

## Original Article

# Time Interval to Initiation of Contraceptive Methods Following Childbirth in a Low-resource Setting

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### ABSTRACT

**Objectives:** The objectives of the study were to determine factors affecting the interval between a woman's last childbirth and the initiation of contraception. **Materials and Methods:** This was a retrospective study. Family planning clinic records of the Barau Dikko Teaching Hospital Kaduna from January 2000 to March 2014 were retrieved. Information was collected on demographics, reproductive, and contraceptive history. Data were analyzed using the SPSS version 15 software, and missing responses were excluded. Chi-square was used as a test of association with significance level established at  $P = 0.05$ . **Results:** A total of 5992 client's cards were retrieved. All were female and married. Majority were aged 25–34 years (53.1%), had completed secondary education (56%) and were Muslims (52.3%). Only 4979 cards (83.1%) had correct data on intervals and 22.1% of these clients initiated contraception within 6 months of their last childbirth. Education, religion, source of information, number of living children, desire to have more children, previous use of contraception, and type of contraception chosen were significantly associated with intervals for initiating contraception after last childbirth ( $P < 0.05$ ) while the presence of complications in the last delivery was not ( $P > 0.05$ ). **Conclusions:** Majority of women initiate contraception late after childbirth in this setting. Increased awareness on immediate/early postpartum contraception is required. Further qualitative studies will help to explore findings of this study.

**KEYWORDS:** Contraception, initiation, intervals, last delivery, Northern Nigeria

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## INTRODUCTION

For its population, Nigeria has a disproportionately high maternal mortality ratio of about 560, with even higher estimates in the northern part of the country.<sup>[1]</sup> The 2013 Nigerian Demographic and Health Survey showed that use of modern contraception was only 10%, which unfortunately is still relatively low, and there was a 20% unmet need for family planning among married women.<sup>[1]</sup> Yet increasing contraceptive use in developing countries can lead to a drastic reduction in the number of unintended pregnancies, unsafe abortion, and maternal mortality ratio by as much as 26% within a decade.<sup>[2]</sup> Contraception also has noncontraceptive benefits to women's health. It improves perinatal outcomes and child survival, by lengthening interpregnancy intervals to allow for

adequate child nutrition and care, and by reducing the risk of prematurity and low birth weight.<sup>[2,3]</sup>

Women delivering in hospitals are increasingly being educated about their contraceptive options some of which can be initiated immediately postpartum, or delayed. Timing of the first ovulation postdelivery is variable with 10%–15% of nonlactating mothers ovulating by the end of puerperium, and 30% ovulating within 90-day postpartum.<sup>[4]</sup> This can be further delayed by breastfeeding with the earliest time of ovulation reported as 33-day postpartum.<sup>[4]</sup>

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The developing world has an estimated 105–122 million married women with an unmet need for family planning annually, especially within a 1-year period following delivery.<sup>[3]</sup> In Kenya, one similar study showed that out of all postpartum months women was exposed to the risk of another pregnancy by having intercourse, about 28% were months where no contraceptive method was used.<sup>[3]</sup> More so, as menstrual resumption acted as the trigger for initiating contraceptive use.<sup>[3]</sup> The risk of unintended pregnancy by having sex while using no contraceptive method within 2 years after childbirth is also high, putting nearly one-third of women at risk.<sup>[5]</sup>

The traditional use of lactational amenorrhea and prolonged postpartum sexual abstinence<sup>[3]</sup> may also delay initiation of contraceptive use. Although one previous Nigerian study showed that women resume sexual intercourse early after childbirth without the use of contraception; about 67.6% (230 out of 340 women) had a mean time to resuming intercourse of 8.2 ( $\pm 2.9$ ) weeks postpartum and a median time of 8.0 weeks. About 3.5% (8 out of 230) did so within the puerperium.<sup>[6]</sup>

The longer a woman waits before initiating contraception after her last childbirth, the higher her risk of unintended pregnancies. Hence, this paper aims to determine which factors affect the interval between a woman's last childbirth, to the initiation of contraception in northern Nigeria. Findings from the study may help direct future patient education and policies on contraception to increase the uptake of contraception in the immediate postpartum period to better prevent risk of unintended pregnancies.

## MATERIALS AND METHODS

The study setting was Barau Dikko Specialist Hospital, a 240-Bed Secondary Care hospital located in Kaduna, northern Nigeria and the hospital caters for the metropolis and its environs. Approval for the study was gotten from the Kaduna state ministry of health. There was no risk to clients whose information were kept confidential. We used a retrospective study design to evaluate intervals from last childbirth to initiation of contraception. All available client records from the family planning clinic from 1 January, 2000, to 31 March, 2014, were retrieved. Information was collected on demographics, reproductive, menstrual, and contraceptive history. Data on interval from last childbirth to initiation of contraception coded as <6 months, 6–15 months, and >15 months were also collected. Relevant data were analyzed using the statistical package for social sciences version 15 (Chicago, SPSS Inc). Missing responses were stated as such and excluded from analysis.

Descriptive analysis was done using frequencies and percentages. Chi-square and binomial logistic regression were used to test the association between intervals from last childbirth and initiation of contraception, and demographic/other relevant factor. Statistical significance level was established at a  $P = 0.05$ .

## RESULTS

A total number of 5992 client cards were retrieved and all clients were female and married. Majority of clients were aged between 25 and 34 years (53.1%), had either completed their secondary education or gone further (56%) and were Muslims (52.3%). Demographic characteristics are shown in Table 1. However, only 4979 cards (83.1%) had correctly filled data on intervals to initiation of contraception from the last childbirth as shown in Table 2, and only 22.1% of the clients initiated contraception within 6 months of last childbirth.

**Table 1: Demographic characteristics of family planning clients**

Variable	Frequency (%)
Age (years)	
<20	131 (2.2)
20-24	985 (16.4)
25-29	1501 (25.1)
30-34	1680 (28.0)
35-39	1053 (17.6)
40-44	455 (7.6)
45-49	139 (2.3)
$\geq 50$	47 (0.8)
Missing	1 (0.0)
Education	
None	595 (9.9)
Some primary	409 (6.8)
Completed primary	861 (14.4)
Some secondary	685 (11.4)
Completed secondary or more	3410 (56.9)
Missing	32 (0.5)
Religion	
Islam	3135 (52.3)
Christianity	2278 (38.0)
Others	33 (0.6)
Missing	546 (9.1)
Total	5992 (100)

**Table 2: Time intervals to initiation of contraception among clients**

Interval from last delivery	Frequency (%)
<6 months	1096 (18.3)
6-15 months	2454 (41.0)
>15 months	1427 (23.8)
Missing	1013 (16.9)
Total	5992 (100)

Several factors were associated with the interval of initiating contraception after last childbirth such as: age, education, religion, source of information about contraceptive service, number of living children, breastfeeding, desire to have more children or not,

previous use of contraception, and type of contraception chosen at the first visit to the family planning clinic (all  $P < 0.05$  are shown in Table 3).

Those aged  $<35$  years generally initiated contraception earlier within 15 months of last

**Table 3: Cross-tabulations of variables with Interval to initiation of contraception from last childbirth**

Variable	<6 months (row %)	6-15 months (row %)	>15 months (row %)
Age (years)			
<20	35 (38.9)	55 (61.5)	0 (0.0)
20-24	367 (41.2)	474 (53.3)	49 (5.5)
25-29	292 (22.9)	837 (65.8)	114 (11.3)
30-4	229 (16.4)	696 (49.8)	472 (33.8)
35-39	146 (18.2)	309 (38.5)	348 (43.3)
40-44	16 (4.2)	59 (15.6)	304 (80.2)
45-49	0 (0.0)	19 (19.2)	80 (80.8)
>50	13 (27.7)	5 (10.6)	29 (61.7)
$\chi^2$ , df, $P$		1349.540, 14, <0.001	
Education			
None	99 (25.6)	189 (49.0)	98 (25.4)
Some primary	66 (22.6)	121 (41.4)	105 (36.0)
Completed primary	127 (16.1)	359 (45.6)	302 (38.3)
Some secondary	175 (33.1)	278 (52.6)	76 (14.4)
Completed secondary or more	630 (21.3)	1484 (50.3)	838 (28.4)
$\chi^2$ , df, $P$		122.349, 8, <0.001	
Religion			
Islam	783 (29.9)	1364 (52.1)	472 (18.0)
Christianity	259 (14.1)	804 (43.8)	772 (42.1)
Others	4 (12.1)	27 (81.8)	2 (6.1)
$\chi^2$ , df, $P$		369.886, 4, <0.001	
Source of information			
Clinic personnel	629 (21.4)	1495 (50.9)	816 (27.8)
Outreach personnel	9 (17)	26 (49.1)	18 (34.0)
Radio	56 (23.5)	98 (41.2)	84 (35.3)
Television	49 (27.7)	64 (36.2)	64 (36.2)
Print media	0 (0.0)	18 (100)	0 (0.0)
Friends/relatives	277 (25.8)	90 (45.7)	305 (28.5)
Community health workers	28 (80.0)	7 (20.0)	0 (0.0)
Others	0 (0.0)	6 (100)	0 (0.0)
$\chi^2$ , df, $P$		130.735, 14, <0.001	
Number of living children			
None	0 (0.0)	0 (0.0)	0 (0.0)
1-2	495 (30.1)	990 (60.1)	161 (9.8)
3-4	276 (17.2)	765 (47.8)	560 (35.0)
>4	313 (18.6)	667 (39.6)	706 (41.9)
$\chi^2$ , df, $P$		473.639, 4, <0.001	
Complications in last pregnancy			
No	939 (22.2)	2063 (48.9)	1221 (28.9)
Yes	80 (19.4)	197 (47.8)	135 (32.8)
$\chi^2$ , df, $P$		3.344, 2, 0.188	
Breastfeeding			
Yes	885 (31.5)	1726 (63.7)	129 (4.8)
No	133 (9.1)	284 (19.4)	1050 (71.6)
$\chi^2$ , df, $P$		2097.426, 2, $P < 0.001$	

Contd...

**Table 3: Contd...**

Variable	<6 months (row %)	6-15 months (row %)	>15 months (row %)
Do you want more children in future?			
No	43 (9.2%)	122 (26.0)	304 (64.8)
Yes	989 (21.6)	1956 (51.5)	850 (22.4)
Uncertain	33 (10.6)	137 (44.1)	141 (45.3)
$\chi^2$ , df, P		431.232, 4, <0.001	
Previous contraception			
No	631 (29.2)	1179 (54.6)	350 (16.2)
Yes	409 (18.5)	907 (40.9)	899 (40.6)
$\chi^2$ , df, P		323.529, 2, <0.001	
Chosen contraception			
Oral contraceptive pills	238 (37.8)	313 (49.8)	78 (12.4)
Injectables	456 (24.2)	964 (51.1)	465 (24.7)
Implants	69 (37.5)	98 (53.3)	17 (9.2)
Intrauterine devices	280 (16.0)	762 (43.5)	710 (40.5)
$\chi^2$ , df, P		305.440, 6, <0.001	

Significance was  $P < 0.05$ . DF=Degree of freedom;  $\chi^2$ =Chi-square test

**Table 4: Binomial logistic regression results of factors associated with interval to initiation of contraception from last childbirth**

Variable	Interval <6 months?		Crude OR	95% CI	P
	Yes (%)	No (%)			
Age (n=4978)					
<35 years	923 (25.3)	2727 (74.4)	0.89	0.70-1.13	0.334
≥35 years	175 (13.2)	1153 (86.8)			
Education (n=4947)					
Primary or less	292 (19.9)	1174 (80.1)	0.91	0.75-1.10	0.333
Secondary or more	805 (23.1)	2676 (76.9)			
Religion (n=4454)					
Islam	783 (29.9)	1836 (70.1)	1.56	1.32-1.84	<0.001
Christianity	259 (14.1)	1576 (85.9)			
Source of information					
Health worker or clinic	666 (22.0)	2362 (78.0)	0.67	0.56-0.79	<0.001
Nonhealth worker	382 (25.3)	1129 (74.7)			
Breastfeeding (n=4177)					
Yes	855 (31.5)	1855 (68.5)	3.43	2.75-4.28	<0.001
No	133 (9.1)	1334 (90.9)			
Number of living children (n=4933)			1.36	1.17-1.58	<0.001
1-4	772 (23.7)	2480 (76.3)			
>4	312 (18.6)	1369 (81.4)			
Want more children (n=4575)					
Yes	989 (26.1)	2806 (73.9)	1.78	1.31-2.42	<0.001
No	76 (9.7)	704 (90.3)			
Prior contraception (n=4375)					
Short acting	409 (18.5)	1806 (81.5)	0.73	0.62-0.86	<0.001
Long acting	631 (29.2)	1529 (70.8)			
Contraception selected (n=4450)					
Short acting	694 (27.6)	1820 (72.4)	1.35	1.14-1.59	<0.001
Long acting	349 (18.0)	1587 (82.0)			

n=Number analyzed; OR=Odds ratio; CI=Confidence interval

delivery while those above 35 years initiated contraception later (after 15 months) ( $\chi^2 = 1349.540$ ,  $P < 0.001$ ) [Table 3]. A greater percentage of those

educated to secondary level initiated contraception earlier (within 6 months, 33.1%) compared to those with no education (25.6%) ( $\chi^2 = 122.349$ ,  $P < 0.001$ )

[Table 3]. More Muslim clients initiated contraception earlier, within 6 months (29.9%) of last childbirth compared to Christians (14.1%) and clients of other faiths (12.1%) ( $\chi^2 = 369.886$ ,  $P < 0.001$ ) [Table 3]. Clients whose information about contraception was from community health workers were more likely to initiate contraception earlier, within 6 months (80%) than clients whose information came from other sources (<30%) ( $\chi^2 = 130.735$ ,  $P < 0.001$ ) [Table 3]. All clients had at least one child but clients with lower parity (1–2 deliveries) initiated contraception earlier within 6 months than compared with those of higher parity (>2deliveries) ( $\chi^2 = 473$ ,  $P < 0.00$ ) [Table 3]. More breastfeeding clients (31.5%) initiated contraception within 6 months compare to nonbreastfeeding clients (9.1%) ( $\chi^2 = 2097.426$ ,  $P < 0.001$ ) [Table 3]. Clients whose indication for contraception was child spacing (26.1%) initiated contraception earlier within 6 months than those who did not want more children (9.2%) or were uncertain (10.6%) ( $\chi^2 = 431.232$ ,  $P < 0.001$ ) [Table 3]. Clients with no previous use of contraception initiated contraception earlier (29.2%) within 6 months compare to previous users (18.5%) ( $\chi^2 = 323.529$ ,  $P < 0.001$ ) [Table 3]. When the chosen contraceptive method for current use was intrauterine devices (IUDs), clients were least likely to initiate contraception within 6 months (16%) than when compared to other forms of contraception ( $\chi^2 = 305.440$ ,  $P < 0.001$ ) [Table 3]. However, the presence of complications in the last delivery was not significantly associated with interval taken to initiate contraception after last delivery ( $\chi^2 = 3.344$ ,  $df = 2$ ,  $P = 0.188$ ) [Table 3].

Significant variables were recoded to dichotomous values and binomial regression analysis done [Table 4]. And, as shown in Table 4, all variables had individual significance ( $P < 0.05$ ) in the model except for age and education ( $P \geq 0.05$ ).

## DISCUSSION

As is typical in the Nigerian setting from our experience, all clients attending the family planning clinic were female, married and had at least one child. Family planning services and staff in this part of the world are not very friendly towards unmarried women, and there are prevailing myths about possible future infertility as a side effect of some contraceptive methods, so nulliparous women are not usually seen at family planning clinics.

Only a minority of clients (22.1%) initiated contraception within 6 months of their last childbirth, so majority were at risk of unwanted pregnancies, even if they breastfed exclusively. Uptake of postpartum family

planning (PPFP) remains low in sub-Saharan Africa.<sup>[7]</sup> More than 200 million women in developing countries would like to delay their next pregnancy or even stop bearing children altogether, but do not use effective forms of contraception (Singh 2003). One Kenyan study showed that 92% of postpartum women reported that they needed contraception, but only 2% left the hospital with a method after delivery.<sup>[8]</sup> In Kenya, Indonesia, the Dominican Republic, and Peru, only about 20%–40% of women initiated contraceptive use in the postpartum period before they became at risk for another pregnancy.<sup>[9]</sup>

Postpartum abstinence is also a common practice, and so a woman may feel no need to use contraception, though this study was unable to explore postpartum abstinence; one Nigerian study showed that among women in 9–10-month postpartum, 50% of women were not using contraception and 20% had not resumed sex.<sup>[10,11]</sup> Other barriers to contraception include lack of awareness and access, myths surrounding side effects, ambivalence and low perception of risk.<sup>[12]</sup> In our experience in this part of the country, there are lot of traditional methods used for contraception some of which are undocumented (mainly herbs and seeds,) or of unknown efficacy but which women may be using<sup>[13]</sup> and lead to delays initiating modern forms of contraception. Furthermore, the study was unable to explore if women have actually used and stopped other contraceptives (such as condoms and gels) before coming to the clinic.

Younger women initiated contraception earlier than older women. The reason for this is not very clear, but this is similar to other studies, and one such study showed that increasing age of women significantly reduced their use of PPFP.<sup>[7,14–16]</sup> In America, younger women <25 years were more likely to use long-acting reversible contraceptives at a military facility.<sup>[15]</sup> Younger women are more fertile and perhaps are more motivated to initiate contraception earlier because they do not want to interrupt their education or other pursuits. Another study, however, found that postpartum use of modern contraception was not affected over the years by age in Nigeria, but in Ethiopia, there was a significant increase in uptake of postpartum contraception among adolescents from 2005 to 2011.<sup>[17]</sup>

Our findings suggest that those with some secondary education initiated contraception earlier than those with no education. This finding is consistent with other studies.<sup>[3,7,18]</sup> Higher education is usually associated with better use of health facilities and in this instance, probably with better understanding of the need and benefits for contraception, range of choices and side effects.<sup>[7]</sup> A study done in Kenya, Indonesia, the Dominican Republic, and Peru showed that in all four

countries the likelihood of adopting contraception during the first 12-month postpartum increases with the level of education of the mother.<sup>[9]</sup>

Muslims initiated contraception earlier than clients of other faiths in this study, which is contrary to the general perception. It is likely that awareness and acceptability are increasing. In one other study, religious affiliation was not very significant except that among Christians, Protestants were more likely to use modern contraceptive methods than Catholics.<sup>[7,19]</sup> Both Islam and Christianity have been known to sometimes discourage the use of modern contraception.<sup>[20,21]</sup>

In Southeastern Nigeria, 68% of the unmarried rural population learned about contraceptive methods from either the mass media or from health workers.<sup>[22]</sup> It is not surprising that in our study, women receiving information about contraception from community health workers were more likely to initiate contraception earlier than others. Community health workers can reach a wider audience of women to educate them about contraception. In other studies, women's exposure to family planning messages on the media increased demand and use of PFP.<sup>[7]</sup>

In this study, women of lower parity initiated contraception earlier than those of higher parity. This is similar to the finding that the number of living children had a direct relationship to the likelihood of using PFP.<sup>[7]</sup> Women of lower parity are likely to be younger so the same reasons may apply.

Women breastfeeding initiated contraception earlier than those not breastfeeding. This is despite the fact that breastfeeding can be used as an effective contraceptive method if it is exclusive and associated with amenorrhea within the first 6-month postpartum.<sup>[23]</sup> Perhaps, it is because the women breastfeeding were also younger and more educated,<sup>[24]</sup> hence more aware about contraception. Regular visits to the hospital (e.g., to immunize children) coincides with the time women are breastfeeding so they have more contact with health workers who may perhaps have counseled them on contraception. It is important to note that the WHO recommends that combined hormonal contraceptive methods should not be initiated until at least 6 months postpartum, and after breastfeeding skills and patterns have been well established.<sup>[25]</sup> Providers need to be aware of this since when counseling breastfeeding women seeking contraception who appear to come earlier in this setting. However, breastfeeding status was ascertained at the time of the family planning visit, and it is obvious that women who come for contraception shortly after delivery are more likely to be breastfeeding than women who come later. If this is the case, then

the association between breastfeeding and contraception initiation intervals may be spurious so caution should be exercised interpreting this particular result.

More women were getting contraception for spacing rather than limiting their family size which is consistent with findings from national Nigerian studies,<sup>[1]</sup> showing high fertility probably due to society values. Women using contraception for child spacing initiated contraception earlier than those that had completed their family size or those uncertain. The "spacers" obviously knew exactly what they wanted and were not taking any chances. Perhaps they had previously experienced the negative effects of an unwanted pregnancy or short birth intervals.

Women with no previous use of contraception initiated contraception earlier than previous users of contraception. It is likely that previous users had experienced some unwanted effects such as altered menstrual patterns. Especially as the initiation of contraception was more likely to be delayed when the current choice of contraception was IUDs. Yet IUDs can be used in the immediate postpartum period (within 48 hours of delivery) with numerous benefits.<sup>[26]</sup> IUDs are highly effective, do not interfere with breastfeeding but may be associated with unwanted side effects such as cramps, expulsion, perforation, and heavy bleeding.<sup>[26]</sup>

Surprisingly, complications in the last delivery were not significantly associated with the interval taken to initiate contraception. We would have expected that when pregnancies are complicated, women are more likely to seek care and in the process receive adequate information about contraception. There needs to be proper integration of family planning into all aspects of maternity care. Although in our experience, when the obstetric outcome of a complicated pregnancy was not a live birth, women tend to want to get pregnant again quickly to replace their loss.

## CONCLUSIONS AND RECOMMENDATIONS

Majority of women initiate contraception late after childbirth in this setting. Both clients and providers need to be educated on the uptake of contraception at a time when it is most likely to be effective, especially after a recent delivery. There should be better integration of family planning into maternal and child care programs. Counseling should always emphasize how side effects of contraception can be minimized, especially among previous users. The importance of educating girls to a reasonable level cannot be overemphasized. Additional studies using qualitative/prospective design methods may be useful to further explore findings and reasons why women in this setting do not initiate contraception early.

### Study strengths and limitations

The study has a large size but is limited by its cross-sectional design which poses causality challenges and not all factors affecting intervals to initiation of contraception could be fully explored.

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### Conflicts of interest

There are no conflicts of interest.

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