Variations in Postpartum Abstinence and Birth Intervals in Africa: Implications for Replacement Contraceptive Use

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Background

Widespread practice of post-partum abstinence is one of the unique characteristics of African reproductive behavior. In many traditional African settings, long post-partum abstinence was the norm, and it was protected by various post-parturition sexual taboos. It was therefore a major means of postponing the next pregnancy, a major determinant of birth spacing and hence an indirect determinant of fertility in the region (Caldwell and Caldwell, 1977, van de Walle and van de Walle, 1989, Page and Lesthaeghe, 1981, Orubuloye, 1981). Logically then, whatever affects postpartum abstinence in the region is likely to affect birth spacing and inter-pregnancy intervals, and hence fertility[1]. For example, if the length of postpartum abstinence increases, it is likely to increase birth intervals and ultimately reduce fertility – all things being equal.

African fertility behaviors scholars in the 1970s and 1980s had the fear that the force of modernization or westernization would lead to a decline in the length of postpartum abstinence unless there was adoption of effective contraception. Benefo (1995) also argues that increased modernization will lead to a reduction in the length of postpartum sexual abstinence in West Africa, which would delay the onset of fertility decline and thereby negative affect maternal and child health in the region. Early indications showed that replacement of postpartum abstinence with contraception was occurring in some settings. For example, Caldwell and Caldwell (1988) noticed a substitution of postpartum abstinence with contraception in their study in Ibadan, Nigeria – about 90% of those using modern methods in the study were doing so to substitute for postpartum abstinence or to prevent premarital pregnancy.

The pace of modernization has increased across sub-Saharan African (SSA) countries over the past several decades. There have been improvements in school enrolment ratios, in levels of schooling, in exposure to mass media, and in the use of social media. There have been improvements in travel and transportation; urbanization has increased, etc. For example, data from the Demographic and Health Surveys (DHS) program from the countries in this study show that in average of 19 years between the first DHS and the most recent DHS in these countries, the percentage of households with electricity more than doubled -- increasing from about 15% to 36.6%. Similarly, the percentage of women with secondary or higher education increased from 15% to 35% - a 240% increase. These are huge improvements.

1 Postpartum abstinence affects the length of birth interval. It is a consideration in the adoption of postpartum family planning, which is increasingly seen as important for the success of family planning program success in SSA. Women who are abstaining may not be interested in FP; knowing trends in median length of postpartum abstinence could be a guide in determining the need for postpartum family planning. The length of postpartum abstinence tends to respond to modernization and hence it tends to change over time. Tracking the trends is important because its length can indicate whether postpartum family planning will be helpful to women. In societies where prolonged postpartum abstinence is practiced, it could contribute to incidence of marital conflict or domestic violence. Caldwell and Caldwell (1977) found among the Yoruba that the urban educated people referred to the postpartum period as a season of strife between spouses.

Given the possible inverse relationship expected between modernization and observance of a prolonged postpartum abstinence, a logical question is: what is happening to the length of postpartum abstinence in sub-Saharan Africa? How has the length of the postpartum abstinence changed across sub-Saharan Africa in recent decades? Is it increasing or decreasing? If decreasing for any reason, is the median birth interval also decreasing? It should – if the postpartum abstinence length is decreasing. If it is not, we ask what is happening to breastfeeding duration – is it increasing? If yes, then postpartum amenorrhea may lengthen the length of postpartum insusceptibility. If breastfeeding duration is not increasing, then it could be that women are practicing contraception.

These questions are especially important because as the pace of modernization was increasing, family planning behavior has also been changing in the region. The prevalence of modern contraceptive use has increased over the past 20-30 years – some SSA countries now have prevalence rates of modern contraceptive methods (mCPR) above 55%, some above 60%. We however do not know whether (or the extent to which) couples are using contraception instead of practicing prolonged postpartum abstinence? In this study, we define "replacement contraception" as the extent to which couples use contraception instead of observing postpartum abstinence.

Previous studies have shown that wide variations exist in median length of postpartum abstinence in SSA mainly because beliefs about the interaction between semen and breastmilk and its effect on maternal/child health also vary widely in the region (Zulu, 2001). At one extreme are those like the Ewe and the Tallensi of Ghana who believe that semen is bad for the health of nursing mother and her baby and thus practice postpartum abstained for two-three years until the child is weaned (Gaisie, 1981). At the other extreme are the Banyankoles of Uganda who believed in the healing powers of semen and recommended that a man should have sex with his wife within a week to 10 days postpartum to hasten her healing (see van de Walle and van de Walle, 1989:4). An analysis of trends with DHS data in the late 1990s found that median postpartum abstinence was shortest in Uganda (2 months) and longest in Guinea (21 months). We hope to find out if that pattern is also replicated in this study.

Data and Methods

The analysis is based on DHS data from 25 selected countries from sub-Saharan Africa were analyzed. Countries were included if they had at least three data points from standard DHS (i.e., with birth history data) at the time this analysis began. Countries were included if their earliest survey was not later than 2005 and their latest DHS did not occur before 2010. On average, there were 19 years before the first and most recent surveys. The initial screening and tabulation were done using the DHS STATcompiler. We wanted to know the trends in mean duration of postpartum abstinence in each country and how much change there was between the earliest data point and the most recent surveys. We also wanted to know the trends in the proportion of women of reproductive age who are sexually active in the region.

We assumed that trends or changes over time would be a relevant variable to examine. Specifically, is the pattern of change over time in median length of postpartum abstinence correlated with changes in birth interval lengths, or in contraceptive prevalence rates (CPR), indices of modernization such as women's education attainment, households with electricity, etc.? We expected the median length of postpartum abstinence to decrease as modernization levels as well as CPR increase.

Measures: Postpartum abstinence duration in the DHS is defined as the time that elapsed after the birth a child and before the resumption of sexual relationship. In other words, it is the period of voluntary sexual

inactivity following the birth of a child. In the data, postpartum abstinence is denominated by live births in the three years preceding the survey date. The abstaining was by the mother, following the birth of the index child. In cases where a mother has more than a child in the 3 years before the survey, each child will have the maternal abstinence duration reported for the postpartum period.

Contraceptive Prevalence Rate (CPR) is the percentage of women of reproductive age (15-49) who are using any method to prevent a pregnancy. Any attempt to control pregnancy is acceptable for our purposes. The proportion using traditional methods is usually small in most countries. We ran our models with users of modern methods – just to check – and found that all-methods CPR was a better fit.

As indicated earlier, polygyny seems to be an enabling factor in some societies – enabling men to abstain from having sexual relationships with a wife who is nursing -- until her child is weaned. A regression model with monogamy as a predictor of the length of postpartum abstinence was not statistically significant predictor and was removed ($R^2 = 0.09$, $p>0.05$).

We used the percentage of women age 15-49 who have secondary or higher education in the population as a proxy for modernization – because education tends to have a positive effect on an individual's outlook to life, their beliefs, life choices and other relevant behaviors. We also selected the percentage of women living in households with electricity as another proxy for modernization. However, it had little predictive value or relationship with postpartum abstinence.

Data Limitations: We are attempting to link the mean length of postpartum abstinence to changes in contraceptive use in this paper. It would have been ideal to find out from women or men whether they decided to adopt contraception in order to reduce the length of postpartum abstinence. That would be the true definition of substitution or replacement contraceptive use. We do not have that data. Therefore, whatever correlation we observe is at best a proxy measure, and we cannot be sure of the drivers of changes in contraceptive prevalence and length of postpartum abstinence – especially given wide variations in these practices even within the same country.

Findings

a. Bivariate Results

Table 1 shows trends in the mean length of post-partum abstinence and it shows a decline from an average of 11 months in the earliest survey to about 9 months in the latest survey – or an average of 0.1 month decrease per year. The largest decline of about 8 months was in Nigeria, followed by Burkina Faso and Togo (7.5 months). There was an increase in a few countries: by about two months in both Rwanda and Uganda. The largest yearly declines are in Burkina Faso (0.44 month per year), Nigeria (0.36 month/year), Lesotho (0.35 month/year) and Togo (0.29 month/year). There was no noticeable change in countries such as Burundi, Kenya and Zimbabwe: their mean length of postpartum abstinence has been stable over time – suggesting that the mean length of postpartum abstinence in some settings is strongly determined by cultural norms and beliefs than changes in contraceptive practices. In terms of mean length of postpartum abstinence, Guinea has the longest mean period of abstinence (about 21 months), followed by Mozambique (13 months), Liberia (12.7 months) and Benin (12 months). The shortest mean postpartum abstinence reported was in Burundi (3.6 months) and Niger (4 months).

Table 2 shows that the average birth interval lengths increased in sub-Saharan Africa by an average of 3.5 months to three years (36 months) - despite the decreases in the duration of postpartum abstinence shown in Table 1. At the time of the first survey, birth intervals ranged from about 29 months in Kenya and Uganda to about 42 months in Lesotho. In the latest surveys, the shortest birth intervals were in Chad (29 moths) and the longest were in Lesotho (46 months) and Namibia 45 months) and Zimbabwe (44 months). Between the first and most recent surveys, birth intervals increased by an average of 11.6 months in Namibia, and by 11 months in Zimbabwe.

b. Regression results

The results of simple linear regressions for selected independent variables against mean length of postpartum abstinence as the independent variable in latest DHS are as follows: median birth intervals (R^2 = 0.35); CPR (R^2 = 0.24); percent of women with secondary/higher education (R^2 = 0.01); percent of household with electricity (R^2 = 0.08); percent in monogamous unions (R^2 = 0.3). When we incorporated change (by using yearly change) in both the dependent and independent variables, the results are as follows: birth interval lengths (R^2 = 0.23); CPR (R^2 = 0.42); percent with secondary education (R^2 = 0.35); breastfeeding duration (R^2 = 0.53).

We ran some multiple regression models just to assess the capacity of the independent variables to predict changes in the dependent variable (mean length of postpartum abstinence) in our study countries (latest surveys). The results are presented in Table 3. It shows that only changes in CPR and in median breastfeeding duration are statistically significant covariates of changes in mean postpartum abstinence. As CPR increases, so does the mean length of postpartum abstinence. An increase in the median length of breastfeeding is also associated with an increase in postpartum abstinence. The model shows an R^2 of 56% - which though impressive suggests that a large percentage of the changes (44%) remains unexplained by the selected variables in the model.

Table 3 Coefficients, standard errors and significance of predictors of changes in mean postpartum abstinence in 25 SSA countries

Annual change in:	Coefficient	Std. error	P values
CPR	0.1010	0.0339	$p < 0.01$
Median birth intervals	0.0401	0.1688	NS
Median breastfeeding duration	0.7571	0.1905	$p < 0.001$
Pct. with secondary/higher educ.	-0.0141	0.0404	NS
Intercept	-0.1580	0.0457	$p<0.001$

Notes: *R^2 = 0.56; n= 25; p<0.005. NS = not statistically significant at 0.05.*

The countries that experienced the largest increases in the mean length of postpartum abstinence in this study tend to be those with a fast increase in the pace of contraceptive adoption. For example, the average annual percentage point increase in CPR in Rwanda was 1.5 (1.6 in the latest DHS); 1.24 in Uganda and 1.74 in Ethiopia.

TO BE CONTD.

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Table 1: Trends in mean length of postpartum abstinence (months) in selected SSA countries

	1st Survey (months)	Latest Survey (months)	Change in months	Inter-survey (years)	Annual Change
Benin	16.4	9.1	-7.3	21.5	-0.34
Burkina Faso	19.0	11.5	-7.5	17	-0.44
Burundi	3.7	4.8	1.1	23	0.00
Cameroon	14.6	9.1	-5.5	20	-0.28
Chad	8.1	5.7	-2.4	18	-0.13
Cote d'Ivoire	14.8	9.6	-5.2	21	-0.25
Ethiopia	5.5	6.3	0.8	16	0.05
Ghana	13.8	9.4	-4.4	28	-0.16
Guinea	21.8	20.5	-1.3	13	-0.10
Kenya	6.1	6.6	0.5	25	0.02
Lesotho	14.2	10.7	-3.5	10	-0.35
Liberia	11.9	12.7	0.8	27	0.03
Malawi	9.0	8.9	-0.1	15.5	-0.01
Mali	6.7	5.4	-1.3	25.5	-0.05
Mozambique	14.3	13.4	-0.9	14	-0.06
Namibia	10.7	11.4	0.7	21	0.03
Niger	4.8	4.0	-0.8	20	-0.04
Nigeria	14.4	6.1	-8.3	23	-0.36
Rwanda	3.3	5.1	1.8	22.5	0.08
Senegal	8.2	6.8	-1.4	30	-0.05
Tanzania	10.8	7.5	-3.3	24	-0.14
Togo	17.0	9.5	-7.5	25.5	-0.29
Uganda	4.5	6.4	1.9	27.5	0.07
Zambia	8.3	7.1	-1.2	21.5	-0.06
Zimbabwe	6.0	5.7	-0.3	27	-0.01
Average	**10.7**	**8.6**	**-2.1**	**21.4**	**-0.10**

Table 2: Trends in the mean length of preceding birth intervals in selected sub-Saharan African countries

	1st (months)	Latest (months)	Difference (months)	Interval (years)	Annual Change (mth)
Benin	33.8	35.6	1.8	15.5	0.12
Burkina Faso	34.7	35.9	1.2	21	0.06
Burundi	31.1	32.0	0.9	23	0.04
Cameroon	30.3	32.7	2.4	20	0.12
Chad	31.1	29.3	-1.8	18	-0.10
Cote d'Ivoire	33.2	36.8	3.6	21	0.17
Ethiopia	33.6	34.5	0.9	16	0.06
Ghana	34.6	39.4	4.8	28	0.17
Guinea	35.4	37.2	1.8	13	0.14
Kenya	29.0	33.1	4.1	25	0.16
Lesotho	42.4	45.8	3.4	10	0.34
Liberia	30.0	37.4	7.4	27	0.27
Malawi	32.7	41.0	8.3	15.5	0.54
Mali	31.7	33.5	1.8	25.5	0.07
Mozambique	34.6	34.8	0.2	14	0.01
Namibia	33.5	45.1	11.6	21	0.55
Niger	30.1	30.9	0.8	20	0.04
Nigeria	30.2	31.7	1.5	23	0.07
Rwanda	31.6	38.5	6.9	22.5	0.31
Senegal	30.9	34.9	4.0	30	0.13
Tanzania	33.3	35.0	1.7	24	0.07
Togo	34.5	38.0	3.5	25.5	0.14
Uganda	28.7	31.9	3.2	27.5	0.12
Zambia	31.4	34.9	3.5	21.5	0.16
Zimbabwe	32.4	43.7	11.3	27	0.42
Average	**32.6**	**36.1**	**3.6**	**21.4**	**0.17**

Table 3: Trends in median duration of breastfeeding in 25 sub-Saharan African countries

	1st Survey	Latest Survey	Change in months	Inter-survey	Yearly Change
Benin	22.8	20.9	-1.9	15.5	-0.12
Burkina Faso	25.2	23.9	-1.3	17	-0.08
Burundi	23.9	25.9	2.0	23	0.09
Cameroon	17.4	16.5	-0.9	20	-0.04
Chad	21.6	21.4	-0.2	18	-0.01
Cote d'Ivoire	20.4	19.0	-1.4	21	-0.07
Ethiopia	25.5	24.4	-1.1	16	-0.07
Ghana	21.1	20.9	-0.2	28	-0.01
Guinea	22.4	22.1	-0.3	13	-0.02
Kenya	19.9	21.0	1.1	25	0.04
Lesotho	21.4	17.2	-4.1	10	0.42
Liberia	16.8	19.6	2.8	27	0.10
Malawi	21.2	23.5	2.3	15.5	0.15
Mali	18.3	23.2	4.9	25.5	0.19
Mozambique	22.1	20.9	-1.2	14	-0.09
Namibia	17.3	14.7	-2.6	21	-0.12
Niger	20.9	20.6	-0.3	20	-0.01
Nigeria	19.7	18.3	-1.4	23	-0.06
Rwanda	27.9	28.3	0.4	22.5	0.02
Senegal	18.9	20.6	1.7	30	0.06
Tanzania	21.5	20.5	-1.0	24	-0.04
Togo	22.4	22.3	-0.1	25.5	0.00
Uganda	19.1	19.8	0.7	27.5	0.03
Zambia	18.6	20.1	1.5	21.5	0.07
Zimbabwe	18.8	17.8	-1.0	27	-0.04
Average	**21.0**	**21.1**	**0.1**	**21.7**	**0.00**