Contraceptive failure and its role in unplanned pregnancies: new estimates using Demographic and Health Survey calendar data

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BACKGROUND:

As the only reliable, nationally-representative quantitative data source for detailed retrospective information on women's contraceptive use, Demographic and Health Survey (DHS) calendar data has been underutilized to help understand contraceptive use dynamics. The rich retrospective data that details women's contraceptive history, including reasons for discontinuation, can help to understand the effect of overall failure as well as failure by contraceptive method.

OBJECTIVES

One objective of this study is to estimate levels and trends of contraceptive failure for two time points in each country. More specifically, we will estimate total contraceptive failure, as well as by method type, broadly by traditional vs. modern and additionally by each method, and by the characteristics of contraceptive users. The second objective of this study is to quantify the proportion of unplanned pregnancies that result from contraceptive failure, and identify women at particular risk for contraceptive failures leading to unwanted pregnancies

DATA and METHODS

We use the most recent DHS surveys with complete calendar data from Armenia, Bangladesh, Colombia, the Dominican Republic, Egypt, Indonesia, Kenya, and Zimbabwe. Data are extracted from the calendar, formed into contraceptive events, and coded according to the reason for discontinuation and outcome of the event. Women who stopped using contraception because they became pregnant while using were termed failures. Women who discontinued contraception in order to become pregnant or due to infrequent sex were coded as "not in need". Women who switched methods were coded according to whether they switched from a more effective method to a less effective one, or vice versa. Women who discontinued for all other reasons were coded as abandoning while in need of contraceptives.

Unlike the majority of previous studies on the subject, where "unobserved" or "associated single-decrement" rates of discontinuation were calculated for types of discontinuations (failure, switching, or abandonment), or 1-the Kaplan Meier estimate ("1-KM compliment") was used to approximate discontinuation rates, we take advantage of the 'stcompet' command in STATA 10 that allows calculation of the cumulative incidence in the presence of competing risks. Cumulative incidence, using the competing risks approach, and hazard models are used to estimate the levels and trends of contraceptive discontinuation due to failure. Hazard models incorporate the time to contraceptive failure and allow for control of previous experience with contraceptive methods as well as background characteristics.

PRELIMINARY RESULTS

The 12-month discontinuation rates for failure for each country, using the competing risks approach, are shown in Table 1. Discontinuation due to switching is greater than discontinuation due to failure in all countries, except Armenia. Abandoning contraceptive use, while still in need of contraceptives, discontinuation is higher than failure discontinuation in all countries except Armenia and Colombia. Discontinuation due to failure is the highest in Armenia, where use of traditional methods, especially withdrawal, is common. Contraceptive discontinuation due to failure is the lowest in Indonesia and Zimbabwe, both countries that have greater use of modern methods traditional methods. Overall 12-month discontinuation rates, as shown here, will also be shown in the final paper broken down by method type, and specific method, for each country. Using hazard models, we will also estimate the hazard of contraceptive discontinuation due to failure, when covariates representing women's contraceptive goals, competence, access, and evaluation are held constant. Finally, we will include estimates of the attributable risk of discontinuation due to contraceptive failure on reported unplanned pregnancies.

Table 1: 12-month discontinuation rate by discontinuation type, using a competing risks approach, all methods except sterilization, DHS surveys 1996-2005/6

		Switch to:					
	Abandon use, in need	More effective method	Less effective method	All switches	**Failure**	Abandon use, not in need	Number of episodes
Sub-Saharan Africa							
Kenya 2003	13.5	3.3	4.3	7.6	**5.5**	6.3	2,969
Zimbabwe 2005/6	4.2	1.8	2.4	4.2	**2.1**	5.3	4,691
North Africa/West Asia/Europe							
Armenia 2005	2.3	1.3	3.0	4.4	**14.7**	8.6	2,386
Egypt 2005	7.5	4.2	6.5	10.8	**3.1**	7.6	15,344
South/Southeast Asia							
Bangladesh 2004	5.6	11.6	9.2	20.7	**4.6**	10.2	10,307
Indonesia 2002/3	3.7	4.3	3.5	7.8	**2.0**	5.0	17,562
Latin America and the Carribean							
Colombia 2005	6.0	6.2	11.5	17.6	**7.4**	5.4	20,706
Dominican Republic 2002	15.0	4.7	7.2	11.9	**6.0**	8.5	11,935

CONCLUSIONS

These results, and the additional results yet to be reported, will help policymakers and program workers better understand the present situation in their countries as it relates to contraceptive failure, as well as compare their country to another country in their region, and others around the world. Since we use a

competing risks approach, this information will be more valuable to program planners as the figures represent what is actually occurring on-the-ground, rather than what would occur if other potential reasons for discontinuation did not exist, as has been repeatedly utilized in previous analyses. Additionally, the quantification of contraceptive failure's effect on unplanned pregnancies will provide policymakers with an ability to understand the magnitude of contraceptive failure on unplanned pregnancies, as well as an understanding of their own country's experience with failure on unplanned pregnancy as compared to another country in their region and other regions of the world.