

Uptake of Sub-Dermal Contraceptive Implant in the Immediate Postpartum Period at MOI Teaching and Referral Hospital Eldoret, Kenya

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Abstract: Background: Sub-dermal contraceptive implant is one of the safest and most effective contraceptive methods with the highest continuation rates; but its overall use is low at 0.3% globally and 10% in Kenya. The immediate postpartum period is a missed opportunity to offer contraceptives partly because 43% of Kenyan women do not receive postnatal care within the first six weeks after delivery. There is paucity of data on rates of uptake of this method in the immediate postpartum period. Objectives: To determine the proportion of women who adopt the sub-dermal contraceptive implant in the immediate postpartum period at the Moi Teaching and Referral Hospital. Design: Descriptive cross-sectional study. Setting: Moi Teaching and Referral Hospital, Eldoret Kenya. Participants: Immediate post-partum women. Intervention: Insertion of sub-dermal contraceptive implant. Results: Data was collected from 353 respondents. The mean age of respondents was 27 years, 152 (43%) had attained secondary level of education and 102 (29%) said that trading was their main source of income. The reported median desired number of children was 3 while 124 (35%) had achieved their desired family size, 306 (87%) had ever heard of contraceptive implant and 161 (46%) had ever used it before the current pregnancy. Overall 156 (44.6%) of women received the contraceptive implant. Conclusion: The uptake of sub-dermal contraceptive implant during the immediate post-partum period was high compared to what has been reported in previous Kenya based data. Guidelines should be put in place to make the contraceptive implant a standard part of immediate post-partum contraceptive choices.

Keywords: Immediate post-partum, Sub-dermal contraceptive implant, Moi Teaching and Referral Hospital

1. Background

Globally, family planning (FP) is promoted to enable individuals and couples to choose when to have children (spacing) and the number of children to have (limits birth). It is based on demographic and health concerns and basic respect for human rights of individuals. FP can contribute to the reduction of poverty and hunger and would avert 32% of all maternal deaths and nearly 10% of childhood deaths, if it were available to all who wanted it when needed¹. Studies have shown that about 40% (70 million) of pregnancies in Sub-Saharan Africa are unintended (either unwanted or mistimed). Avoiding these pregnancies could result in a reduction of 150,000 maternal deaths every year, including over 50,000 deaths due to unsafe abortions².

Kenya has an approximate population of over 48 million with a growth rate of 2.6%³. The contraceptive prevalence rate in Kenya stands at 58% with 10% using implants⁴. Family planning unmet need among married women aged 15-49 years stands at 18% overall, while for HIV infected women it is 30-60%. Unplanned pregnancy rates are high - mistimed pregnancies at 26% and unwanted pregnancies at 10%. Consequently, Kenyans report an ideal family size that is smaller than the actual average family size⁴.

The maternal mortality ratio (MMR) for Kenya is 362/100,000 live births and 23% of infants are born less than two years after previous birth⁴ putting their lives at risk of death at an early age. According to the estimates on the

proportion of maternal deaths averted by contraceptive use, Kenya would avert 34.6% of maternal deaths⁵, if it would decrease substantially the unmet need for family planning.

Although widespread use of implants could substantially reduce the number of unintended pregnancies, abortions, and maternal deaths, worldwide use of implants is low. Among married women between the ages of 15 and 49 years around the globe, 53% use a modern method of contraception but only 0.3% use implants⁶. In Kenya only 2.6% of women have ever used implants and only 10% are currently using implants⁴. Data obtained from the Moi Teaching and Referral Hospital in Eldoret, Kenya show that only 1.38% of clients seen in the family planning clinic used contraceptive implant during the extended post-partum period in the year 2011.

Contraceptive implant is a long acting reversible contraception and is one of the most effective FP methods. With typical use, the pregnancy rate is 0.05% and it has the highest continuation rate of 84%⁹. It is safe in breastfeeding and is recommended for use in the immediate post-partum period as it offers immediate protection when inserted during this period¹⁰. It is estimated that if just 100,000 (26%) of the nearly 400,000 oral contraceptive users in Kenya switched to implants, then more than 26,000 extra unintended pregnancies could be prevented within the same period and about 260 maternal deaths averted¹¹.

The immediate postpartum period could be considered as a missed opportunity for promoting birth spacing and reducing

unintended pregnancies. This is because during this period most women are highly motivated to use contraception and the hospital setup is convenient for both the woman and the health care worker. Also the return to fertility is not predictable yet the return to sexual activity is early^{9,10}.

In Kenya, only 4% of post-partum women receive postnatal care between three and 41 days after delivery⁵ thus a majority of women might not get adequate access to family planning counselling and provision. The period during pregnancy and immediately after delivery might be one of the only times that many women receive formal health care, it is important not to miss this opportunity to provide FP services.

The aim of this study was to determine the uptake of contraceptive implant in the immediate post-partum period. The study would inform both institutional and national protocols on the practice of immediate post-partum family planning.

2. Methods

2.1 Study design and setting

We conducted a descriptive cross-sectional study among women in the immediate post-partum period. The study was conducted at the Riley Mother and Baby hospital (RMBH) in MTRH. MTRH is Kenya's second national teaching and referral hospital and is located in the town of Eldoret, Uasin Gishu County in the North Rift Area of Western Kenya with a catchment population of approximately 20 million people. RMBH is a unit which offers maternity and neonatal care services. RMBH has a bed capacity of 115 with average bed occupancy of 130%. It serves approximately 2,500 patients per month with an average of 1,000 deliveries per month.

Contraceptive implants are flexible, hormone-releasing rods made of medical-grade silicon. They consist of small, thin, flexible plastic rods, each about the size of a matchstick, that release a progestin hormone into the body. They are inserted under the skin of a woman's upper arm, are a safe, acceptable, effective, and reversible form of contraception. Implants prevent pregnancy for an extended period after a single administration thus they do not require regular action by the user or routine clinical follow-up except when the user experiences adverse side effects or removal. The most common types include Implanon (one rod, effective for three years); Jadelle (two rods, effective for five years); and Sino-implant (II), which is currently marketed as Zarin in much of Africa (two rods, effective for at least four years).

2.2 Study population

The study participants were immediate postpartum women (up to six days postpartum) who had delivered at the RMBH in MTRH. The inclusion criteria was; consenting immediate post-partum women with no contraindicated medical conditions including; serious liver disease such as liver tumours, severe cirrhosis or active hepatitis and women who have breast cancer currently or in the past.

2.3 Ethical considerations

Approval was obtained from the ethical review committee of MTRH/Moi University. The study participants were given an explanation of the study and those who accepted to participate gave a written consent. Confidentiality and privacy of the participants was maintained by ensuring that no identifying information was included in the data collection tools and interviewing, counseling and implant insertion were conducted in a private room. Those who chose other family planning methods were referred to the family planning clinic.

2.4 Data collection and recruitment

Data was collected using pre-tested structured, interviewer-administered questionnaires which collected data on socio-demographic characteristics and choice of family planning method.

A clinical officer trained on contraceptive implant insertion and removal was recruited as the research assistant. He was trained and informed about the purpose of the study and was involved in the pilot study and worked under the supervision of the principal investigator. A room was identified in the RMBH where counseling and implant insertion took place. Data was collected after the client had received the service they came for (delivery). Immediate postpartum women who gave consent to participate in the study were interviewed using the structured questionnaire. The post-partum women were assigned numbers using the delivery register then the numbers were picked randomly. The mothers whose names corresponded with the selected numbers were interviewed after giving consent.

During the interview they were counseled on various contraceptive methods with an emphasis on the advantages and disadvantages of contraceptive implant. Those who accepted to be given the implant were given the implant with documentation of why they chose to use the method. Depending on the fertility desires of each respondent they were offered either Implanon or Jadelle. Infection prevention measures were observed during the procedure.

Mothers were then counseled on wound care, signs of local infection and informed to go to the nearest health facility for routine post natal checks. They were then given the number of the principal investigator which they could call in case of any side effects. Those who did not choose the contraceptive implant were referred to the family planning clinic where they could be given their method of choice.

2.5 Data analysis

The questionnaires were checked for completeness at the end of each data collection session to ensure that all sections were correctly filled. The data was then coded and entered into the computer in a database designed in SPSS version 16.0 for windows. Data analysis was done using STATA version 12 SE. Categorical variables were summarized as frequencies and the corresponding percentages. Continuous variables that assumed the Gaussian distribution were summarized as mean and standard deviation (SD) while the variables that violated the assumptions of normality were summarized as median

and corresponding interquartile range (IQR). Normality assumptions were assessed using Shapiro Wilks, and Shapiro Wilks tests for normality.

3. Results

3.1 Socio-demographic characteristics

A total of 353 participants had their data included for analysis. Their mean age in years was 27(SD: 5) years with a minimum of 15 years and a maximum of 40 years. Three hundred and twenty five (92.1%) of the participants were Christians while 261 (73.9%) were married. Most of the participants, 152 (43.1%) had attained secondary level of education as shown in table 1.

Table 1: Socio-demographic characteristics of immediate postpartum women at MTRH

Characteristic	Frequency (%)
Religion	
Christian	325 (92.1)
Islam	27 (7.6)
Other	1 (0.3)
Marital status	
Single	71 (20.1)
Married	261 (73.9)
Widowed	12 (3.4)
Divorced/separated	9 (2.6)
Level of education	
None	9 (2.5)
Primary	74 (21.0)
Secondary	152 (43.1)
Tertiary	118 (33.4)
Main source of income (n=349)	
Trading	102 (29.2)
Salaried employment	72 (20.6)
Casual employment	64 (18.3)
Farming	64 (18.3)
Other	47 (13.5)

Two hundred and eighty one (80.3%) said that they worked outside the home to earn a living. Trading was the main source of income for 102 (29.2%) of the women with an average monthly income of Kshs. 12,000 (IQR: 5,000 – 20,000).

Table 2: Summary of pregnancy related characteristics of immediate post-partum women at MTRH

Immediate post partum women at MPR			
Variable	Sample size		Median (IQR)
Times pregnant	352		2 (1-3)
Number of children	352		2 (1-3)
Number of boys	338		1 (1-2)
Number of girls	318		1 (0-2)
Number of children desired	347		3 (3-4)
Variable	Sample size	Levels	N (%)
When to have next child		< 1 year	13 (4%)
	353	2 years	58 (16%)
		>2 years	158 (45%)
		Never	124 (35%)
Mode of delivery for the current child	353	SVD	256(73%)
		CS	97(27%)
Pregnancy outcome	349	Live birth	328(94%)
		Still birth	21(6%)

The participants had been pregnant for a median 2 (IQR: 1-3) times. However the distribution of this shows that 276(90.5%) participants reported that they have never miscarried, 24 (7.9%) have had one miscarriage, 4(1.3%) have had two miscarriages, and 1(0.3%) had had six miscarriages. The median number of children per participant was 2(IQR:1-3). Stratified by gender, the median number of boys was 1(IQR: 1-2) while the median number of girls was 1(IQR:0-2) as shown in table 2.

The participants desire a median number of 3(IQR:3-4) children and majority of them would wish to have the next child in the next 2 years (Table 2). 124 (35%) of the participants don't want to have another child. The results show that those participants who no longer wish to have another child have a median number of children of 3(IQR: 2-4) while the median number of children for those who still desire to have children was 3(IQR: 3-4). The test for differences in the number of children for those who no longer wish to have and those who still desire a child was not statistically significant, P=0.788.

The mode of delivery for most of the participants was normal (SVD), 256(73%) and the outcome of the pregnancy was live birth for 328(94%) of all the 349 participants who responded to this question.

3.2 Uptake of immediate postpartum contraceptive implant

The uptake of immediate postpartum contraceptive implant was 44.6% (n=350).

Those who did not want to use contraceptive implant would have liked other family planning methods as shown in Figure 1 below;

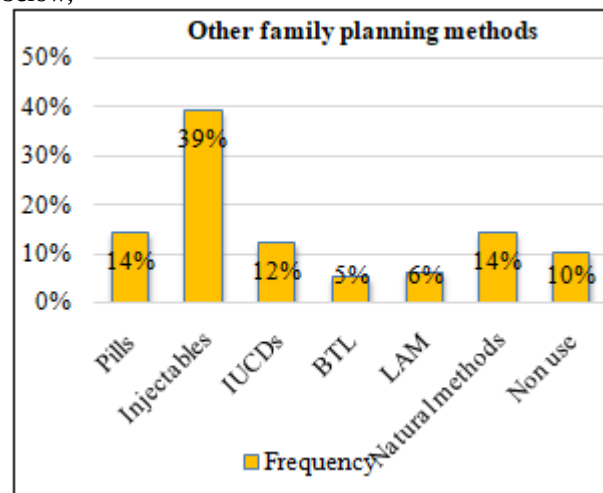


Figure 1: The other family planning methods the post-partum women at MTRH intended to use (n=194)

4. Discussion/interpretation of results

Contraceptive implant is one of the long-acting reversible contraception which should be provided to all eligible women of reproductive age to enable them plan their families. The immediate post-partum period is considered as a missed opportunity to initiate family planning for most

post-partum women thus this study to assess demand during this period.

The period immediately postpartum is particularly favourable for insertion of IUD or Implant. It is presumed that women who have recently given birth are often highly motivated to use contraception, they are known not to be pregnant and the hospital setting offers convenience for both patient and healthcare provider. In addition women are at risk of unintended pregnancies in the period immediately after delivery as shown by a study in which women were instructed to abstain from sexual intercourse until six weeks postpartum but 45% of the participants reported unprotected sex before that time⁹.

In this study the uptake of contraceptive implant was 44.6% compared to 50.2% in a study undertaken at Mbagathi and Naivasha district hospitals¹⁰. This is high compared to the reported global usage of 0.3%⁶ and the reported Kenyan usage of 10%⁴. This could be explained by the fact that this was a hospital-based study while the Kenyan results are from a community-based survey. It could also be explained by the fact that the respondents received postnatal counseling on available family planning methods as studies have shown that women who had postnatal counseling were significantly more likely to use contraception than those who did not (odds ratio (OR) 0.18; 95% confidence interval (CI) 0.08–0.38; $P=0.0002$)^{11, 12}. Also the high uptake could be attributed to the fact that contraceptive implant was provided to the women after delivery as studies in Peru showed high uptake of implant among women who were offered the method after delivery compared to those who were not offered the method¹³. This indicates that if family planning is readily available and provided to all women during the immediate postpartum period then the contraceptive prevalence rate would increase substantially which would consequently lead to improved maternal and child health.

The findings from this study point to possible missed opportunities for promoting healthy birth spacing and reducing unintended pregnancies. Women who do not receive prenatal care, for example, might benefit from more consultation about postpartum contraceptive options. This population likely does not routinely access preventive health-care services. Therefore, for these women the period after delivery and before hospital discharge might constitute an especially opportune time for health-care providers to promote the use of effective contraception postpartum and adequate birth spacing.

Consideration should be made to offer family planning especially contraceptive implant to all women during the postpartum period so as to increase the contraceptive prevalence rate among women of reproductive age. This would lead to a decrease in the number of unintended pregnancies hence reducing the number of abortions and consequently a reduction in the maternal mortality ratio in Kenya.

5. Conclusion

The uptake of sub-dermal contraceptive implant during the immediate post-partum period was higher (44.6%) than what is reported in previous Kenya based data (10%)⁴.

The sub-dermal contraceptive implant should be offered in the immediate postpartum period to increase the proportion of women using highly effective contraception in order to achieve optimal birth spacing. The government should consider revising the national family planning guidelines to allow the use of sub-dermal contraceptive sub-dermal implants in the immediate postpartum period.

Further studies are necessary to validate the findings and investigate the contribution of various factors on the uptake of sub-dermal contraceptive implant in the immediate postpartum period.

6. Acknowledgement

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7. Conflict of Interest

The authors declare that there was no conflict of interest in the conduct of the study and publication of this paper.

References

- [1] Osotimehin B., Family planning saves lives, yet investments falter. *Lancet* 2012; 380:83
- [2] Singh S, Darroch J, Ashford L, Vlassoff M. Adding it up: the costs and benefits of investing in family planning and maternal and newborn health. New York: Guttmacher Institute and United Nations Population Fund, 2009.
- [3] <http://data.worldbank.org/country/kenya> accessed on 29/09/2017 at 10:30a.m.
- [4] Kenya National Bureau of Statistics (KNBS) and ICF Macro. 2015. Kenya demographic and Health Survey 2014. Calverton, Maryland: KNBS and ICF Macro.
- [5] Ahmed S, Li Q, Liu L, Tsui A. O. Maternal deaths averted by contraceptive use: an analysis of 172 countries. *Lancet* 2012; 380: 111-25
- [6] Hubacher D, Mavranzouli I, McGinn E. Unintended pregnancy in sub-Saharan Africa: magnitude of the problem and potential role of contraceptive implants to alleviate it. *Contraception* 2008; 78(1):73-78.
- [7] ACOG, Long acting reversible contraceptives; implants and intrauterine devices. Practice Bulletin No. 121. American College of Obstetricians and Gynaecologists. *Obstet Gynecol* 2011;118:184-96
- [8] FSRH 2008, FSRH Clinical Guidance Document (April 2008) Progestogen-only Implants. The Faculty of Sexual and Reproductive Healthcare Clinical Effectiveness Unit (updated January 2009)

- [9] Hubacher D, Kimani J, Steiner M, et al. Contraceptive implants in Kenya: current status and future prospects. *Contraception* 2007; 75(6):468-473.
- [10] Shabiby M, Karanja J, Odawa F, Kinuthia J (2013), Uptake and factors influencing uptake of contraceptive implant in the immediate postpartum period among HIV infected and non HIV infected women in Mbagathi and Naivasha District hospitals in Kenya: A comparative study (abstract)
- [11] Ekabua J. E, Ekabua K. F, Odusolu P, Iklaki C. U, Agan T. U, Etokidem A. J. Factors associated with contraceptive use and initiation of coital activity after childbirth. *Journal of Contraception* 2010;1 85–91
- [12] Adegbola, O., & Okunowo, A., Intended postpartum contraceptive use among pregnant and puerperal women at a university teaching hospital. *Archives of Gynecology and Obstetrics*, 2009, 280(6), 987-992.
- [13] Vernon, R. "Meeting the Family Planning Needs of Postpartum Women," FRONTIERS 2008, Program Brief No. 10. Washington, DC: Population Council.