Assessing the reliability of the retrospective reproductive calendar

Background

Access to family planning is critical for the health and well-being of women and their families across the developing world. Yet throughout sub-Saharan Africa, contraceptive prevalence remains low and as many as one in four women have an unmet need for family planning. The prevalence of contraceptive use is a function of both contraceptive uptake and *continuation* such that even high numbers of contractive acceptors could result in low contraceptive prevalence if discontinuation rates are also high. Therefore, discontinuation rates are an important factor for programs and policies intended to increase contraceptive prevalence. Simply put, leaders in the field of international family planning must think carefully not only about the factors that influence a woman's decision to begin a family planning method but also those factors that impact her ability or her desire to continue her method in the absence of changes in pregnancy intentions.

The reproductive calendar is an individual level survey instrument that collects month-by-month retrospective histories of contraceptive use and details reasons for discontinuation. The first evaluations of the reliability and validity of the reproductive calendar instrument were conducted in the 1980s in Latin American countries (Goldman, Moreno et al. 1989, Rosero-Bixby and Oberle 1989, Westoff, Goldman et al. 1990). Three studies found moderate reliability of the calendar instrument for most women and most methods; notably, although reliability was reasonable overall, *use of shorter-acting methods or shorter episodes of use* was less reliably reported in the calendar. Subsequent studies conducted in Kenya, Morocco, and Bangladesh found similar results (Maggwa, Mati et al. 1993, Strickler, Magnani et al. 1997, Callahan and Becker 2012) and further suggested the calendar may be less reliable for *younger women and those with more complex contraceptive histories* (Strickler, Magnani et al. 1997, Callahan and Becker 2012). The bigger picture to be drawn from these limited studies suggests that calendar data may provide a reasonably reliable and accurate picture of previous contraceptive use among specific types of women, for example those who are older or have less complex histories including use of longer term methods like the IUD. However, other types of contraceptive users, such as adolescent women and those with shorter episodes of contraceptive use (these characteristics often go hand in hand) may be less able to provide accurate recall of previous contraceptive use. Inaccurate measures of discontinuation among younger women are especially concerning given the knowledge that sexually active adolescent and young women in developing countries face more dire consequences of unintended pregnancy including loss of educational attainment, stigma of an early or out-of-wedlock pregnancy, and increased exposure to sub-optimal peri-natal services (Klein 2005).

Prior assessments of the reproductive calendar, however, have important limitations and, as Callahan and Becker (2012) recently observed, the reliability of the calendar method used in many large-scale surveys "remains largely unknown". The largest hindrance to conducting rigorous research on the reliability of calendar data centers on a dearth of appropriate longitudinal datasets with overlapping panels of calendar surveys. Callahan and Becker suggest a two-year period of overlap is ideal for assessing consistency in reports of method type, use duration, and switching; prior studies have had only three to five months of overlap (Callahan

and Becker 2012). To address these shortcomings, I am using longitudinal panel data collected by the Measurement, Learning & Evaluation (MLE) Project, described in detail below. The objective of this study is to describe the frequency of *discordant* reports of contraceptive method use and duration utilizing overlapping contraceptive calendars from a demographic longitudinal panel survey conducted in three urban areas of Kenya.

Methods

The MLE Project is implemented by the Carolina Population Center at the University of North Carolina at Chapel Hill. In 2009, the Bill and Melinda Gates foundation funded the Urban Reproductive Health Initiative (URHI), a five year project to increase the contraceptive prevalence rate in select urban areas of Kenya, Senegal, Nigeria, and Uttar Pradesh, India. The MLE project collected baseline, mid-term, and end-line data in order to evaluate the URHI initiative. In Kenya, the MLE study collected individual-level baseline data within a sample of 8,932 women of reproductive age between September and December 2010. Data were collected in five urban areas in Kenya and involved a multi-stage sampling design in which government census enumeration areas in each city served as primary sampling units (PSUs). The sampling frame of these PSUs is exhaustive and mutually exclusive. Within each selected PSU, a random sample of 30 households was selected for female interviews based on a listing of usual household residents obtained during the household interview. For each selected household, all eligible women (ages 15 to 49) in the household were asked to participate in a detailed interview with a trained female interviewer via an informed consent protocol. Respondents were asked about current contraceptive use, demographic characteristics, fertility desires, exposure to family planning messages, and migration patterns, among other things.

Midterm data collection efforts in Kenya occurred in 2012 in just three of the original five cities included at baseline: Nairobi, Mombasa, and Kisumu, where a total of 5,774 women were enrolled at baseline. During the midterm data collection, a three year retrospective reproductive calendar was initiated. In 2014, an end-line survey was implemented in the same three cities as the midterm survey and this end-line survey also included implementation of the calendar instrument. These two calendars – the one implemented in 2012 at midterm and the one implemented in 2014 at endline – were identical and overlapped by a period of 32 months. Of the original 5,774 women enrolled in the cities of Nairobi, Mombasa, and Kisumu at baseline, 2,412 were found and interviewed at both midterm and endline and participated in the reproductive calendar instrument. These two datasets (midterm and endline) are being used to compare within-woman concordance of self-reported calendar data provided at the two different time points.

Preliminary Descriptive Results

More than one-third of the 2,412 women interviewed at endline did not accurately recall the method they reported using at midterm and this discordance was even greater for shorter-acting methods like pills (41%) and condoms (72%). Furthermore, when comparing the entire 32-month period of overlap that occurred from January 2010 to August 2012, more than two-thirds of participants had one or more discrepancies at some point during the 32-month time period, suggesting low reliability of the reproductive calendar instrument in this population. Further data

analysis is ongoing and will be used to assess meaningful patterns of difference within the period of calendar overlap, stratified by age and method type.

Conclusion

Large numbers of women – especially adolescent women – discontinue contraceptive use shortly after uptake. Current research calls for a better understanding of contraceptive behavior through a more detailed look at contraceptive discontinuation. A key component of responding to this call is a better understanding of the reliability of data produced by the reproductive calendar instrument – a data collection tool implemented widely among large-scale demographic surveys conducted in low-income countries. Prior studies are sparse and have lacked adequate data to appropriately assess calendar reliability. This analysis addresses this research gap, using novel data to explore the reliability of retrospective reproductive calendar. Preliminary findings suggest poor reliability of the reproductive calendar, particularly among women using short-term methods. The authors will also consider and discuss the benefits and disadvantages of alternative approaches to collecting data on women's contraceptive behavior over time.

References

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