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Consistency of Pregnancy Outcome and Contraceptive Reporting Using the Pregnancy History versus Birth History (MR35)

An Analysis Brief from The DHS Program

Why study DHS reproductive and contraceptive histories?

Since 1990, The DHS Program has used monthly calendars in surveys to collect information about women's pregnancy and contraceptive events over the past six years. The methods for collecting the information within these calendars have evolved over time. Most surveys have used a birth history which asks women to list all of their births as the basis for the reproductive calendar. Other surveys have used a full pregnancy history, which asks women to list all of their pregnancies. In DHS-8, all surveys use a full pregnancy history. When a contraceptive calendar is included, the reproductive calendar is completed first and used as a guide for women to then fill in information about their family planning use.

Asking women about their pregnancies versus their births can result in better information about non-live birth pregnancy outcomes, also known as terminations such as stillbirth, miscarriage, or induced abortion (see [Consistency of Reporting of Terminated Pregnancies in DHS Calendars](#), DHS Methodological Report 25, 2018). The reproductive and contraceptive calendar includes entries for every month over the past six years. The quality of information provided may decay as women try to remember events further back in time. This is called recall bias.

Since a pregnancy history can include more information than a birth history, it may be easier for women to recall what family planning they might have been using around the time of different fertility events. This way, using the pregnancy history may improve consistency of family planning use reporting. This study explores consistency of pregnancy reporting and family planning use reporting in surveys that use the pregnancy history versus the birth history.

Calendar Entries for CASE #2

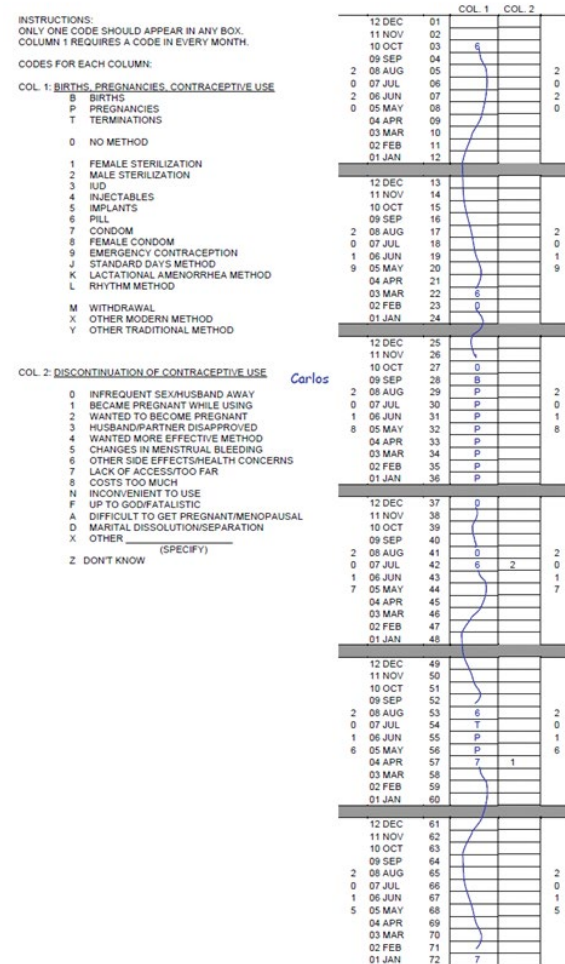


Figure 1. Calendar example (Figure 1 in MR35).

Which countries were included in the study?

This analysis includes data from 191 DHS surveys from 67 countries that used a reproductive calendar. All of these surveys were included in the assessment of pregnancy reporting consistency. Of these, 100 surveys included a contraceptive calendar and had a DHS survey conducted within 6 years prior. These surveys were included in the analysis of family planning use reporting consistency.

What methods were used to conduct this analysis?

For pregnancy reporting, the outcomes are live birth or termination. For family planning use, the outcomes are use of any family planning, use of traditional method of family planning, and coitus-based family planning method use. For reporting of both pregnancy and family planning use, a measure of consistency was developed and used to explore whether recall bias has affected the quality of the data.

The measure of consistency used for pregnancy reporting is the difference between the rate of terminations in the earlier half of the reproductive calendar and the later, or more recent, half of the reproductive calendar. Because the rate of terminations is expected to remain constant, any change over time observed in reported terminations is assumed to be due to recall bias. The smaller the difference between the rate of terminations in the earlier and later halves, the more consistent the pregnancy history data are.

The measure of consistency for family planning use reporting is different because family planning use may increase or decrease over time. For surveys to have consistent family planning use reporting, two conditions must be met:



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Traditional family planning methods:

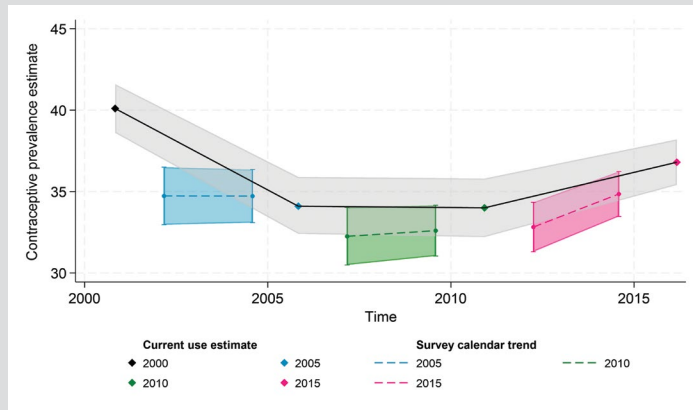
Periodic abstinence (the rhythm method), withdrawal (coitus interruptus), prolonged breastfeeding, herbs, massage, other folkloric methods, and any other method not classified as modern.

Coitus-based family planning methods:

Condoms, spermicide, sponge, diaphragms/cervical caps, periodic abstinence (the rhythm method), and withdrawal (coitus interruptus).

1. Family planning use as reported in either the early or later period of the contraceptive calendar is similar to the current use of family planning measure.
2. The rate of change (slope) of current use of family planning between two surveys is similar to the rate of change between family planning use reported in the early and later periods of the contraceptive calendar. See Figures 2 and 3 on the next page for examples of this analysis.

Figure 2. Example graph of overall family planning use reporting consistency in Armenia (Figure 3 in MR35).

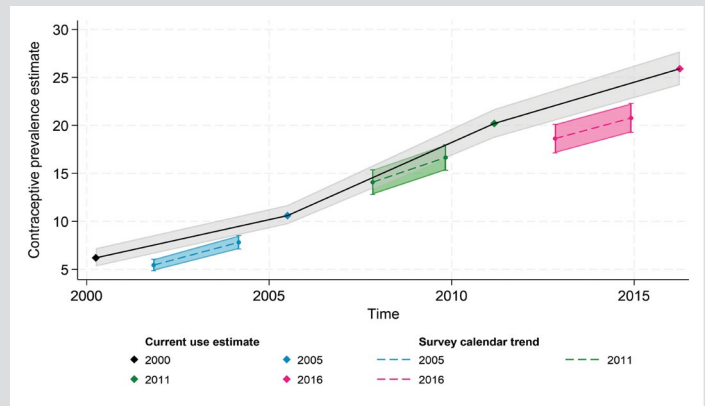


For the first condition, all three surveys are classified as similar because one or both points representing calendar estimates of family planning use (points on the blue, green, and pink dotted lines) fall within the 95% confidence interval around the current use estimate trend line (gray area).

For the second condition, the slope of the current use trend line (in black) is not similar to the slope of any of the calendar estimate trend lines (dotted blue, dotted green, dotted pink lines). The ratio of the absolute value of the slopes for each of the three surveys is outside of the cutoffs of 0.8-1.2.

Since none of the surveys meet both criteria, none are classified as consistent when it comes to family planning use reporting.

Figure 3. Overall family planning use reporting consistency in Ethiopia (Appendix Figure 10 in MR35).



Neither condition is met for the 2005 survey, the first condition (similar family planning use estimates) is met for the 2011 survey, and the second condition (similar slopes) is met for the 2016 survey.

What are the key results?

- Asking respondents for a pregnancy history, rather than a birth history, is associated with more consistent reporting of pregnancy outcomes. Surveys that used a pregnancy history have greater odds of having consistent birth and termination reporting compared to surveys that used a birth history (see Figure 4).

Figure 4. Consistency of birth and termination reporting (adapted from Table 2 in MR35).

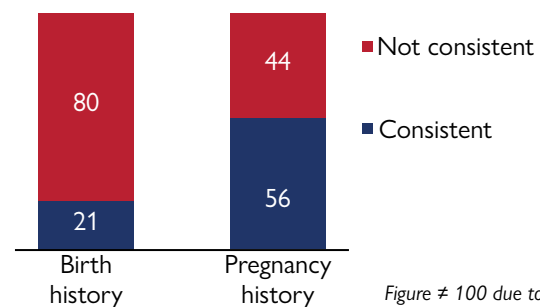


Figure ≠ 100 due to rounding

- Few surveys have consistent reporting on use of any family planning method, traditional methods, and coitus-based methods. Inaccurate reporting of monthly family planning use may be due to recall bias, especially among women with complex reproductive or contraceptive histories.
- Estimates using the contraceptive calendar for all three categories of family planning use are more consistent later in the calendar, i.e., for more recent events. Estimates are more consistent for traditional or coitus-based methods than for any use of family planning. Use of a pregnancy history, rather than a birth history, is associated with more consistent reporting of coitus-based contraceptive use methods.

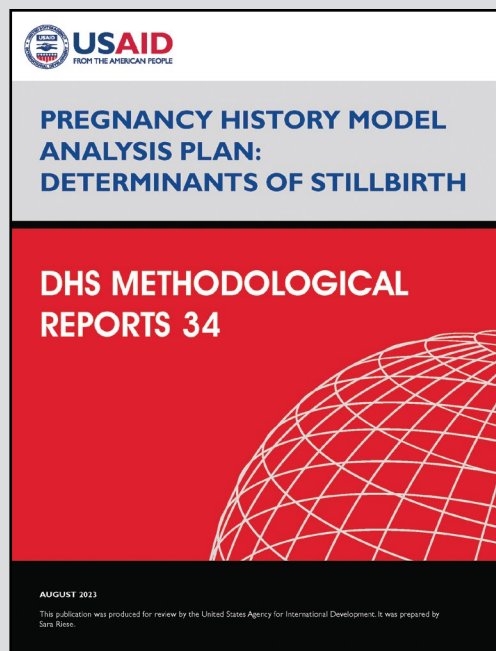
How should these results be used?

Using a pregnancy history-based reproductive calendar is associated with more consistent, better quality data on pregnancy outcomes. This is timely, as DHS-8 surveys use a pregnancy history-based reproductive calendar. Data users can be confident in pregnancy outcome and coitus-based family planning use measures that are estimated from the reproductive calendar.

Conversely, this study finds that using a pregnancy history as the basis for the contraceptive calendar does not generally improve the consistency of contraceptive use reporting. This study also finds inconsistencies in family planning use reporting using the contraceptive calendar compared to current use estimates, and these inconsistencies are more common in the early calendar period (further back in time). Shortening the length of the contraceptive calendar may improve the consistency of family planning use reporting. Further research is recommended.

This brief summarizes The DHS Program's Methodological Report 34 by Sara Riese and Methodological Report 35 by Sara Riese and Blake Zachary with funding from The United States Agency for International Development through The DHS Program implemented by ICF. The full reports are available at: <https://dhsprogram.com/publications/publication-mr34-methodological-reports.cfm> for MR34 and <https://dhsprogram.com/publications/publication-mr35-methodological-reports.cfm> for MR35.

Interested in using data from the pregnancy history in your own analysis?



[Pregnancy History Model Analysis Plan: Determinants of Stillbirth](#), DHS Methodological Report 34, provides an overview of the changes in DHS datasets with the introduction of the pregnancy history in DHS-8 surveys. This model analysis plan describes the new GR (Pregnancies Recode) dataset which contains information on all pregnancies of interviewed women and the new NR (Pregnancy and Postnatal Care Recode) dataset which includes information on pregnancies in the last 3 years among women interviewed. This model analysis plan summarizes the select new pregnancy history variables and then walks through the steps of analyzing determinants of stillbirth using these datasets.

The do files for the analysis are included in the model analysis plan as well as on [The DHS Program's Code Share Library on GitHub](#).