Title: NORPLANT® as a Contraceptive Device in Enugu, Eastern Nigeria

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Abstract

This paper is an evaluation of acceptability and use experience with the contraceptive device NORPLANT® at the University of Nigeria Teaching Hospital, Enugu, Eastern Nigeria. Over a period of thirty-six months, one hundred and seventy-three women (representing 8 percent of the clinic population), accepted the implant. Use of NORPLANT® was concentrated among high parity women, and the proportions of NORPLANT® users was highest among women age 30-34 years. Comparing NORPLANT® and IUD acceptors, we found NORPLANT® users to be significantly less highly educated: less than one percent of NORPLANT® acceptors had tertiary education compared to 25 percent of new IUD users. The continuation rate with NORPLANT was 89 percent at three years, suggesting this method has potential for improving the low contraceptive prevalence in this region.

Introduction

Contraceptive use in sub-Saharan Africa is low by international standards, and Nigeria has one of the lowest contraceptive prevalence rates in Africa, currently at 6.0 percent (Federal Office of Statistics, 1992). The Nigeria Fertility Survey (1992) reports that only 46 percent of Nigerian women know of a method of family planning. The health hazards associated with high parity are well known. Maternal morbidity and mortality are markedly high in Nigeria (Chukudebelu and Ozumba 1988), and the reproductive health of women can only be enhanced if they are provided opportunity to plan their reproductive lives. Safe provision of a range of different contraceptive methods to the general population is crucial to the enhancement of women’s reproductive and general health. NORPLANT® as a family planning device is relatively new in Nigeria, and was introduced into clinical practice at the University of Nigeria Teaching Hospital (UNTH) Enugu in 1992. The family planning clinic of the hospital has been in operation since 1973, offering the IUD.

*NORPLANT® is the registered trademark of the Population Council for subdermal contraceptive implants.*
depot norethisterone enanthate, oral contraception, vaginal foam, condom, and tubal ligation. We evaluated the acceptability of the NORPLANT\textsuperscript{®} contraceptive device in this community to assess its potential value to couples in the region and country at large.

The UNTH is located in Enugu, the political and population center of the Igbos of Eastern Nigeria. In consonance with its recently promulgated national population policy, the federal government of Nigeria in 1993 designated UNTH as the headquarters for the eastern zone of its tertiary reproductive health center project. The program’s functions are aimed at population activities including fertility, sexually transmitted diseases (STD), acquired immunodeficiency syndrome (AIDS) control, as well as maternal health. The activities of this center cover all of Eastern Nigeria with a population of about 20 million people. The responsibilities of the tertiary center include the training of personnel and supervision of services in the general hospitals and primary health centers within the zone. UNTH is thus well suited for evaluation of NORPLANT’s likely acceptability in the region, and for appropriate dissemination of information and skill regarding NORPLANT\textsuperscript{®}.

**Methodology**

The aim of this study is to describe women who are accepting NORPLANT\textsuperscript{®} as a family planning measure in Enugu, Eastern Nigeria, and to examine how these women differ from others accepting a well-known method, the IUD. A 3 year retrospective cross-sectional review of NORPLANT\textsuperscript{®} acceptors was carried out, spanning the period June 1992 to May
1995 and they were compared to women who chose the intrauterine device (IUD) for family planning during the same period. The IUD was chosen for comparison because it is provider dependent as is NORPLANT® and is the method used by the largest segment of the family planning clinic attendees. It is a well-known method, and therefore does not elicit fears often associated with new products.

At the family planning clinics patients are given a balanced presentation of the different methods of contraception by nurses, in groups. Those who accepted NORPLANT® were then seen by doctors, who asked questions about age, parity, educational status, first informants on NORPLANT®, and primary reason for accepting the implant. Informed consent was obtained from NORPLANT® acceptors, and they were physically examined to rule out medical contraindications before insertion. NORPLANT®, consisting of sets of six levonorgestrel releasing silastic capsules, was inserted by doctors in the upper left arm. Follow up visits were arranged at one, three, and six monthly intervals for the first 12 months, and subsequently every 12 months or if there were any complications. A total of 173 women accepted NORPLANT® during the three year period, while 1298 others chose the intrauterine device. Socio-demographic characteristics of NORPLANT® and IUD acceptors were compared, as well as their sources of information about NORPLANT® and their primary reasons for choosing it. Based on the total 4266 woman-months of use accumulated over three years, complications and discontinuation rates were also obtained and subsequently analyzed.

Statistical methods
All data were analyzed using SAS statistical software version 6.11 (SAS Institute Inc., Cary, NC). The statistical evaluation of categorical data was based on Pearson’s X² test. Continuous and ordinal data were evaluated using t-tests and wilcoxon’s rank sum statistic respectively. Results were presented as the mean (±sd). P-levels <0.05 were considered significant.

Results

Types of contraceptive methods accepted at the clinic and percentage distribution

Table 1 shows the types of contraceptive methods accepted by all clients visiting the family planning clinic of UNTH from June 1992 through May 1995. The IUD was accepted by the largest percentage of women (63%), while oral pill and sterilization by tubal ligation were the least acceptable (1%) each. NORPLANT® was the method of choice for 8 percent of the women.

Age distribution of NORPLANT® and IUD acceptors

The age ranges of both NORPLANT® and IUD acceptors were symmetrical in distribution. (Figure1). The mean age of NORPLANT® acceptors was 33.9 ± 5.0 and that of IUD users 32.5 ± 5.9 years.( P< 0.05). Most notably acceptors of the IUD were more likely to be less than 35 years (62% were <35years; 38% ≥ 35years) while acceptors of
NORPLANT® represented a more balanced distribution of reproductive age of women (51% were < 35 years; 49% ≥ 35 years). (P < 0.05). There were no NORPLANT® users below the age of 20 or above 49 years.

Parity distribution of NORPLANT® and IUD acceptors.

The parity distributions of NORPLANT® and IUD acceptors are shown graphically in Figure 2. The mean parity of NORPLANT® acceptors was 6.4 ± 1.9 and that of IUD users was 5.5 ± 2.8. (P < 0.05). Eighty percent of NORPLANT® acceptors had 5 or more children, while only 67 percent of IUD users were parity 5 and above. Parity 0-2 comprised only 0.7 percent NORPLANT® acceptors, but 11 percent of IUD users. All NORPLANT® acceptors had delivered one or more babies whereas 3 IUD users were nulliparous.

Educational status.

Figure 3 illustrates the disparity in educational status among NORPLANT® and IUD acceptors. Less than 1 percent of NORPLANT® acceptors had tertiary education while 25 percent of IUD users were from this high educational group. Twenty-four percent of NORPLANT® acceptors had no formal education, a proportion similar among IUD acceptors. Likewise forty-one percent of NORPLANT® acceptors, and 40 percent of IUD acceptors had attended the elementary school. There was a disparity among the proportion of NORPLANT® and IUD acceptors with secondary education: 34 percent of
NORPLANT® compared to 11 percent of IUD acceptors. When controlling for age, there remained a significant difference in educational attainment between NORPLANT® and IUD users, with NORPLANT® users having lower educational attainment overall. (p < 0.05). When parity was controlled for, this statistically significant difference in educational status between NORPLANT® and IUD users was sustained (p < 0.05).
Additional Features of NORPLANT® Acceptors

Source of initial information about NORPLANT® amongst acceptors

One hundred and forty three (143) NORPLANT® acceptors responded to question re: from where they first heard of NORPLANT®. Table 2 indicates that nurses were the most significant source of initial information about the device among NORPLANT® acceptors, accounting for 61%. The mass media (comprising print and electronic media) provided information for 12 percent of acceptors. The spouses were informants for 11 percent of the women while doctors provided information for 8 percent others.

Primary reason for accepting NORPLANT®

Eighty-three (83) NORPLANT® acceptors responded to question re: primary reason for choosing NORPLANT® to limit family size. The principal reasons for accepting NORPLANT® as a contraceptive measure are listed in Table 3. Seventy percent of respondents felt that they had achieved their desired family size. Economic considerations were cited by another 21 percent, while declining health was cited as a reason for selecting NORPLANT® among 8 percent of respondents.
Table 4 shows why NORPLANT® had to be discontinued by 12 of 173 acceptors. Abnormality of menstruation was responsible for the highest number of removals (10 of 12). Menorrhagia was the most common complaint (6), followed by irregular menses (3). Amenorrhea, dermatitis at site of insertion and raised blood pressure were each responsible for one removal. The continuation rates of NORPLANT® use among the women were 99.4 percent at three months, 98.1 percent at six months, 94.5 percent at 12 months, and 92.5 percent at 24 months. At 36 months, 88.7 percent of the acceptors were still using the implants.
Discussion

This study shows that NORPLANT® acceptors in Enugu, Eastern Nigeria tended to be older, of higher parity, and somewhat less highly educated than IUD acceptors from the same community. The IUD acceptors were in a good majority of cases less than 35 years of age while acceptors of NORPLANT® demonstrated a more even spread of reproductive age of women. The age distribution of NORPLANT® acceptors differs among different studies. The mean age ranges from 24.8 years in Brazil, to 32.5 years in Egypt. (Hardy and Goodson, 1990; and Shaaban and Salah, 1984). Consistent with our findings the mean ages of IUD users were lower than that of NORPLANT® acceptors in the Brazilian and Egyptian studies, 24.5 and 31.9 years respectively.

Few women accepted NORPLANT® before delivery of three or more children, while 10 percent of IUD acceptors had 0-2 children. NORPLANT® acceptors were very likely to be high parity women, and 80 percent were parity 5 and above. The significant difference in the mean parities of the NORPLANT® and IUD users reinforce our finding that use of NORPLANT® was principally to limit family size. Similar to our data, the majority of the women (93 percent) in the study from Egypt chose NORPLANT® when they had attained their desired family size. In the report from San Francisco, USA., as much as 38 percent of NORPLANT® acceptors chose the device to limit their family size (Darney et al., 1990). The mean parity of NORPLANT® acceptors varies from 2.3 in Dominican Republic where it is mostly used for birth-spacing, to 5.9 in Egypt where it was chosen mostly to
limit family size (Alvarez-Sanchez et al., 1988; Shaaban and Salah, 1984). In our study the mean parity was 6.4, and association between high parity and NORPLANT® acceptors is consistent with the reason for choosing the implant.

Educational status of the women was an important factor determining their acceptance of NORPLANT®. Women with highest education were not represented among new NORPLANT® acceptors, in contrast to IUD acceptors. In a report from San Francisco, USA, 10 percent of NORPLANT® acceptors had college degrees (Darney et al., 1990). In Enugu highly educated women were more likely to patronize private clinics where NORPLANT® was not yet in use. Educational status is known to influence reproductive behavior (Jain and Nag, 1986). Educated women are more likely to use contraceptives in Nigeria (Oni and McCarthy, 1986), and in this case women with secondary education were more willing to accept NORPLANT® than they were to choose the IUD. Ruminjo et al (1994), reported that NORPLANT® acceptors in Nairobi, Kenya had achieved a higher educational status than acceptors of female voluntary surgical contraception by minilaparotomy (secondary or university education, 64% vs. 36.5%). Possibly, the women with higher education were more willing to try out more modern methods of contraception.

Most NORPLANT® acceptors traced their source of information regarding the device to nurses, likely because at the UNTH family planning clinic, nurses hold counseling sessions every morning for family planning attendees. The mass media also played an important role in promoting awareness of NORPLANT® in the community, being the second
greatest source of information on the device. In a study in San Francisco, USA (Darney et al., 1990), the media played a similar role and was the second main source of information on the device after the family planning clinic. Doctors provided information that led to acceptance of NORPLANT® in only 8 percent of cases. Clinicians and government officials have occasionally been charged with coercing women to accept and keep the implant in some developing countries such as Indonesia and Thailand. (Zimmerman et al., 1990; Ward et al., 1990). This does not appear to be the case in Eastern Nigeria. This healthy beginning augurs well for its introduction to a larger segment of the Nigerian population in the future.

The continuation rate of 95 percent at one year noted in this study is comparable to 95 percent in Chile and 94 percent in China (Sivin, 1988). A low level of 80 percent in Scandinavia and a high of 99 percent in Sri Lanka have also been reported (Sivin, 1988). The continuation rate of a contraceptive device varies from country to country, and depends upon such individual acceptor characteristics as age, parity and education (Kreager, 1977; Mauldin, 1978). For a device such as NORPLANT®, requiring clinical cooperation for removal, the accessibility and quality of service can have an important impact on the continuation rate. At the UNTH, doctors are trained to insert and remove NORPLANT®, and patients are advised to report to the clinic if they have any complications. Menstrual irregularity led to most of the discontinuations in this study, and has been reported to be the most frequent and significant complaint caused by this device in other settings (Diaz et al., 1990). Reports from other studies (Du et al., 1990; Sriani et al., 1988) have cited medical conditions including headache, excessive weight gain and
cardiovascular problems as significant complaints leading to discontinuation of the device. This was not the case in this study, as only one woman ceased to use NORPLANT® because she developed hypertension while on the implant. The absence of these ailments as reasons for discontinuation may be a result of adequate selection of cases and counseling received by clients.

Nigeria’s total fertility rate of 6.5 (Federal Office of Statistics 1992) is one of the highest in Africa, and the fertility rate of the locality studied may be higher than the overall national rate. Tradition in some parts of Eastern Nigeria honors women who deliver 9 or more children in their lifetime. At the occasion of the 9th birth, a goat is slaughtered to celebrate what is called the “ewu ukwu” ceremony (roughly translated as ‘goat for pelvis’). Strong belief in reincarnation in the local community includes a common fear that sterilization will lead to sterility when a woman or a man returns in their “next life”. Thus NORPLANT®, which is long acting and reversible may have a special appeal among women who want to limit family size, but who fear ‘after life’ consequences of sterilization. Long-acting methods such as NORPLANT® may therefore be fulfilling an unmet need for contraception in this community.

Results from this study show that NORPLANT® is safe and acceptable to a small sector of Nigerian women, characterized by high parity, older age, and moderate (but not high) educational status. NORPLANT® appears to have made an impact amongst family planning clients at the university teaching hospital, because within 3 years of its inception, 8 percent of the women had accepted it as their family planning method. The acceptance rate has
remained constant within this period. It is possible that introduction of NORPLANT® into our family planning practice will attract high parity women who are averse to sterilization. Introduction of a safe and acceptable family planning method will go a long way to increase the currently low contraceptive prevalence in the country. This will consequently improve the general health status and socioeconomic life of the country.
References


