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Use of Contraceptives for Birth Spacing in a Nigerian City

Gbolahan A. Oni and James McCarthy

This paper examines the use of contraceptives among women aged 15–35 in the urban area of Ilorin, Nigeria, with particular focus on use for the purpose of spacing births. Approximately 19 percent of ever-married women in the sample had used contraceptives at some time and approximately 6 percent were using at the time of the survey. Results suggest that some women have used or are using contraceptives as a substitute for prolonged periods of postpartum sexual abstinence. Whereas all groups of women in the study prefer to maintain an interval of two years between births, less traditional women no longer prefer to observe long periods of postpartum sexual abstinence. For some women, therefore, there is a wide gap between the length of preferred birth interval and the length of preferred abstinence. The magnitude of this gap is significantly associated with both ever use and current use of contraceptives. Other variables found to have a significant independent effect on contraceptive use were total number of children desired, maternal age, and maternal education.

Over the past decade, a number of studies have documented a set of demographic conditions associated with high rates of population growth in tropical Africa. At the most general level, these high rates of population growth are the result of birth rates considerably in excess of death rates. High African fertility, in turn, results from early and nearly universal marriage, combined with relatively high marital fertility. However, marital fertility in Africa is considerably below levels observed in some high fertility societies, such as the Hutterites, who have experienced total fertility rates above 10. Traditionally, women in tropical Africa have reduced marital fertility below the maximum by spacing births relatively far apart. Their long birth intervals have resulted from prolonged breastfeeding (which delays the return of ovulation) and from strong taboos that prescribe long periods of postpartum sexual abstinence.

However, recent socioeconomic changes in tropical Africa, especially changes in women's education, have been associated with declines in the duration of both breastfeeding and postpartum abstinence.¹ In spite of

these changes in postpartum practices, the prevalence of contraceptive use in tropical Africa remains low.² Such a decline in traditional fertility-inhibiting behavior, when not adequately compensated by increased use of contraceptives or by changes in other intermediate variables (increased age at marriage or abortion prevalence), can lead to increases in overall fertility and increases in population growth rates. This, in fact, is the situation among some populations in tropical Africa, particularly among the relatively more educated, urban populations.

Although contraceptive prevalence is low in Africa, some couples have used or are currently using contraceptives. In this report we examine ever use and current use of contraceptives among a sample of women interviewed in the urban areas of Ilorin, Kwara State, Nigeria. Our goal is to identify demographic, cultural, and socioeconomic factors that are important in determining use or nonuse of contraceptives by women in the prime childbearing ages (15–35 years). Our study is limited to women still in their active childbearing ages, and it has been established that the demand for children among these women is high.³ Therefore, we examine our data for evidence of the extent to which contraception is being practiced in this population for the purpose of birth spacing. Since family planning programs, in order to be effective, must reach those women who are still actively bearing children, information on the determinants of contraceptive use—especially for the purpose of child spacing—is valuable to those interested in establishing effective programs to promote contraception in the Third World.

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The Study Population

The study on which this report is based took place in Ilorin, the capital city of Kwara State, one of the 19 states of Nigeria. The Nigerian Population Census of 1963 enumerated the population of Ilorin at 208,546 inhabitants. By 1980, the population was estimated to be 477,564, giving an annual growth rate of about 5 percent between 1963 and 1980. The city's population has continued to increase since then, mainly as a result of substantial net migration into Ilorin from the neighboring rural areas as well as other parts of the country.

Kwara State was created by the Federal Government of Nigeria in 1967 as one of the 12 states that emerged from the four regions that then comprised Nigeria. (There are now 19 states in Nigeria, 7 more having been created in 1976.) Ilorin became the capital city of Kwara State at the creation of the state in 1967. Since that time, Ilorin has changed from an old, traditional town to a rapidly developing, modern city. The indigenous occupations include farming, pottery-making, weaving, dyeing, leather-working, and embroidery. More recently, opportunities have opened up in manufacturing and construction, banking, insurance, and commerce as well as in state and federal establishments, including a university and a hospital.

Health facilities have also expanded considerably in recent years. There is one government hospital, the General Hospital, which has become the teaching hospital of the University of Ilorin, as well as about a dozen private hospitals and clinics. However, the government hospital remains the major health provider source to the people of Ilorin and its environs. The maternity wing of the teaching hospital has a family planning clinic where married women (and only married women) can be advised on family planning matters. Contraceptives, mainly pills and intrauterine devices (IUD), are also supplied to the women at moderate costs. Similar services are now being offered at the Okelele Clinic, which is a government-owned clinic in the traditional center of the town. At the time of this study, these two were the only family planning clinics that were known to any extent by the general public.

Data and Methods

The study data were gathered from a household survey carried out between the months of September 1983 and January 1984. The primary objective for gathering the data was to examine the impact of women's education on postpartum nonsusceptibility among currently married women who were within the active childbearing ages of 15–35 years.⁴ For the purpose of sampling, the Ilorin administrative wards were stratified into three groups depending on whether they represented a low, medium, or high socioeconomic area. One ward was selected from each stratum and samples of households were taken from

each selected ward. A total of 932 households were included in the sample and 913 currently married women between the ages of 15 and 35 years were interviewed. Relevant information on the postpartum practices as well as the socioeconomic characteristics of the women was obtained. Questions related to their contraceptive knowledge and practices were also asked.

In examining the determinants of contraceptive use in this study, the following sociodemographic and cultural variables (related to the woman) are considered: the number of children desired, age, number of living children, type of marriage, religion, area of residence within the city, level of education, and type of occupation. In addition to the above variables, one is also developed that we consider to be important as a motivation to practice contraception for spacing purposes. This "motivation variable" is based on the women's responses to two questions: (1) "If you could choose, how long an interval would you like between one baby and the next?" and (2) "How long an interval after the birth of a child should a couple wait before resuming sexual relations?" We believe that in the context of tropical Africa, the motivation to practice contraception for spacing includes not only the desired length of the birth interval but also the desired length of postpartum abstinence, since, traditionally, couples have relied on prolonged abstinence as a means to achieve the desired birth interval length. The question of interest here is the extent to which couples who still prefer relatively long birth intervals, but who no longer prefer prolonged sexual abstinence following a birth, are willing to substitute contraceptive use for prolonged abstinence. The motivation variable derived from the two questions above is, therefore, referred to in this analysis as the "disparity between preferred spacing and preferred abstinence." The number of children desired by the woman is also considered as a motivation variable here.

The dependent variables are ever use and current use of contraceptives. The current use refers to the reported use at the time of the survey, while the ever use variable provides the incidence of contraceptive use in the lifetime of the woman without reference to timing. Both variables were found to be meaningful in several earlier studies on contraceptive prevalence. In estimating prevalence of contraceptive use, however, all currently married women (15–35 years) in our sample are used as the denominator. It can be argued that, for current use especially, a more refined denominator that excludes women not exposed to pregnancy—that is, pregnant, abstaining, amenorrheic, and sterile women—would be more appropriate. However, such a refined denominator poses several problems. For example: differences in the completeness of reporting current pregnancy status may affect comparability of rates; postpartum bleeding may be mistaken for return of menses by some women; identifying sterile women through the survey may be difficult; and women who already know that they are sterile may fail to admit it to interviewers. Consequently, rates based

on a more refined denominator can be very difficult for program administrators and policymakers to use, since it is extremely difficult, if not impossible, to identify and locate target populations based on such refinements. As a result, reports on contraceptive prevalence surveys have mostly used currently married women as the denominator.⁵

Results

Our hypothesis is that when women no longer prefer to abstain from sexual relations for too long following a birth but at the same time wish to maintain adequate spacing between births, they will be more willing to use contraceptives as a substitute for prolonged abstinence. Table 1 compares the preferred duration of abstinence and preferred birth spacing among users and nonusers of contraceptives. For both dependent variables (ever use and current use), those women who have used or are currently using contraceptives prefer a much shorter duration of abstinence than those who have never used or are not currently using any contraceptives. For ever users, the preferred duration of abstinence is 6.4 months compared to 16.7 months for those who have never used any contraceptives. However, for the preferred length of interval between births, the differences between users and nonusers are small. For example, among women who ever used contraceptives, the preferred interval is 27.1 months as compared to 29.3 months for those women who never used contraceptives—a difference of only about two months. Hence, while those women who used contraceptives would prefer a much reduced abstinence duration, they, nevertheless, still prefer to have almost as much spacing between births as those women who never used contraceptives.

Table 1 Preferred durations of postpartum sexual abstinence and interval between births by category of contraceptive use, currently married women aged 15–35 years, Ilorin, Nigeria, 1983–84

Contraceptive use status	Postpartum abstinence			Birth interval		
	No. of cases ^a	Mean preferred duration ^b	SD ^c	No. of cases ^a	Mean preferred duration ^b	SD ^c
Total	897	14.7	9.3	907	28.8	6.9
Ever use						
No	709	16.7	8.8	714	29.3	6.6
Yes	163	6.4	5.8	168	27.1	7.1
Current use						
No	819	15.4	9.1	827	28.9	6.7
Yes	53	5.6	5.1	55	27.4	9.7

^a25 married women who had not had any births and did not respond to questions on contraceptive use were excluded from the analysis.

^bDurations are in months.

^cStandard deviation.

Table 2 shows the proportion of women who have ever used or are currently using contraceptives by various demographic, socioeconomic, and cultural variables. Also examined is the association of each of the variables with each dependent variable; this is determined by calculating the chi-square statistic (χ^2) and its p-value. All of the nine variables considered were found to have significant effects on ever use and current use of contraceptives.

The motivation to use contraceptives for spacing purposes should depend on two variables: (1) the disparity between preferred interbirth intervals and preferred duration of postpartum abstinence, and (2) the number of children that a woman desires, which is a measure of her fertility demand. Each variable had a significant effect on ever use and current use of contraceptives in the present study. The larger the disparity between preferred birth interval and preferred duration of abstinence, the more likely it is that a woman will use contraceptives for spacing. Also, the higher the number of children demanded by a woman, the less likely it is that she ever used or is currently using contraceptives.

Contraceptive use also increases with maternal age in the study population. Sathar and Chidambaram had established that the peak use of contraceptives occurs mostly after age 30 in Asia and Africa (except, perhaps, in Indonesia and Thailand).⁶ In our data, the highest proportion of ever use and current use occurred in the age group 30–35 years (28.3 percent and 9.0 percent, respectively). Also, number of surviving children appears to be an important factor. Women who have had four or more surviving children are more likely to have ever used or be currently using contraceptives than are those women who have fewer than four surviving children. That contraceptive use is positively associated with number of surviving children agrees with similar findings for Asian and African countries.⁷ It was also observed that the practice of polygamy was associated with a low level of contraceptive use. Similarly, Christians were more likely to have used or be currently using contraceptives than were Muslim women.

The area in the city in which the woman lives is also important to contraceptive use. Women who lived in the low socioeconomic areas had the least tendency to have ever used contraceptives (2.1 percent) or to be currently using (0.9 percent) contraceptives, while those who lived in the high socioeconomic areas of the city were most likely to have ever used (31.6 percent) or be currently using (10.8 percent) contraceptives. The education of the woman is an important determinant of contraceptive use, as well, with the proportion of ever users ranging from 1.9 percent among women with no schooling to 59.8 percent among those with postsecondary education. Current use ranges from 0.8 percent among women with no schooling to 22.3 percent among those with postsecondary education.

The work status of the woman is often considered to be a major determinant of her fertility aspirations and

Table 2 Currently married women aged 15–35 years who had ever used or were currently using modern contraceptives, by various demographic, socioeconomic, and cultural variables, Ilorin, Nigeria, 1983–84

Variable	No. of cases	Percent of currently married women aged 15–35	
		Ever used contraceptives	Currently using contraceptives
Total	888 ^a	18.9	6.2
(1) Disparity in months between preferred spacing and preferred abstinence			
< 12	341	3.2	0.9
12–23	382	24.1	6.8
24+	165	39.4	15.8
(2) No. of children desired			
0–4	98	48.0	18.4
5 or 6	227	36.1	13.2
7+ ^b	563	6.9	1.2
(3) Woman's age ^c			
< 20 years	49	0.0	0.0
20–24 years	207	6.8	2.4
25–29 years	289	19.7	6.6
30–35 years	343	28.3	9.0
(4) No. of living children ^d			
0–3	584	14.6	5.0
4+	304	27.3	8.6
(5) Type of union ^{e,f}			
Polygamy	149	8.7	2.0
Monogamy	736	20.9	7.1
(6) Religion			
Muslim	427	7.3	2.1
Christian	461	29.7	10.0
(7) Area of residence			
Low socioeconomic	341	2.1	0.9
Medium socioeconomic	259	27.0	8.1
High socioeconomic	288	31.6	10.8
(8) Woman's education			
None	374	1.9	0.8
Primary	252	17.5	4.4
Secondary	150	33.3	10.7
Postsecondary	112	59.8	22.3
(9) Woman's occupation ^f			
None	108	15.7	5.6
Traditional	415	4.8	1.7
Modern	364	36.0	11.5

Note: For all variables, $p = 0.00$ except as indicated. Under ever use and current use, for variable (1), $\chi^2 = 106.5$ and 42.8 , respectively; (2) 150.5 , 68.0 ; (3) 51.1 , 13.2 ; (4) 20.4 , 3.8 ; (5) 11.3 , 4.6 ; (6) 71.4 , 22.3 ; (7) 104.5 , 28.6 ; (8) 213.7 , 75.5 ; (9) 123.9 , 32.5 .

^aExcluded from the analysis are 25 married women who had not had any births and did not respond to questions on contraceptive use. ^bWomen who indicated that they wanted "as many children as God could provide them" are included in this category. ^cUnder current use, $p = 0.01$. ^dUnder current use, $p = 0.05$.

^eUnder current use, $p = 0.03$. ^fTotal numbers do not add up to 888 because of missing values.

behavior and, hence, some strong association with contraceptive use is expected. The present data show that women who were working in the modern sector of the economy used contraceptives more than those who did not work or who worked only in the traditional sector. However, the level of contraception is lowest among those with traditional occupations. Many of the women who indicated that they were not working at the time of the survey had some education, were married to successful and educated husbands, and for one reason or another chose to be housewives. On the other hand, most of the women who were engaged in traditional occupations such as weaving, dyeing, pottery-making, leather-working, and embroidery did not have any formal education.

The complex pattern of intercorrelations that may exist among the variables considered here makes it impossible to conclusively attribute effects simply to one factor or another based on the bivariate analysis in Table 2. Those results are preliminary and require an assessment of the joint effects of the variables, through a multivariate analysis. Table 3 shows the zero-order correlation among the variables; some of them are highly correlated. For example, woman's education is highly correlated with area of residence ($r = 0.76$), type of union ($r = 0.52$), religion ($r = 0.82$), and with number of children desired ($r = -0.73$). The independent effects of woman's education on contraceptive use cannot be assessed accurately without adjusting for all these other variables with which it is correlated. Although a few of the correlations in Table 3 are high, none are extreme enough to require its exclusion from the analysis or the recreation of new variables. Therefore, all the variables have been used in the multivariate analysis.

The multivariate analysis technique used in this study is the linear logistic regression.⁸ This regression is useful when the dependent variable is dichotomous. Since it does not require distributional assumptions, unlike many other multivariate techniques, it can appropriately handle situations in which the independent variables are qualitative or measured in nominal or ordinal scales. It can be used to identify risk factors as well as predict the probability of "success" (e.g., the probability, P_i , that a woman is a current user of contraceptives as a function of her socioeconomic characteristics). By estimating the logarithm of the ratio of "success" (P_i) to "failure" ($1 - P_i$) and relating it to the independent variables, the logistic parameters are easily interpreted in terms of odds and odds ratios; relative odds can be estimated for the categories of each independent variable or combination of such variables.

In the analysis of our data, the independent variables are treated as nominal variables and dependent variables are dichotomies. Table 4 shows the results of the analysis for ever use and current use of contraceptives. We have estimated the relative odds for the categories of each

Table 3 The zero-order correlations among predictor variables for all currently married women aged 15–35 years, Ilorin, Nigeria, 1983–84

Variable	Zero-order correlation (r)								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) Disparity between birth spacing and abstinence	1.00	-0.42	0.13	0.07	0.21	0.40	0.40	0.49	0.35
(2) No. of children desired		1.00	-0.23	-0.10	-0.48	-0.72	-0.50	-0.73	-0.42
(3) Woman's age			1.00	0.78	-0.10	0.30	0.27	0.22	0.21
(4) No. of living children				1.00	-0.20	0.23	0.19	0.07	0.12
(5) Type of union					1.00	0.67	0.46	0.52	0.32
(6) Religion						1.00	0.81	0.82	0.49
(7) Area of residence							1.00	0.76	0.43
(8) Woman's education								1.00	0.59
(9) Woman's occupation									1.00

Table 4 The adjusted relative odds (θ) of ever use and current use of contraceptives, by various demographic, socioeconomic, and cultural variables for currently married women aged 15–35 years, Ilorin, Nigeria, 1983–84

Variable	Ever use		Current use	
	Relative odds (θ)	95% confidence limits of (θ)	Relative odds (θ)	95% confidence limits of (θ)
(1) Disparity in mos. between preferred spacing and preferred abstinence				
< 12	1.00	—	1.00	—
12–23	3.77	(2.02, 7.01)	2.37	(0.86, 6.55)
24	6.15	(3.09, 12.22)	5.00	(1.74, 14.36)
(2) No. of children desired				
0–4	4.60	(2.43, 8.69)	6.89	(2.49, 19.12)
5 or 6	2.59	(1.57, 4.27)	4.81	(1.94, 11.95)
7+	1.00	—	1.00	—
(3) Woman's age (years)				
< 25	1.00	—	1.00	—
25–29	1.89	(0.92, 3.89)	1.58	(0.53, 4.71)
30–35	3.50	(1.65, 7.42)	2.15	(0.69, 6.65)
(4) No. of living children				
0–3	1.00	—	1.00	—
4+	2.12	(1.25, 3.60)	1.87	(0.87, 4.01)
(5) Type of union				
Polygamy	1.00	—	1.00	—
Monogamy	1.40	(0.64, 3.04)	2.29	(0.63, 8.35)
(6) Religion				
Muslim	1.00	—	1.00	—
Christian	0.81	(0.45, 1.46)	1.05	(0.43, 2.54)
(7) Area of residence				
Low socioeconomic	1.00	—	1.00	—
Medium socioeconomic	1.74	(0.61, 4.99)	1.03	(0.21, 5.12)
High socioeconomic	1.59	(0.57, 4.48)	1.04	(0.22, 5.00)
(8) Woman's education				
None	1.00	—	1.00	—
Primary	4.03	(1.48, 10.99)	1.96	(0.40, 9.61)
Secondary	4.14	(1.43, 11.98)	2.61	(0.49, 14.03)
Postsecondary	12.74	(4.18, 38.99)	5.91	(1.06, 32.96)
(9) Woman's occupation				
None	1.36	(0.59, 3.16)	1.06	(0.29, 3.86)
Traditional	1.00	—	1.00	—
Modern	1.98	(1.00, 3.92)	1.04	(0.34, 3.20)

variable. The 95 percent confidence limits of the relative odds were also calculated. The category with the relative odds of 1.00 represents the reference category for that variable. A given relative odds is said to be significant at the 5 percent level if its 95 percent confidence limits do not contain the value of 1.00.

Considering ever use first, the results in Table 4 show clearly that the disparity between preferred spacing and preferred abstinence has a significant effect on ever use of contraceptives when several other variables are introduced as controls. Relative to women whose disparity was less than 12 months, women with disparities of 12–23 months or 24 months or more were approximately four and six times more likely to have ever used contraceptives (relative odds of 3.77 and 6.15, respectively). The desire to have fewer children was also significant, with women reporting desired family sizes of less than seven being more likely to have used contraceptives.

In addition to these main variables of interest, three other independent variables are also significantly related to ever use of contraceptives; they are age of the woman, number of living children, and woman's education. The older women were more likely to have used a method of contraception than were younger women. The odds of ever use of contraceptives among women between 30 and 35 years of age is three-and-a-half times that of younger women who are under 25 years of age. Also, women who have had four children or more had more than two times the risk of ever use of contraceptives compared to those who have had fewer than four children. These findings indicate that contraceptive use does not occur very much during the early reproductive lives of these women. The higher risk of use among high-parity women could also indicate that the family planning program has been recruiting mostly older women who have had many children. Maternal education continues to have a strong effect on contraception with the probability of ever use increasing significantly as the woman's education increases. The effect is even stronger among those with a postsecondary education, who had a relative odds of 12.74 when compared to those women without any formal schooling.

With respect to the current-use variable, the pattern is the same as that of the ever-use variable; however, only three variables—the disparity between preferred birth spacing and preferred abstinence duration, woman's education, and the number of children desired—showed significant independent effects. When the difference between preferred birth spacing and preferred abstinence duration was two years or more, levels of current use were significantly higher than when the disparity was less than 12 months. In the case of woman's education, only those women with a postsecondary education had significantly higher levels of current use when compared with those who had no education. However, the number of children desired continued to

have a strong impact on current use, and the odds of using increase as number of children desired decreases.

Summary and Conclusions

In this report, we examined the use of contraceptives among married women aged 15–35 in the urban area of Ilorin, Nigeria, with a particular focus on the extent to which contraceptives are being used for the purpose of child spacing. Although contraceptive use was low among women studied (18.9 percent have ever used and 6.2 percent are currently using), there was significant variation in use among women with different socioeconomic, demographic, and cultural characteristics. The findings also suggest that some women in the study population have used or are using contraceptives to promote child spacing, as a substitute for prolonged periods of postpartum sexual abstinence.

A widespread desire is observed on the part of all groups of women in the study to maintain an interval of at least two years between all births. Although the preferred child spacing interval was more or less constant across all groups, the desired duration of postpartum abstinence differed markedly. There was, therefore, a wide gap for some women between the length of their preferred birth interval and the length of preferred abstinence. The magnitude of this gap was significantly associated with both ever use and current use of contraceptives. The results suggest that some women who prefer to resume sexual relations shortly after a birth are in fact using contraceptives as an alternate strategy to achieve their desired birth interval. Although levels of use are still relatively low, the results are encouraging to the extent that they show some receptivity on the part of urban Nigerian women to substitute contraceptive use for prolonged abstinence. Programs that aim at both reducing fertility and improving maternal and child health could well build on this receptivity and implement activities that could successfully improve contraceptive prevalence, specifically for the purposes of child spacing. Such programs could take advantage of the fact, reported here, that in spite of increased education and urbanization, all groups of Nigerian women still prefer to maintain traditional patterns of child spacing. Given the very likely continuing declines in the observance of postpartum abstinence, effective contraceptive use will be the most desirable mechanism through which Nigerian women will be able to achieve their desired birth intervals.

Our analysis indicated that several other variables were significant determinants of contraceptive use. The total number of children desired is independently related to contraceptive use, with women who desire fewer children being more likely to have ever used or to be currently using contraceptives. However, the overall impact of this association on fertility is small because the majority of

women (63.4 percent) report wanting seven or more children. This high demand for children certainly constitutes an obstacle to increased contraceptive use for the purpose of limiting fertility. As has been suggested elsewhere, government programs in Nigeria must be directed toward reducing the demand for children if significant fertility reductions are to take place.⁹ Our finding that increased contraceptive use may become a means for spacing births is encouraging. It may have only limited implications for fertility, however. Increased contraceptive use is likely to substitute for prolonged abstinence. The effect of this will be to avert the fertility increase that would be expected if couples stopped practicing abstinence and were unprotected. However, increased use is not likely to reduce fertility below traditional levels unless women lower their demand for children.

Finally, other variables found to have an independent effect on contraceptive use were woman's age and education. Women in the 30–35-year age group and those who were relatively more educated were more likely to have used or to be using contraceptives. Several other socioeconomic and cultural variables had significant zero-order associations with contraceptive use, but these associations were not significant when multivariate analyses were carried out. These variables included type of marriage (monogamous versus polygamous), area of residence, religion, and woman's occupation.

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