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Original Research Article

Postpartum Implanon/Nexplanon continuation rates and associated factors among women who ever used Implanon/Nexplanon in a tertiary hospital in Accra, Ghana

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ABSTRACT

Background: Postpartum Implanon use serves as an important conduit to bridge the wide gap of unmet need for contraception. The study sought to determine the continuation rates of postpartum Implanon/Nexplanon use and factors associated with it.

Methods: A retrospective review of electronic data of 391 women who had received postpartum Implanon/Nexplanon insertions from January 2012 to December 2015 was conducted at a family planning hospital in Accra, Ghana. Continuation rates and factors associated with discontinuation at 6 months, one year and two years post-partum were determined. Data were analysed using IBM Statistical Package for Social Science (SPSS) version 20.

Results: A total of 391 postpartum Implanon/Nexplanon insertions were done during study period. Their mean age was 28.51±5.29 years and median parity was 2.0. Continuation rates of postpartum Implanon/Nexplanon at 6 months, 1 year and 2 years post uptake were 94.9%, 92.8% and 86.4% respectively. Women with tertiary level education were 64% less likely to continue Implanon/Nexplanon use at one-year post uptake (OR=0.36, CI=0.16-0.85). Women with education up to Senior High School were 62% less likely to continue postpartum Implanon/Nexplanon use at 2 years after uptake (OR=0.38, CI=0.18-0.81). Women between ages 20 and 29 years were 53% less likely to continue postpartum Implanon/Nexplanon use at 2 years (OR=0.47, CI=0.26-0.86). Reasons for discontinuation of postpartum Implanon/Nexplanon use were wishes to get pregnant and side effects of the method.

Conclusions: Post-partum Implanon/Nexplanon continuation rates are high and remain as a viable choice for reduction of unplanned pregnancies post-delivery.

Keywords: Continuation rates, Discontinuation, Implanon/Nexplanon, Post-partum

INTRODUCTION

The unmet need for contraception in Ghana is high. The contraceptive prevalence rate is 27%.¹ The use of contraception remains a viable avenue to reduce maternal

mortality rates.^{2,3} Post-partum Implanon as long acting reversible contraceptive has been found to be very effective.^{4,5} Postpartum usage of Implanon/Nexplanon is significant because the post-partum period serves as a window of opportunity where women who have delivered

make contact with health facilities and can access health commodities like contraception. Though uptake of such contraception is important, it is more imperative to document the continuation rates and the factors associated with continuation or discontinuation of this contraceptive method. This is because most women discontinue the use of particular contraceptives when they are not on any back up method.^{6,7} Discontinuation of contraceptive use leads to consequences such as an unwanted or mistimed pregnancy.⁸ Nearly half of unwanted pregnancies result in unsafe abortion.⁹ There is however scarcity of data on the continuation rates of postpartum Implanon/Nexplanon in Ghana. Data on this will help in health systems strengthening and also the public health education drive to enhance continuation of Implanon/Nexplanon use. This study sought to assess the continuation rates of post-partum Implanon, the factors associated with continuation of post-partum Implanon/Nexplanon and to evaluate the reasons for discontinuation of post-partum Implanon/Nexplanon.

METHODS

A retrospective review of electronic data of 391 women who had received Implanon/Nexplanon immediately post-delivery up to one-year post-partum at the Reproductive Health and Family Planning Unit of the

Korle-Bu Teaching Hospital between January 2012 and December 2015 was conducted. The final extracted data was entered into Microsoft Office Excel 2010 then exported into the IBM Statistical Package for Social Science (SPSS) version 20 for data analysis. The data analysis was presented as frequencies, means and median and as tables and charts where necessary.

The categorical outcome variables and predictors of continuation of postpartum Implanon/Nexplanon use at 6 months, 1 year and 2 years were analysed using χ^2 (chi square) test. T test was used to analyse the association between continuous outcome and selected independent variables. Odds ratios and their 95% confidence intervals (CI) were used to test the strength of association. In all the statistical procedure a P-value of less than 0.05 was considered statistically significant.

RESULTS

The total number of women who had taken up postpartum Implanon/Nexplanon during the study period were 391. The mean age was 28.51 ± 5.29 years and the median parity was 2.0, with a range between 1-9. The continuation rates of Implanon/Nexplanon among women within 6 months, one year and 2 years post-partum were 94.9%, 92.8% and 86.4% respectively (Figure 1).

Table 1: Effect of timing of uptake of postpartum Implanon/Nexplanon on continuation rates among women at the Korle-Bu Teaching Hospital 2012 -2015, Accra, Ghana.

Variable	Six months		OR (95% C.I)	P value
	Yes N=371	No N=20		
Breakdown of post-partum uptake				
0-2 days (immediate)	9 (2.4)	0 (0.0)	-	1.000
3-42 days (delayed)	104 (28.0)	4 (20.0)	1.56 (0.51-4.77)	0.609
43-365 days (interval)	258 (69.5)	16 (80.0)	0.57 (0.19-1.75)	0.453
Within one year				
	Yes N=363	No N=28		
Breakdown of post-partum uptake				
0-2days (immediate)	9 (2.5)	0 (0.0)	-	1.000
3-42days (delayed)	102 (28.1)	6 (21.4)	1.43 (0.56-3.64)	0.518
43-365days (interval)	252 (69.4)	22 (78.6)	0.62 (0.24-1.57)	0.394
Within two year				
	Yes N=338	No N=53		
Breakdown of post-partum uptake				
0-2days (immediate)	8 (2.4)	1 (1.9)	1.26 (0.15-10.29)	1.000
3-42days (delayed)	97 (28.7)	11 (20.8)	1.54 (0.76-3.11)	0.252
43-365days (interval)	233 (68.9)	41 (77.4)	0.65 (0.33-1.29)	0.260

Timing of uptake (immediate, interval or delayed postpartum) of Implanon/Nexplanon was not significantly associated with continuation rates (Table 1).

There was no significant association between any of the sociodemographic determinants considered and

continuation of postpartum Implanon/Nexplanon use at 6 months. (Table 2). Women with tertiary level education were 64% less likely to continue postpartum

Implanon/Nexplanon use at one-year post uptake (OR=0.36, CI=0.16-0.85) (Table 3).

Women with education up to Senior High School level were 62% less likely to continue postpartum Implanon/Nexplanon use at 2 years post uptake (OR=0.38, CI=0.18-0.81) (Table 4). Women between ages 20 and 29 years were 53% less likely to continue postpartum Implanon/Nexplanon use at 2 years (OR=0.47, CI=0.26-0.86) (Table 4).

Table 2: Sociodemographic determinants of continuation of Implanon/Nexplanon use at 6 months postpartum among women at the Korle-Bu Teaching Hospital 2012 -2015, Accra, Ghana.

Variable	Postpartum Uptake		OR (95% C.I)	P-value
	Yes N=371	No N=20		
Age group				
<20	23 (6.2)	0 (0.0)	-	0.620
20-29	177 (47.7)	12 (60.0)	0.61 (0.24-1.52)	0.360
30-39	165 (44.5)	8 (40.0)	1.20 (0.48-3.01)	0.819
40 and above	6 (1.6)	0 (0.0)	-	1.000
Parity				
P1	126 (34.0)	10 (50.0)	0.54 (0.23-1.25)	0.162
P2-P4	225 (60.6)	10 (50.0)	1.41 (0.61-3.29)	0.522
P5 and above	20 (5.4)	0 (0.0)	-	0.614
Abortions				
	N=85	N=9		
1	45 (52.9)	7 (77.8)	0.32 (0.06-1.64)	0.181
2	29 (34.1)	1 (11.1)	4.14 (0.49-34.75)	0.263
3+	11 (12.9)	1 (11.1)	1.19 (0.13-10.45)	1.000
Occupation				
	N=332	N=19		
Professional	111 (33.4)	8 (42.1)	0.69 (0.27-1.77)	0.461
Skilled	60 (18.1)	4 (21.1)	0.83 (0.27-2.58)	0.760
Semi-skilled	11 (3.3)	1 (5.3)	0.62 (0.08-5.04)	0.493
Trader	100 (30.1)	4 (21.1)	1.62 (0.52-4.99)	0.606
Housewife	8 (2.4)	0 (0.0)	-	1.000
Student	22 (6.6)	1 (5.3)	1.28 (0.16-10.02)	1.000
Unemployed	20 (6.0)	1 (5.3)	1.15 (0.15-9.09)	1.000
Educational level				
	N=330	N=19		
No formal education	26 (7.9)	1 (5.3)	1.54 (0.20-12.00)	1.000
Postpartum uptake				
Variable	Yes N=371	No N=20	OR (95% C.I)	P-value
Primary	26 (7.9)	1 (5.3)	1.54 (0.20-12.00)	1.000
JHS	93 (28.2)	5 (26.3)	1.11 (0.38-3.14)	1.000
SHS	45 (13.6)	3 (15.8)	0.84 (0.24-3.01)	0.734
Vocational	6 (1.8)	0 (0.0)	-	1.000
Tertiary	134 (40.6)	9 (47.4)	0.76 (0.30-1.92)	0.634
Couple involvement				
Yes	7 (1.9)	0 (0.0)	-	1.000
No	364 (98.1)	20 (100.0)	-	1.000
Status				
First ever	232 (62.5)	12 (60.0)	1.11 (0.44-2.79)	0.817
Continuing	139 (37.5)	8 (40.0)	0.90 (0.36-2.25)	0.817

Table 3: Sociodemographic determinants of continuation of Implanon/Nexplanon use at one year postpartum among women at the Korle-Bu Teaching Hospital 2012 -2015, Accra, Ghana.

Variable	Postpartum Uptake		OR (95% C.I)	P-value
	Yes, N=363	No, N=28		
Age group				
<20	22 (6.1)	1 (3.6)	1.74 (0.23-13.42)	1.000
20-29	177 (48.8)	12 (42.9)	1.27 (0.58-2.76)	0.563
30-39	158 (43.5)	15 (53.6)	0.67 (0.31-1.44)	0.328
40 and above	6 (1.7)	0 (0.0)	-	1.000
Parity				
P1	122 (33.6)	14 (50.0)	0.51 (0.23-1.10)	0.099
P2-P4	221 (60.9)	14 (50.0)	1.56 (0.72-3.36)	0.317
P5 and above	20 (5.5)	0 (0.0)	-	0.382
Abortions				
	N=86	N=8		
1	47 (54.7)	5 (62.5)	0.72 (0.16-3.22)	0.728
2	28 (32.6)	2 (25.0)	1.45 (0.27-7.64)	1.000
3+	11 (12.8)	1 (12.5)	1.03 (0.12-9.16)	1.000
Occupation				
	N=325	N=26		
Professional	107 (32.9)	12 (46.2)	0.57 (0.26-1.28)	0.198
Skilled	61 (18.8)	3 (11.5)	1.77 (0.52-6.09)	0.440
Semi-skilled	11 (3.4)	1 (3.8)	0.88 (0.11-7.06)	0.609
Trader	99 (30.5)	5 (19.2)	1.84 (0.67-5.02)	0.271
Housewife	7 (2.2)	1 (3.8)	0.55 (0.07-4.65)	0.463
Student	21 (6.5)	2 (7.7)	0.83 (0.18-3.75)	0.684
Unemployed	19 (5.8)	2 (7.7)	0.75 (0.16-3.39)	0.662
Educational level				
	N=324	N=25		
No formal education	27 (8.3)	0 (0.0)	-	0.240
Primary	26 (8.0)	1 (4.0)	2.09 (0.27-16.11)	0.707
JHS	95 (29.3)	3 (12.0)	3.03 (0.89-10.36)	0.068
SHS	43 (13.3)	5 (20.0)	0.61 (0.22-1.71)	0.363
Vocational	6 (1.9)	0 (0.0)	-	1.000
Tertiary	127 (39.2)	16 (64.0)	0.36 (0.16-0.85)	0.020
Variable	Postpartum uptake		OR (95% CI)	P-value
	Yes, N=363	No, N=28		
Yes	6 (1.7)	1 (3.6)	0.45 (0.05-3.91)	0.408
No	357 (98.3)	27 (96.4)	2.20 (0.26-18.97)	0.408
Status				
First ever	225 (62.0)	19 (67.9)	0.77 (0.34-1.76)	0.686
Continuing	138 (38.0)	9 (32.1)	1.29 (0.57-2.94)	0.686

Across the study period the commonest reason for discontinuation of postpartum Implanon/Nexplanon use was desire for another pregnancy with 55%, 42.9% and 71.1% of women discontinuing at 6 months, 1 year and 2 years respectively (Table 5, 6 and 7 respectively).

Side effects/ health concerns was the other common reason for discontinuation, and this had a simple downward trend over the study period with 35%, 28.6% and 18.9% of women discontinuing use at 6 months, 1 year and 2 years respectively (Table 5, 6 and 7 respectively).

DISCUSSION

Within 6 months of uptake of postpartum Implanon/Nexplanon, close to 95% of users still continued its use which decreased to about 86.5% at 2 years postpartum. These figures are in tandem with work done by Woo et al in the United States.¹⁰ Even though experiences from our unit show that women who seek contraceptive methods at the facility often utilize the same facility for their post-uptake care and removal, it is possible that some of the women may have removed their implants at some other health facilities without informing the unit.

Table 4: Sociodemographic determinants of continuation of Implanon/Nexplanon use at two years postpartum among women at the Korle-Bu Teaching Hospital 2012 -2015, Accra, Ghana.

Variable	Postpartum Uptake		OR (95% C.I)	P-value
	Yes N=338	No N=53		
Age group				
<20	22 (6.5)	1 (1.9)	3.62 (0.48-27.44)	0.341
20-29	155 (45.9)	34 (64.2)	0.47 (0.26-0.86)	0.017
30-39	155 (45.9)	18 (34.0)	1.65 (0.90-3.02)	0.136
40 and above	6 (1.8)	0 (0.0)	-	1.000
Parity				
P1139	113 (33.4)	23 (43.4)	0.66 (0.36-1.18)	0.165
P2-P4	206 (60.9)	29 (54.7)	1.29 (0.72-2.31)	0.451
P5 and above	19 (5.6)	1 (1.9)	3.10 (0.41-23.63)	0.497
Abortions				
	N=81	N=13		
1	44 (54.3)	8 (61.5)	0.74 (0.22-2.47)	0.767
2	26 (32.1)	4 (30.8)	1.06 (0.30-3.78)	1.000
3+	11 (13.6)	1 (7.7)	1.89 (0.22-15.98)	1.000
Occupation				
	N=304	N=47		
Professional	103 (33.9)	16 (34.0)	0.99 (0.52-1.90)	1.000
Skilled	51 (16.8)	13 (27.7)	0.53 (0.26-1.07)	0.102
Semi-skilled	11 (3.6)	1 (2.1)	1.73 (0.22-13.69)	1.000
Trader	94 (30.9)	10 (21.3)	1.66 (0.79-3.47)	0.229
Housewife	6 (2.0)	2 (4.3)	0.45 (0.09-2.31)	0.291
Student	21 (6.9)	2 (4.3)	1.67 (0.38-7.37)	0.752
Unemployed	18 (5.9)	3 (6.4)	0.92 (0.26-3.26)	0.751
Educational level				
	N=364	N=48		
No formal education	24 (8.0)	3 (6.3)	1.06 (0.31-3.66)	1.000
Primary	24 (8.0)	3 (6.3)	1.06 (0.31-3.66)	1.000
JHS	90 (29.9)	8 (16.7)	1.64 (0.74-3.64)	0.280
SHS	37 (12.3)	11 (22.9)	0.38 (0.18-0.81)	0.016
Vocational	5 (1.7)	1 (2.1)	0.65 (0.07-5.72)	0.527
Tertiary	121 (40.2)	22 (45.8)	0.59 (0.32-1.08)	0.106
Couple involvement				
Yes	6 (1.8)	1 (1.9)	0.94 (0.11-7.96)	1.000
No	332 (98.2)	52 (98.1)	1.06 (0.13-9.02)	1.000
Status				
First ever	209 (61.8)	35 (66.0)	0.83 (0.45-1.53)	0.647
Continuing	129 (38.2)	18 (34.0)	1.20 (0.65-2.21)	0.647

Table 5: Reasons for removal of Implanon/Nexplanon at six months postpartum among women at the Korle-Bu Teaching Hospital 2012 -2015, Accra, Ghana.

Reasons for removal	Frequency	Percent
Wanted to become pregnant	11	55
Husband disapproved	1	5
Infrequent sex/husband away	1	5
Side effects/health concerns	7	35
Total	20	100

These continuation rates were however higher than those recorded in the Netherlands.¹¹ The continuation rates in

this study are high when compared to the 18-63% contraceptive discontinuation rates recorded in most developing countries.⁶ This may be due to effective counselling for contraceptive uptake which is an integral part of the service offered at the Reproductive Health and Family Planning Unit of the Korle-Bu teaching Hospital.

This study found no significant effect of timing of the uptake of postpartum Implanon/Nexplanon (immediate, delayed or interval) on the continuation rates. These findings are similar to that of Luu et al in Rhode Islands.¹² Given that immediate postpartum Implanon provision has been shown to be cost effective in preventing unwanted pregnancies, the findings in this

study suggest that more women should be encouraged to opt for this whiles they are still in the health facilities where they delivered.¹³

Table 6: Reasons for removal of Implanon/Nexplanon at one year postpartum among women at the Korle-Bu Teaching Hospital 2012 -2015, Accra, Ghana.

Reasons for removal	Frequency	Percent
Wanted to become pregnant	12	42.9
Husband disapproved	1	3.6
Infrequent sex/husband away	3	10.7
Religious reasons	1	3.6
Separated from husband	2	7.1
Side effects/health concerns	8	28.6
No specific reason	1	3.6
Total	28	100.0

Table 7: Reasons for removal of Implanon/Nexplanon at two years postpartum among women at the Korle-Bu Teaching Hospital 2012 -2015, Accra, Ghana.

Reasons for removal	Frequency	Percent
Wanted to become pregnant	38	71.7
Infrequent sex/husband away	2	3.8
Separated from husband	2	3.8
Side effects/health concerns	10	18.9
No specific reason	1	1.9
Total	53	100.0

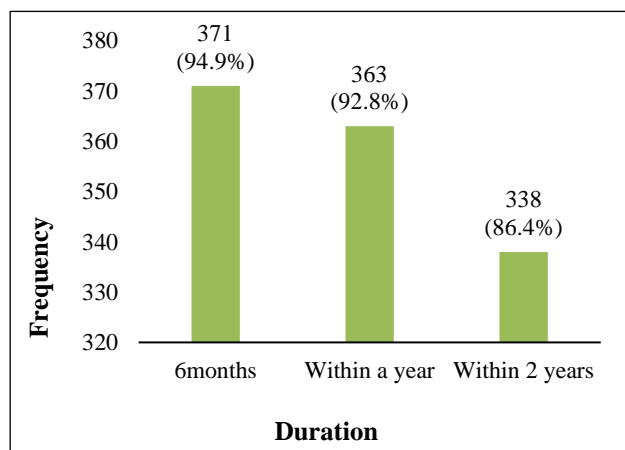


Figure 1: Continuation rates for Implanon/Nexplanon among women at 6 months, 1 year and 2 years postpartum at the Korle-Bu Teaching Hospital 2012 - 2015, Accra, Ghana.

In this study, age of clients, parity, history of abortions, occupation, educational level, involvement of their partners and whether they were first ever users or continuing did not affect continuation rates of Implanon/Nexplanon use 6 months postpartum. This finding is at variance with the finding of Woo et al at John Hopkins where women who were continuing users of postpartum Implanon were more likely to continue the

use at 6 months post- partum.¹⁰ Women whose educational level was up to the tertiary level were significantly less likely to continue Implanon/Nexplanon use a year postpartum. The reason for this observation is not clear and further studies are needed to be able to explain it. These women however are likely to have a higher age selection due to time spent in school and the need to complete their families on time.

The age group between 20 and 29 were also significantly less likely to continue Implanon/Nexplanon use at 1 year and two years post- partum. This finding is worrying since this age group constitutes women who are in likely to be in the peak of their reproductive life in Ghana. There is the need to perform qualitative studies in this area to shed more light on the reason for this finding. Women who had had a maximum of senior high school education were significantly less likely to continue Implanon/Nexplanon use at 2 years post- partum.

Teenagers were more likely to continue postpartum Implanon/Nexplanon use even though this was not a significant finding. A study in Ethiopia however found the teenage age group to be more likely to discontinue Implanon use.¹⁴ This is a window of opportunity to be explored to provide effective long acting reversible contraception for this age group to prevent unwanted pregnancies. It may be a way to prevent rapid repeat pregnancies in adolescents as has been observed by Toccee et al in Colorado and Lewis et al in Perth, Australia.^{15,16}

Close to half of the study population wanted to become pregnant within 6 months postpartum and therefore had the postpartum Implanon/Nexplanon removed. This is unusual and it may be because these women gave answers that they thought were socially desirable instead of giving the exact reason for their opting for removal. Two fifth of respondents who had their postpartum Implanon/Nexplanon removed at 1 year did so because they wanted to become pregnant. At two-year postpartum, the high percentage of Implanon/Nexplanon removals to allow for the next pregnancy. This finding is different from that found in Jos in which the main reason for removal of Implanon was because of menstrual abnormalities.¹⁷ The study in Jos however focused on reasons for removal of Etonorgestrel Implants in general and not specific to postpartum ones. Interestingly, at 6 months, 1 year and 2 years post- partum, the second main reason for the discontinuation of postpartum Implanon/Nexplanon use was because of side effects. This agrees with works done by other authors in which one of the main reasons for discontinuation of Implanon use was because of side effects.^{18,19}

CONCLUSION

Post-partum Implanon/Nexplanon continuation rates are high and remain as a viable choice for reduction of unplanned pregnancies post- delivery. There still needs to

be improved public health education on the various side effects to maintain or even enhance the current continuation rates.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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