

Evaluation of 68 mg Etonogestrel Subdermal Implant Uptake in a Tertiary Hospital in Nigeria: A 5-Year Retrospective Review

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Abstract

Introduction: Family planning is one of the pillars of the Safe Motherhood Initiative which is aimed at reducing unwanted pregnancy and maternal death. **Objective:** To evaluate the uptake, efficacy, and safety profile of 68 mg etonogestrel subdermal implant in Alex Ekwueme Federal University Teaching Hospital Abakaliki (AEFUTHA), Ebonyi State. **Materials and Methods:** A 5-year retrospective descriptive analysis was carried out on 68 mg etonogestrel subdermal implant uptake among family planning attendees in AEFUTHA. The medical records of the clients that had 68 mg etonogestrel subdermal implant insertion were studied. Socio-demographic characteristics, side effects, discontinuation, and reasons for discontinuation were extracted and analyzed. Analysis was done with SPSS version 20. Data obtained were represented using frequency tables and pie chart. **Results:** During the study period, 2538 women accepted various methods of contraception, 14.3% (364) of the women used Implanon. The mean age of 68 mg etonogestrel subdermal implant users was 30.7 ± 13.4 years with a range of 20 - 44. Multiparous clients constituted 54.5%. The majority (55.2%) had secondary education as their highest level of education. Less than 20% of the acceptors had side effects, the commonest 24 (42.9%) being prolonged menstrual flow and followed by irregular menstrual flow 18 (32.1%). Discontinuation rate was 17.9%; desire to conceive. 40 (61.5%) was the commonest reason for discontinuation. Only one (0.3%) acceptor reported serious itching at the site of insertion. None of the women reported pregnancy during the period of use (Pearl Index = 0).

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Conclusion: The acceptance rate of 68 mg etonogestrel subdermal implant among the women is low, however, it is found to be effective with good continuation rate in the center. Efforts should be made to increase its uptake so as to prevent unwanted pregnancy and associated sequelae.

Keywords

Implanon, Sub-Dermal Implant, Contraception, Abakaliki, Nigeria

1. Introduction

The use of contraceptives is very low in the developing world. It has been estimated that about 220 million women in developing countries who are desirous of using any form of modern contraception are not using any method [1]. Satisfying this unmet need for contraception could help a woman to space and limit her family size. It will indirectly help reduce more than 100,000 maternal deaths each year [2]. The use of a more effective form of contraceptive such as Implanon in sub-Saharan has been estimated to prevent more than 1.8 million unintended pregnancies in 5 years, resulting in almost 600,000 fewer abortions and 10,000 fewer maternal deaths [1].

Implanon is a proven safe and effective contraceptive method with a range of health benefits, which has been documented by research. Several studies reported no pregnancies among users of Implanon over the period of study, and a Pearl Index of 0.0 [3]-[9]. In eleven (11) international clinical trials of 942 women using etonogestrel implants, no pregnancies occurred over 2 - 3 years [8]. Aisien and Enosolease [4] in Benin city reported an efficacy of 100% in their study.

The acceptance of Implanon varies from country to country and this may be influenced by age, literacy level, cost and awareness. In Malaysia, Implanon is well accepted by women as an effective contraceptive method [10]. Mastor *et al.* [10], followed up 140 Malaysian women using Implanon, and revealed that all users chose Implanon because user compliance was not required, and 72.1% believed the Implanon to be cost-effective in the long term. In the United Kingdom, Monga and Dobbs [11] reported that 2% of contraceptive users used Implanon. In Ethiopia, a study done to assess the unmet need for contraception after community education, showed that a high proportion (90.7% to 99.8%) of women are using Implanon, mostly young and educated [12].

The acceptance rate of Implanon in the various regions in Nigeria varies widely and this may be influenced by ethnic and sociocultural factors, marital status, parity, literacy level and awareness. In Sokoto, Northwest Nigeria, a prospective study that Implanon was the predominant method of contraceptive chosen by new clients (55.8%) and most of the clients were within 21 - 30 age range [13]. In Zaria, north central Nigeria, Madugu *et al.*, [7] in a cross-sectional retrospective study found that 1.1% of the clients accepted Implanon as a contraceptive method, while Mutahir and Nyango [8] in Jos in a retrospective observational study found that

the acceptance rate of Implanon was 13.4%. In South South Nigeria, Abasiattai *et al.* [3] in Uyo reported an acceptance rate of 9.6%, while Ojule *et al.* [9] in Port Harcourt noted Implanon acceptance rate of 4.1%, with 96.4% of the acceptors married and multiparous. In Southwest Nigeria, Balogun *et al.* [5] in Ilorin reported 3.6% of women are using etonogestrel subdermal implant. In Southeast Nigeria, Okafor [14] in a study to assess the uptake of LARC methods in Enugu reported a high uptake of long acting reversible contraceptive (90.12%), with Implanon acceptance rate of 26.77%.

Many factors have been linked to the discontinuation of Implanon in women, including desire for pregnancy, intolerable side effects and husband disapproval. Implanon discontinuation rates within the first one year of use is about 2% in Nigeria unlike in United Kingdom, Malaysia, Australia and Egypt where the rate was 23% [15]. The discontinuation of Implanon is often not related to age, ethnicity, parity, educational level, or socioeconomic factors [11] [15]. In Türkiye, Duvan *et al.* [16] in a study reported Implanon discontinuation rate of 23% and 40% at 1 year and 2 years respectively which is in tandem with earlier findings in United Kingdom and Europe. In Northern Ethiopia, Birhane, Hagos, and Fantahun, [15] reported discontinuation rate of 16% mainly on health concerns thus highlighting the importance of proper health review before insertion. Various studies in Nigeria reported a discontinuation rate ranging from 19% to 26.1% [5]-[7]. Muthir and Nyango [8] in a retrospective observational study reported that the most common indications for discontinuation of Implanon were menstrual disorders (33.3%), and others include: desire for another pregnancy (30%), and weight gain (13.3%). Menstrual abnormalities remain the most common side effect that prompt women to discontinue with Implanon use, [6]-[8] [16] though a significant proportion of Implanon acceptors discontinue with its use due to desire to get pregnant [5] [15]. In a significant number of women, myths, religious and husband interferences have been identified as reasons for discontinuation of use of contraceptives [17].

Implanon subdermal implant use is associated with side effects ranging abnormal uterine vaginal bleeding to non-menstrual side effects such as weight gain, headache, mood changes, breast pain, acne, vaginitis and pain at the insertion site [3] [5] [8] [9]. The most common side effect of Implanon implant is menstrual disturbances [3]-[5] [7] [8] [10] [15]. This finding is also consistent with the outcome of studies conducted in Egypt, Thailand and Malaysia [10]. The complications associated with the insertion and removal of Implanon rods include reaction to local anaesthetic, allergic reaction, bruising, haematoma, hypertrophic scar, keloid, infection, expulsion of the implant, haemorrhage, superficial phlebitis and nonpalpable implants [18]. With good insertion and removal technique, adequate training and experience for clinicians, the incidence of complicated Implanon insertion and removal can be markedly reduced [18].

Counselling the clients about the management of side effects, therefore, is a pivotal and principal approach advocated for increasing the overall acceptance and continuation of Implanon in the acceptors. The aim of this study is to evaluate

our experience with the use of Implanon over the last five years at the Alex Ekwueme Federal University Teaching Hospital Abakaliki. It will also assist in determining the acceptance rate of Implanon, discontinuation rate, reasons for its discontinuation and the side effects of Implanon use among the women.

2. Materials and Methods

This is a 5-year retrospective study (2012-2016) on Implanon use at the Obstetrics and Gynaecology department of AEFUTA. The hospital is a tertiary institution that offers care to women within Ebonyi State and its environs. Ebonyi State is one of the states in the Southeast geopolitical zone of Nigeria. It has 13 local government areas with an estimated population of over 2.17 million people with a land mass of about 5935 sqkm. It has a border in the East with Cross Rivers State, in the West with Enugu State, in the North with Benue State and South with Abia State (Geography of Ebonyi State Nigeria, 2013).

The Department of Obstetrics and Gynaecology has five units with each unit sub grouped into 2. These units are supervised by at least two consultants. Both the antenatal and gynaecologic clinics are held on the same day by each unit. The Clinics span from Monday to Friday. Some patients come to the hospital on their own while majority are referred from maternities, mission hospitals, state general hospitals, neighboring state and private clinics. Clients for family planning are referred from the postnatal, gynaecological and the general outpatient department. Other sources of client include referral from the specialist clinics, the primary, secondary, and private health centers in the state.

2.1. Inclusion and Exclusion Criteria

The women included in the study were those that accessed family planning care in our center during the period under review (2012-2016) and were offered etonogestrel subdermal implant (Implanon). Women excluded were those that had other methods of family planning.

2.2. Data Collation and Analysis

Data of patients who used Implanon subdermal implants were collated from the family planning unit registers. These folder numbers were used to retrieve the case files from the medical records department. Pre-designed proforma was used to extract information on the socio-demographic and obstetrics characteristics of the women. Acceptance, discontinuation and the reasons for discontinuation, side effects, complications of Implanon insertion and removal were obtained. Data analysis was done using SPSS version 20. The results were expressed as frequency tables and charts.

3. Results

Figure 1 shows that out of the 364 Implanon users within the period, only 1 (0.3%) reported a complication of itching at the site of insertion. The majority of the

women had no complication.

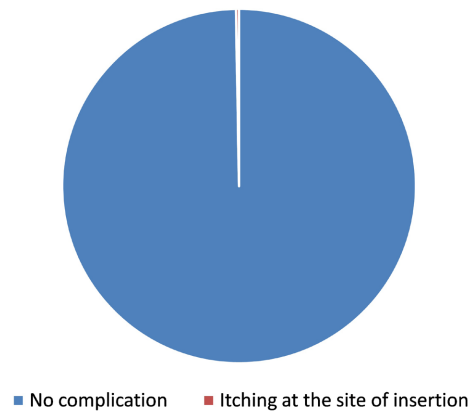


Figure 1. Complication of Implanon insertion.

During the study period, 2538 clients accepted contraceptive methods, of these, 364 clients used Implanon (14.3% acceptance rate) - not in the table. From **Table 1**, the mean age of Implanon acceptors was 30.7 ± 13.4 years. Multiparous clients constituted 54.5%. Three hundred and fifty-one of users, representing 96.4% have at least a secondary education; Christians constituted 99.5% of users. Civil servants were the single majority (37.9%) of Implanon users in the center and were followed by students (12.9%).

Table 1. Social and demographic characteristics of women using Implanon in AEFUTHA, 2014-2018.

Characteristics	Frequency (n) N = 364	Percentage (%)
Age (years)		
20 - 24	32	8.8
25 - 29	119	32.7
30 - 34	140	38.5
35 - 39	50	13.7
≥40	23	6.3
Parity		
Nulliparous	14	3.9
Primiparous	36	9.9
Multiparous	202	54.5
Grandmultiparous	112	30.8
Marital status		
Married	358	98.4
Single	5	1.4
Widow	1	0.3

Continued

Religion		
Christian	362	99.5
Muslim	1	0.3
African Traditional Religion	1	0.3
Occupation		
Farmers	17	4.7
Traders	89	24.5
Civil Servants	138	37.9
Students	47	12.9
Housewife	27	7.4
Others	46	12.5
Education		
No formal education	5	1.4
Primary	8	2.2
Secondary	201	55.2
Tertiary	150	41.2
Others	0	0.0

Table 2 shows a notable increase in the number of Implanon users from 24 (4.7% of total contraceptive acceptors) in the first year to 142 (22.9% of total contraceptive acceptors) in the fifth year.

Table 2. Distribution of contraceptive acceptors and Implanon users among the study population

Year	Contraceptive acceptors	Number of Implanon users
Jan-December 2012	514	24
Jan-December 2013	486	68
Jan-December 2014	458	56
Jan-December 2015	461	74
Jan-December 2016	619	142
Total	2538	364

Majority of the women got their information about Implanon from hospitals staff 124 (34.07). More than one-fourth of the women acquire their information about Implanon from schools (96, 26.37%) while information from Peers accounted for 25.6% of such awareness of Implanon (**Table 3**).

From **Table 4**, 65 out of the 364 users (17.9%) discontinued the Implanon during the study period. Desire for pregnancy 40 (61.5%) and husband wish 11 (16.9%) were the commonest indication for its removal. Women's wish for Implanon removal accounted for 9.2% of Implanon removal during the period under review (**Table 4**).

Table 3. Sources of contraceptive (Implanon) information.

Source of information on Implanon	Number	Percentage
Clinic personnel/hospital	127	34.9
Schools	96	26.4
Peers	93	25.6
Religious institutions	7	1.9
Posters/Books	2	0.6
Social Media	32	8.8
Radio/Television	7	1.9

Table 4. Indications for removal of Implanon.

Indications for removal	Frequency	Percentage
Desire another pregnancy	40	61.5
Husband's disapproval	11	16.9
Client's wish	6	9.2
Prolonged menstrual flow	3	4.6
Irregular flow	2	3.1
Heavy flow	2	3.1
Husband's death	1	1.5
Total	65	100.0

From **Table 5**, 56 of the users representing 15.4% reported side effects following administration of Implanon. Prolonged menstrual flow 24 (42.9%) was the commonest complication reported which was followed by irregular menstrual flow 18 (32.1%). Weight gain was reported by 5 (8.9%) women while 2 (3.6%) women complained of headache.

Table 5. Side effects of Implanon among users.

Side Effects	Frequency	Percentage
Prolonged flow	24	42.9
Irregular flow	18	32.1
Heavy flow	5	8.9
Weight gain	5	8.9
Headache	2	3.6
Nausea	2	3.6
Total	56	100

4. Discussion

Our study shows that 14.3% of our study population were using Implanon. This is markedly high compared to the low acceptance rates of Implanon in previous

studies [3] [5] [7]-[9] [11]. It is however, lower than the 26.77% reported in an earlier study done in Enugu, South-East Nigeria [14]. The finding from this study showed a steady increase in acceptance rate of Implanon. Increasing in awareness and its efficacy might be an explainable reason for our finding. Other adducible reasons include favourable dosing schedule, and ease of reversibility associated with Implanon. The higher acceptance rate reported in Enugu may not be unconnected with the fact that Implanon was provided at no cost to clients there, unlike in our facility where users must purchase the method and also pay charges for insertion.

Our review shows increase uptake of Implanon in the first two years, as well as the last two years. A slight decline of Implanon uptake occurred in the third year of the study. Even though it might be difficult to explain, the multiple tertiary health workers related industrial action during the year in Nigeria might be an explainable reason. Prior to now, most of the women in the studied population have poor knowledge of contraception. Increased in awareness creation on the use of modern method of contraception such as LARC in the state is a significant contributor to the use of Implanon among our study population.

From our study, the majority of the Implanon users (38.5%) were aged between 30 and 34 years. This age bracket of Implanon usage in our study may be accounted for early marriage among the women and completion of family size and therefore desirous of prevention of unwanted pregnancy. Most of the women were parous, showing that limiting the family size might be the contraceptive drive rather than for permanent contraception. Most of the users had formal education. The educated women are more likely to be aware and accept contraception.

The main source of information about family planning among the women was gotten from hospital consultation which agrees with earlier findings [3] [9]. This may explain the underutilization and low use of modern contraceptive methods in Nigeria. Dissemination of information through mass media will a long way in increasing patronage. The acceptance of hormonal contraceptives is influenced by its side effects profile among other factors. In this study, 15.4% of the users had side effects. This is lower than the 25% reported by Balogun *et al.* in Ilorin [5]. Menstrual irregularities (83.9%) are the commonest side effect noticed among the study population which agrees with various reports [3]-[5] [7] [10] [11].

During the study period, 17.9% of the Implanon inserted was removed giving a continuation of 82.1%. In contrast, this was lower than the continuation rate of 95.5% and 93.8% reported by Mutihir and Nyango, [8] and Aisien and Enosolease, [4] in their studies respectively. Child spacing might account for the observed lower continuation rate of Implanon in this study; hence they tend to discontinue the method when they are ready to continue with child bearing. In our study, the desire to get pregnant (61.5%) is the commonest indication for Implanon removal in keeping with works from Port Harcourt and Ilorin. However, it contrasts with what was found in other centers like Zaria [7], Benin City [4] and Jos [8] where menstrual disturbance was the commonest reason for discontinuation of Im-

planon use. Menstrual abnormalities accounted for 10.8% of the reasons for discontinuation. Balogun *et al.* [5] in Ilorin and Aisien & Enosolease, [4] in Benin City, both in Nigeria, found that menstrual abnormalities were tolerable among subjects with adequate counselling. The lower rate of discontinuation in this study may be a true demonstration of the outcome of counselling sessions embarked before provision of Implanon in the center. The continuation rates for Implanon use as reported by Aisien & Enosolease, [4] were higher among those who had adequate Pre-insertion counselling and had been reported to be effective in reducing discontinuation rate. Thus, improvement in counselling practice will reduce the discontinuation rate among Implanon users.

Severe itching is the site related complication noted in the study. This is in contrast to the findings of Ojule *et al.* [9], Mutihir and Nyango [8] and Balogun *et al.* [5] who reported no insertion complications in their studies. Other complications associated with Implanon insertion and removal include haematoma, hypertrophic scar, keloid, infection, expulsion of the implant, haemorrhage, superficial phlebitis [18]. However, none of these complications were reported in our study; this may be due to the experience gathered from series of training on Implanon insertion and removal by staff of the family planning clinic in our facility.

The Pearl index of Implanon in this study was zero per hundred woman use which highlights the efficacy of Implanon; our review thus supports previous reviews on Implanon use [4]-[6] [9]. However, it contrasts with what was found by Muthir and Nyango [8] where one case of method failure with pregnancy as a result was reported. There was no case of accidental insertion when a user is pregnant. This is in contrast with the finding of Muthir and Nyango [8] where two pregnancies were reported among women using Implanon from accidental insertion of the implant when a woman is pregnant. In this study, the compliance with insertion within 5 days of menstruation and extra caution exercised during client recruitment for insertion by the family planning clinic staff might have accounted for lack of accidental insertion when pregnant in our review.

5. Conclusion

Our study shows increasing uptake of Implanon among the women that assessed family planning in the center. Adequate counselling on what to expect when using this device as well as involving the husbands of the women in need of a contraceptive method will help reduce discontinuation of its use. Increasing availability of Implanon in family planning units nationwide free of charge or at a subsidized rate may increase the number of women who utilize this method of contraception and thereby help reduce the unmet need of contraception.

Ethical Consideration

Ethical approval was obtained from the Ethics committee of AEFUTHA. The ethical approval number is AEFUTHA/REC/VOL1/2017/532. Informed consent was waived by the Institutional Review Board/Ethics Committee due to the nature of

the study.

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Authors' Contributions

CCA & EIO: study design, data collection/analysis, and interpretation of finding and drafting of the manuscript. IHA, OMO, MPO, OSU & LOL: interpretation of findings and drafting of the manuscript. All participated in the review of the final manuscript. All the authors approved the manuscript.

Conflicts of Interest

The authors declare that they have no competing interests. To help reduce bias from the authors, data collection was carried out by trained medical students. The author made equal financial contribution to the overall cost of conducting the study.

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