Trends in Contraception among Postpartum women in Africa: An Analysis of DHS Calendar Data

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Introduction

In recent years, there has been increasing interest in the large number of women who had a recent birth, yet report an unmet need for contraception. This group of women was largely ignored in the past with the assumption that women who had recently had a birth would not be interested in family planning. Moreover, the expectation was that they were "protected" because of their breastfeeding status or post partum abstinence. However, this is not necessarily true. Post partum women who are breastfeeding are not always infecund. Depending on the pattern and extent of breastfeeding, women are at risk of getting pregnant and it is not unusual for women to get pregnant. Moreover, it is agreed that by six weeks the woman's body has largely returned to its pre-pregnancy state. However, beyond this period, providers of health and family planning services face a missed opportunity to provide essential services. As a result, more recently, family planning programs have now slowly begun to focus on this group, as one not sufficiently tapped for the provision of health services, and especially contraceptives and other family planning services (Stephenson and Macdonald).

This paper will use data from the two most recent waves of the DHS in four African countries of Kenya, Malawi, Uganda, and Rwanda situated along the Eastern half of the continent. The countries are marked by high fertility levels (close to 5 children per woman or more), high levels of child mortality (under five mortality levels above 100 children per 1000 live births), a demonstrated unmet need, yet with varying rates of modern contraceptive use. Trends in these fertility and reproductive health indicators for women are presented in Figures 1-3. This analysis will examine trends in contraceptive use among postpartum women in these countries. Specifically, the paper will focus on trends in the timing and nature of contraceptive use among postpartum women to help evaluate the role of family planning programs to observe whether their effect has trickled down to women who have recently had a birth by influencing their early uptake of contraceptives to space or limit births. It will help frame policies to target the delivery of family planning services more effectively to this group of interest in order to prevent unintended pregnancy, particularly with short birth intervals. Furthermore, targeting this group of women also has important consequences for reducing the lifetime risk of maternal mortality by preventing their exposure to pregnancy.

Conceptual Framework and Research Questions

A vast body of literature has examined issues related to contraceptive failure, discontinuation and method switching among women based on the contraceptive histories provided by data from the DHS (Ali and Cleland 1995; Ali and Cleland 1999; Curtis and Blanc 1997; Liete and Gupta 2007; Parr 2003 for example). Others for example have focused on the contraceptive method mix among women in developing countries (Bongaarts and Johansson 2002; Johnson and Macke 2006; Seiber, Bertrand and Sullivan 2007; Steele and Curtis 2003 for example).

There is also a growing interest in research on women's use of contraception in the extended post partum period, ranging from childbirth to 12 months. Ross and Winfrey (2001) clearly demonstrate in their study of 27 countries, that there is much unsatisfied interest in, and unmet need for, contraception among this group of women. They show that two-thirds of women who had a birth in the last 12 months have an unmet need for contraception, and nearly 40 percent express their interest in using a contraceptive method but are not currently using one. Other research using DHS data also demonstrate that a significant portion

of postpartum women are exposed to the risk of pregnancy within two years of childbirth. Many of these women are also current users of contraceptives (Thapa et al. 1992). The association between patterns of breastfeeding and early resuming of sexual intercourse; as well as the greater likelihood of adopting contraception among non-breastfeeding women in specific countries such as Peru and Indonesia have also been examined (Becker and Ahmed; 2001). The patterns of post partum uptake of contraception have also been linked to contraceptive discontinuation and switching across developing countries (Ali and Shah; 2004).

Building on this research, this paper analyzes retrospective information on 5 year contraceptive use and birth histories from the reproductive calendar collected through the two most recent waves of DHS in four African countries.

The paper examines changes over time in contraceptive use patterns among women in the extended post partum period. Specifically, the analysis will examine changes over time in the following:

1) the probability of women initiating the use of any contraceptive method after childbirth, with specific emphasis on a modern method
2) the timing of contraceptive method uptake after childbirth
3) the timing of uptake of a modern method of contraception after childbirth
4) the timing and pattern of method switching among those who initiate contraceptive use
5) the determinants of all/modern contraceptive use during this period

Given the role of family planning programs in these countries, particularly in Kenya and Rwanda, we would expect an earlier uptake of contraception among postpartum women over time, particularly using modern methods. Comparisons will be made with Uganda where unmet need and fertility levels continue to remain higher, alongside lower levels of modern contraceptive use. The analysis will emphasize on specific sub-populations such as those belonging to the poorest socio-economic groups, as well as those belonging to younger age-groups to examine trends in their choices of contraception so that family planning programs may be targeted to these groups which are likely in greater need.

Data and Method

This analysis uses the two most recent waves of Demographic and Health Surveys (DHS) data for Kenya (1998 and 2003), Malawi (2000 and 2004), Rwanda (2000 and 2005), and Uganda (2001 and 2006). The DHS are a key source of comparative quantitative data on reproductive health and contraceptive use across developing countries. They are nationally representative household surveys with large sample sizes that provide detailed information on the contraceptive and maternal histories of women. In all countries, the data cover information on women of reproductive age 15-49 selected through a two-stage random sampling process representative of each country. Sample sizes for the four countries range from approximately 8,000 to over 13,000 women. The analysis makes use of monthly calendar history over the past five years from the calendar module of reproductive events such as births, terminations, pregnancies and use of specific contraceptive methods. These data are available monthly over the preceding five calendar years before the date of the interview. Although there is a potential for bias in self-reporting of information from past years, recall is assisted by providing references to other events. Research shows that data from the DHS calendar in general are of good quality and are reliable (Curtis and Blanc 1997; Goldman, Moreno, and Westoff 1989; Westoff, Goldman, and Moreno 1990).

The sample for this analysis will include all women who had a live birth over the period covered by the reproductive calendar. The analysis uses event history techniques using Stata to determine a hazard model estimating the probability of initiating contraceptive use in the first 12 months after the birth of a child. Using this framework, a series of hazard models will be run for both time points for each country, each with one of the following outcomes a) use of any contraception, and b) use of modern contraception to determine the timing and occurrence of these events. In both cases, the models also examine the

determinants of initiating contraceptive use among women in the extended postpartum period. The unit of analysis is the 12 month period from the birth of a child, where the event is measured by the use of any contraception, and the use of modern contraception respectively in each of the two sets of analyses. Therefore, the analysis for each of the outcome variables will comprise multiple records for every woman, one for every 12 month period from the birth of each child in the last 5 years covered in the calendar. In each case, if the event does not occur within the 12 month period, the observation is censored. Among those who initiate contraceptive use in the 12 month period, the timing and patterns of method switching will also be examined.

The analyses use data at each time point for a range of time varying covariates such as the woman's age, her marital status, residence, parity, breastfeeding, abstinence and amenorrhea, access to any health workers prior to or during the birth of the child, and information on any past child deaths. In countries where data on source of contraception are available in the calendar, the source of contraceptive method is also included as a time varying covariate as it may have an impact on method choice and timing of use[1]. Other variables included in the analysis are socio-economic characteristics such as religion, education, partner's education, and economic status as measured by the wealth quintile.

Preliminary Findings and Policy Implications

A profile of women in the extended post partum period based on their last birth is presented in Table 1. Between 16-23 percent of women in the sample who had their most recent birth fall in the extended postpartum period. This percentage may vary for previous births. As the table indicates, the proportion of post partum women with an unmet need, particularly for spacing is considerably high. At the same time, the use of modern contraception ranged only between 5-6.4 percent in Rwanda in 2000 and 2005 to over 20 percent in Malawi demonstrating a high potential for increase with targeted programs. In the countries of East Africa where fertility rates are still well above replacement level, this represents a significant number of women with a continued need for services who cannot be easily ignored. While these are averages based on women who had a last birth in the 12 months before the survey, it is likely that this picture is representative of unmet need for women for their previous births as well therefore requiring a need to examine the timing of their contraceptive uptake after a birth.

Identifying the timing of the initiation of their contraceptive use after a birth has key implications for designing family planning programs to meet women's needs for contraception. While women often receive information on family planning soon after birth and especially within the 6 week period from birth, there is likely a need to provide additional services even beyond this point. At the same time, a regular supply of contraceptives needs to be maintained offering method choices to women. The analysis will demonstrate the role of source of contraceptive methods which will also be useful in designing family planning programs and delivery of contraceptives. Programs could be effectively designed to provide these services in health centers and other areas where women avail of health services including immunization for their child. Moreover, there may also be a need for programs to focus to a greater extent in rural and other underserved areas as well as to target women from poorer socio-economic backgrounds.

[1] Data on source of contraception are available only for Kenya at both time points and for Malawi in 2004.

References

Ali, M. and Cleland, J. 1995. Contraceptive discontinuation in six developing countries: a cause-specific analysis. *International Family Planning Perspectives* Vol: 21 (3) Pages: 92-7

Ali, M. and Cleland J. 1999. Determinants of contraceptive discontinuation in six developing countries. *Journal of Biosocial Science* Vol: 31 (3) Pages: 343-360

Ali, M. and Shah. I. 2004. Uptake of contraception following childbirth or pregnancy termination: implications for quality of care in developing countries: A preliminary analysis. Paper presented at the Annual meetings of Population Association of America.

Bongaarts. J. and Johannson, E. 2002. Future trends in contraceptive prevalence and method mix in the developing world. *Studies in Family Planning 33(1):24-36.*

Becker, S. and Ahmed. S. 2001. Dynamics of Contraceptive Use and Breastfeeding during the Post-Partum Period in Peru and Indonesia. *Population Studies* 22:165-179.

Curtis, Siân L. and Ann K. Blanc. 1997. *Determinants of contraceptive failure, switching, and discontinuation: An analysis of DHS contraceptive histories.* DHS Analytical Reports. No. 6. Calverton, Maryland: Macro International Inc.

Goldman, N, Moreno, L. and Westoff, C. 1989. *Peru Experimental Survey: An Evaluation of Fertility and Child Health Information* . Princeton, NJ: Office of Population Research of Princeton University, and Calverton, MD: DHS Institute for Resource Development/Macro Systems, Inc.

Johnson, J.T. and Macke, B.A. 1996. Estimating contraceptive needs from trends in method mix in developing countries. *International Family Planning Perspectives.* 22(3): 92-96

Leite, I.C. and Gupta N. 2007. Assessing regional differences in contraceptive discontinuation, failure and switching in Brazil. *Reproductive Health 2007.* 4(6).

Ross J and Winfrey W. 2001. Contraceptive use, intention to use and unmet need during the extended postpartum period, *International Family Planning Perspectives,* 27(1):20-33.

Seiber, E.E., Bertrand, J.T., and Sullivan, M. 2007. Changes in Contraceptive Method Mix in Developing Countries, *International Family Planning Perspectives*, v33(3), 117-123.

Stephenson, P. and Macdonald, P. Postpartum family planning: Seizing a missed opportunity. *Global Health Technical Briefs.* http://www.maqweb.org/techbriefs/tb16postpartum.shtml

Steele, F. and S. Curtis. Appropriate Methods for Analyzing the Effect of Method Choice on Contraceptive Discontinuation. *Demography,* 40(1):1-22.

Thapa, S., Kumar. S., Cushing J. and Kennedy K. 1992. Contraceptive Use Among Postpartum Women: Recent Patterns and Programmatic Implications. *International Family Planning Perspectives,* 18(3):83-91.

Westoff CF, Goldman N. Moreno L. 1990. *Dominican Republic experimental study: an evaluation of fertility and child health information.* Columbia (MD): IRD/Macro Systems, Inc

Table 1: Profile of women in the extended Post partum period (last birth in the last 12 months), two most recent DHS surveys

	Kenya		Malawi		Uganda		Rwanda	
	1998	**2003**	**2000**	**2004**	**2001**	**2006**	**2000**	**2005**
Percent postpartum women	15.9	17.2	22.3	22.1	22.9	21.4	19.1	17.5
Total number of post partum women in the sample	1277	1379	2871	2611	1558	1831	1911	1958
Total number of women in the sample	7881	8195	13220	11698	7246	8531	10421	11321
Profile of women in the extended post partum period								
Agegroup								
15-24	45.3	46.1	48.0	49.8	44.8	41.2	30.2	28.1
25-34	42.0	41.3	37.6	37.7	41.0	42.5	44.5	49.9
35-49	12.8	12.6	14.4	12.5	14.2	16.3	25.3	22.0
Education level								
No education	9.5	15.0	30.0	23.0	23.5	21.1	33.7	27.1
Primary education	64.9	65.7	62.6	64.9	64.0	63.5	57.4	65.0
Secondary education	25.6	19.3	7.4	12.1	12.5	15.4	9.0	7.9
Marital status								
Never married	12.6	9.0	3.1	2.6	4.0	5.2	2.3	4.4
Currently married	82.9	83.7	89.5	87.7	88.3	86.8	88.7	87.9
Formerly married	4.6	7.4	7.5	9.6	7.7	8.0	9.0	7.7
Residence								
Urban	19.0	19.2	12.3	12.5	11.2	12.3	14.0	13.9
Rural	81.0	80.8	87.7	87.5	88.8	87.7	86.0	86.1
Pct. with unmet need	32.9	33.4	32.5	30.6	38.6	44.3	34.1	40.0
Pct. with unmet need (spacing)	22.1	22.3	20.2	20.6	28.2	31.9	25.9	29.4
Pct. with unmet need (limiting)	10.7	11.1	12.2	10.0	10.4	12.4	8.2	10.6
Pct. using modern contraception	19.3	17.0	22.6	21.4	15.8	10.0	5.0	6.4

Source: Demographic and Health Surveys

Fig 1:Trends in TFR, 1988-2008

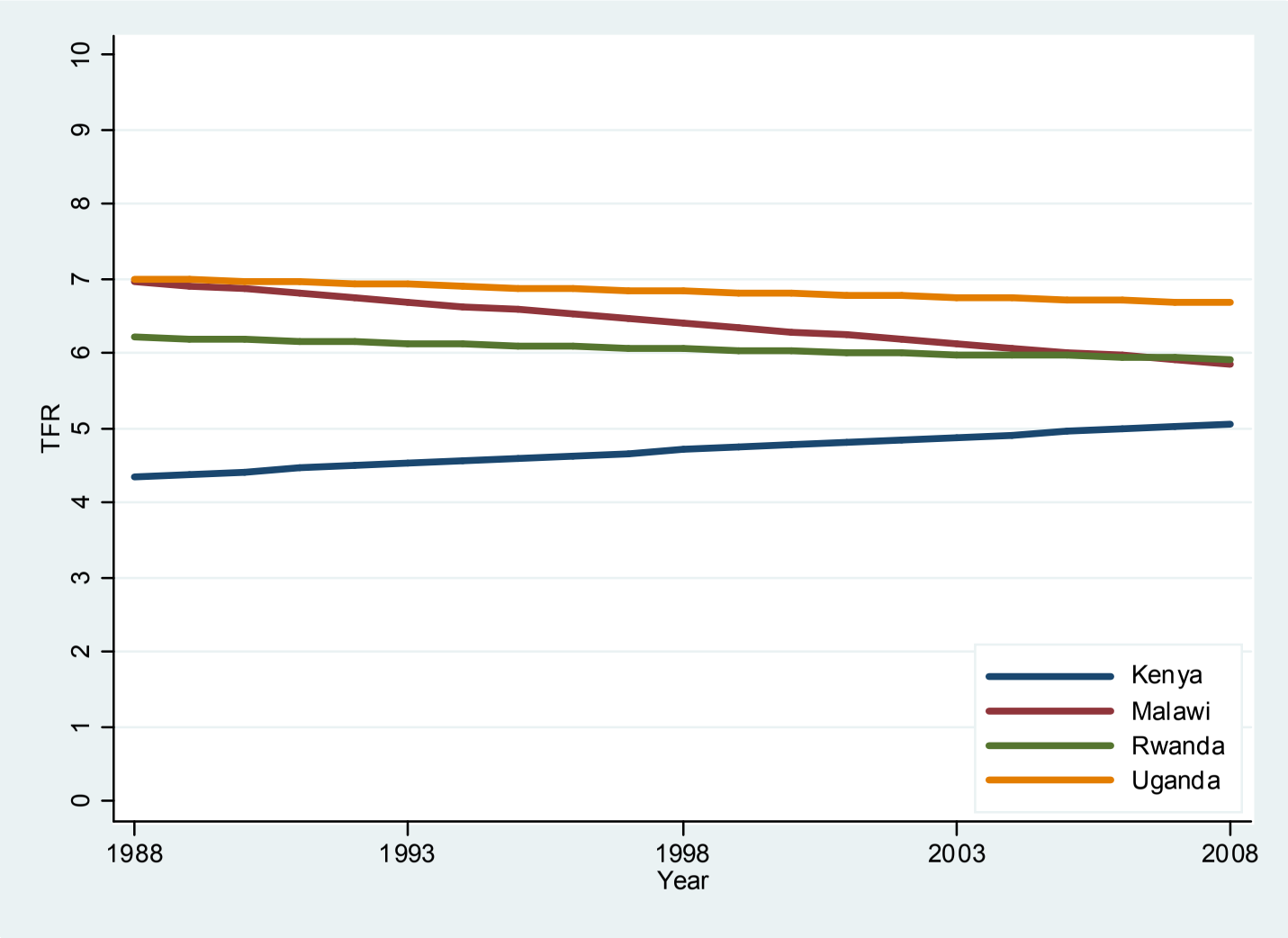

Fig 2: Trends in MCPR Among Married Women, 1988-2008

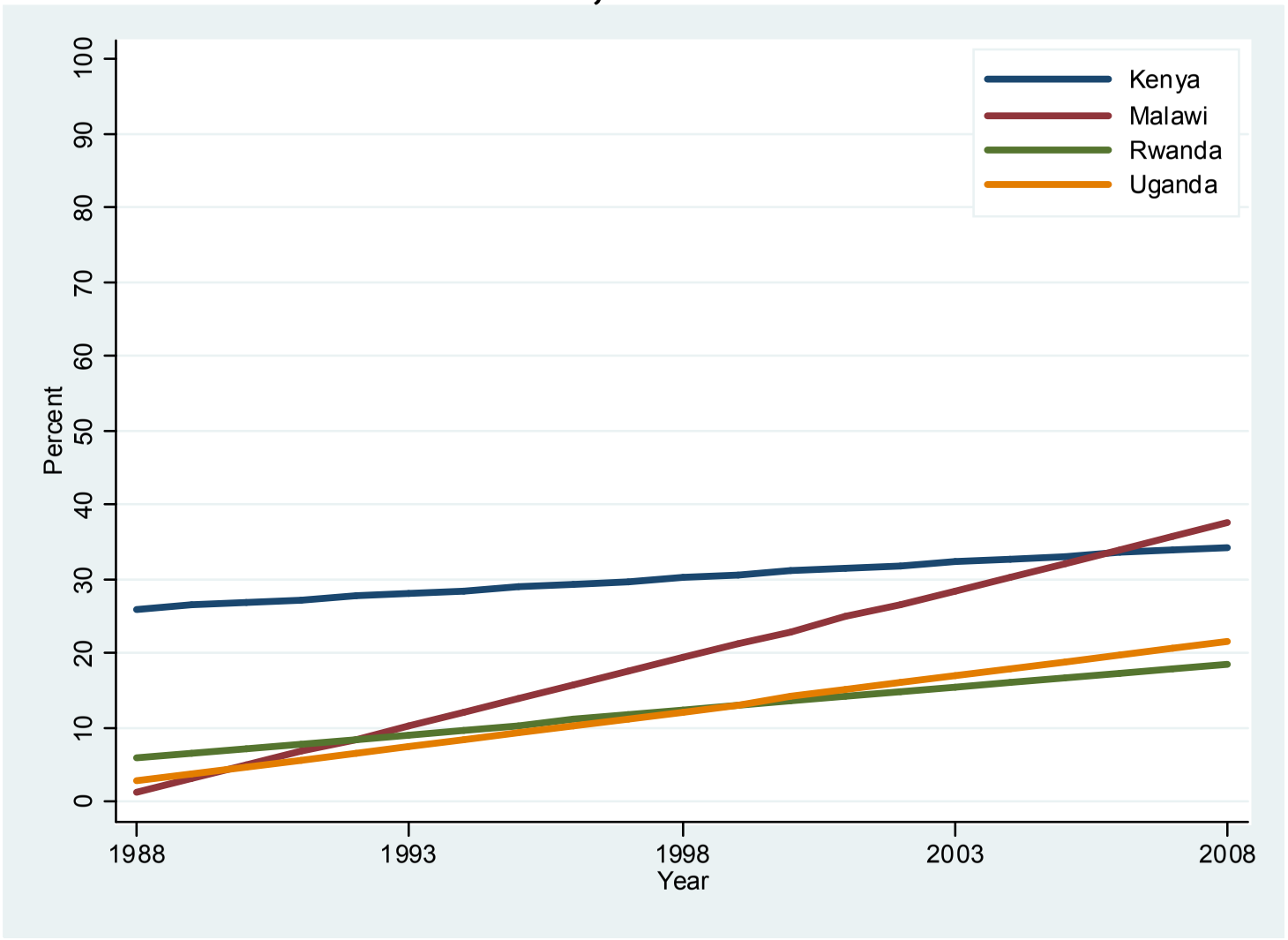

Fig 3: Trends in Unmet Need Among Married Women, 1988-2008