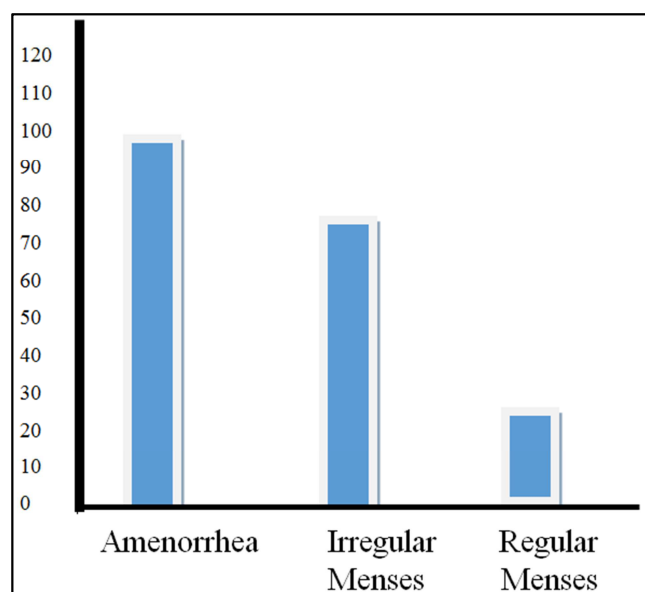


Figure 2. Menstrual Pattern of Jadelle users at 2 years follow-up.

4. Discussion

Levonorgestrel-releasing contraceptive implants offer promising opportunities for addressing the high and growing unmet need for modern contraceptives in sub-Saharan Africa. [8] It has a recorded history of successful use by more than 200,000 women in 30 countries. [12, 13] With a rate of just one unintended pregnancy per 2000 women, implants are more effective than any other reversible method, including the intrauterine device, 120 times more effective than the injectable, 180 times more effective than the pill, and 360 times more effective than the condom. [14, 15] The acceptance rate of this device in this study was 7.8% among our clients. This is in contrast with a rate of 0.95% in Port Harcourt, Nigeria, but close to the rate of 7% from another study in Zaria. [16, 17] A study among young Kenyan women aged 18–24 seeking family planning found that 24% selected the method, while another in Gambia had a Jadelle choice rate of 19.19%. [18, 19] The preference rate in the University of Uyo Teaching Hospital in an earlier study was 16.84%. [20] The differences in Acceptance/preference rates among family planning clinic attendants may be a factor of varying sociodemographic and obstetric characteristics as well as methods availability. The majority of our clients were aged 30–34 years and only 3.0% were less than 25 years, and this is similar to the study in Port Harcourt where the mean age was 33.1 years, and 29.5 years in the Gambia, [16, 19] but contrasts with another study. [18] The Parity distribution in our study showed that 51.6% of the clients who used Jadelle had 4 or more children and this was similar to a previous study in Port Harcourt Nigeria and in the Gambia. [16, 19] The modal age group of Jadelle clients was similar to a previous study in the same facility but higher than that of a Kenyan study. [18, 20]

That over half of the women who chose Jadelle in our facility had completed tertiary education was also similar to

previous studies which showed that this mode of contraceptive was used more by educated women. [15, 17] It is probable that career pursuit and knowledge may account for such differences and preferences. There was a predominance of Christians in the study as a result of the religious background of the population studied as was found in earlier studies. [20, 21] In the Northern part of the country, studies with Jadelle contraceptive devices have shown a similar trend where the population is predominantly Muslim. [17] The majority were married (82.5%) which was similar to earlier studies. [16–19]

Apart from menstrual disturbances, the most frequently mentioned side effects of the Jadelle implantable contraceptive device were headache, acne, dizziness, and mood changes which, included nervousness and depression; breast tenderness, nausea, lower abdominal pain, hair loss, loss of libido and pain at the implant site. [22–25] Acne was reported by 3.5% of the users in the present study. A study on Jadelle side effects among Thai women reported that 11.9% had acne. [7] About 56.6% of the clients desired future childbearing while 3% were not certain of why they wanted to use Jadelle. This is a reflection of the desire for large family size in developing countries and it is similar to findings in previous studies. [17, 20]

While 30.3% of our clients discontinued Jadelle for various reasons, others were either treated or reassured. Discontinuation of Jadelle as shown in this study may be due to several reasons. The discontinuation rate in the study was different from an earlier study in Uyo [20] but similar to that of the study in Zaria. [17] However, there were differences in the reasons for discontinuation. Although generally side effects and health concerns are the main reason why women discontinue hormonal contraceptive methods, [26] in this study, the main reason for discontinuation of the Jadelle method was the desire to get pregnant as was found in a similar population in the Jos University Teaching Hospital, [21] but was unlike the Zaria study where the major reason for discontinuation was menstrual irregularities. [17] Menstrual abnormality was however the second most common reason for discontinuation in our study. The population in Zaria is predominantly Muslim and women practicing Islam are not allowed to pray while menstruating hence, the high discontinuation rate. [17] In this study, Jadelle's side effects accounted for 25% of the clients who discontinued but this was unlike findings from the Port Harcourt study where there was no discontinuation. [16] The reasons for discontinuation of the Jadelle contraceptive device varied significantly with the age of the client, educational status, number of living children, husband's view, and religion which may have accounted for variation among the studied population. The knowledge attitude and practice indeed bear similarities to previous studies. [21, 27]

5. Conclusion

The Jadelle contraceptive device is a very effective contraceptive method mostly adopted and used by young,

educated and parous women. It is associated with a number of side effects, however, the major reasons for discontinuation from this study were the desire for pregnancy and complications arising from its use. There is a need for adequate clients and spousal information on Jadelle as this may reduce discontinuation due to side effects and the husband's view.

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