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Typical-use contraceptive failure rates in 43 countries with Demographic and Health Survey data: summary of a detailed report

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Abstract

Background: While most unintended pregnancies occur because couples do not use contraception, contraceptive failure is also an important underlying cause. However, few recent studies outside of the United States have estimated contraceptive failure rates, and most such studies have been restricted to married women, to a limited number of countries and to 12-month failure rate estimates.
Methods: Using self-reported data from 43 countries with Demographic and Health Survey data, we estimated typical-use contraceptive failure rates for seven contraceptive methods at 12, 24 and 36 months of use. We provide a median estimate for each method across 43 countries overall, in seven subregions and in individual countries. We assess differences by various demographic and socioeconomic characteristics. Estimates are not corrected for potential errors in retrospective reporting contraceptive use or potential underreporting of abortion, which may vary by country and subgroups within countries.
Results: Across all included countries, reported 12-month typical-use failure rates were lowest for users of longer-acting methods such as implants (0.6 failures per 100 episodes of use), intrauterine devices (1.4) and injectables (1.7); intermediate for users of short-term resupply methods such as oral contraceptive pills (5.5) and male condoms (5.4); and highest for users of traditional methods such as withdrawal (13.4) or periodic abstinence (13.9), a group largely using calendar rhythm.
Conclusions: Our findings help us to highlight those methods, subregions and population groups that may be in need of particular attention for improvements in policies and programs to address higher contraceptive failure rates.

Keywords: Contraception; Failure rates; Unintended pregnancy; International; Life tables

1. Introduction

In the developing world, 74 million unintended pregnancies occur annually, and 30% of these are due to contraceptive failure among women using traditional or modern contraceptive methods [1], including both method-related failures (i.e., failure of a method to work as expected) and user-related failures (i.e., failure stemming from incorrect or inconsistent use of a method). Unintended pregnancies can have many undesirable consequences, including unwanted childbearing, recourse to (potentially unsafe) abortion and maternal and/or newborn morbidity and mortality [2–4]. Measuring typical-use contraceptive failure rates among a cross-section of users (as opposed to failure rates from clinical studies) is critical to informing improvements in provision of contraceptive information, supplies and services, which can assist women and couples to use contraception correctly and consistently. Few recent studies outside of the United States and France have estimated contraceptive failure rates. Studies estimating contraceptive failure rates using Demographic and Health Survey (DHS) data [5–8] have generally restricted analysis to a limited number of countries or particular subgroups (e.g., married women), and most have not provided estimates of failure rates beyond 12 months of use.

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Recently, we produced a detailed report estimating typical-use contraceptive failure rates using DHS data from 43 countries with the necessary data. Using single-decrement life tables, we estimated contraceptive failure rates at 12, 24 and 36 months for seven contraceptive methods, including five modern methods [implants, intrauterine devices (IUDs), injectables, oral contraceptive pills and male condoms] and two traditional methods [withdrawal and periodic abstinence (largely comprised of users of the calendar rhythm method[1])]. We provided detailed contraceptive failure rate estimates by method and duration for each of 43 countries, as pooled regional estimates for each of seven subregions and as overall median estimates across 43 included countries. We also estimated contraceptive failure rates for various demographic and socioeconomic subpopulations.

The complete report and accompanying tables can be found at http://www.guttmacher.org/report/contraceptive-failure-rates-in-developing-world (available after March 24, 2016). This summary provides a brief overview of the methods, analysis and key findings; readers are encouraged to access the full report for greater detail.

2. Methods

2.1. DHS surveys selected for inclusion

We used information from 43 DHS surveys, including ten countries in Eastern Africa, five in Western Africa, six in Northern Africa and Western Asia, five in Eastern Europe and Central Asia, five in Southern Asia, four in Southeastern Asia and eight in Latin America and the Caribbean (LAC). The countries cover a substantial proportion of the population in Eastern Africa, Western Africa, Southern Asia and Southeastern Asia (81%, 69%, 92% and 73%, respectively [9]); data are less representative in other subregions. We used the most recent survey (as of June 2014) in each country that included a reproductive calendar containing information on reasons for contraceptive discontinuation.[2] Applying the reproductive calendar involves asking female survey respondents to retrospectively report on their contraceptive use for the last 5 years before the interview and reasons for discontinuation.

2.2. Analytic methods

We calculated self-reported typical-use failure rates for all users of each contraceptive method[3] using single-decrement life tables. In this calculation, the unit of analysis is an episode of contraceptive use, which begins at the point in the reproductive calendar when a woman reports initiating use of a contraceptive method and ends when she reports discontinuing that method. A single woman could contribute multiple episodes, if she stopped and started using contraception several times over the last 5 years, or no episodes if she did not use any method during that period. Estimates are not adjusted for potential errors in retrospective reporting of contraceptive use or potential underreporting of abortion, which may vary by country and subgroups within countries [10]. The period of observation for calculating contraceptive failure rates is months 3–62 prior to the DHS survey.[4] We used individual-level sampling weights to produce nationally representative results within each country. Failure rates are not presented for methods with less than 125 episodes of contraceptive use in month 1 of the life table. Ninety-five percent confidence intervals (95% CIs) were calculated with a jackknife approach.

We pooled data across countries (weighted equally) within the same subregion; these should be interpreted as average method-specific rates across the included countries. We estimated overall contraceptive failure rates across 43 included countries in two ways: (1) by calculating a median failure rate by method and (2) by calculating a pooled all-country estimate across all 43 countries. In describing overall failure rates, we focus largely on median values to make our estimates more easily comparable to previous analyses [5], but we assessed differences by various demographic and socioeconomic characteristics using the pooled all-country estimates. We conducted all analyses in CSPro version 4.1.002 and produced graphics using StataMP 14.

3. Results

3.1. Contraceptive prevalence and method mix among 43 countries assessed

Among the 43 countries assessed, overall contraceptive prevalence ranged from 13% in Senegal to 79% in Vietnam (Fig. 1). Contraceptive prevalence was extremely low in Western Africa (range: 13–19%) and low in Eastern Africa (14–58%). Prevalence was higher in Eastern Europe and Central Asia (28–69%) and Southern Asia (35–61%), while LAC (38–77%), Southeastern Asia (range: 49–79%) and Northern Africa and Western Asia (range: 51–72%) had the highest contraceptive prevalence. Method mix varied considerably (Fig. 2).

[1] Where possible, women who report using fertility awareness methods (such as the Standard Days method or the TwoDay method) were classified as "Other modern method" users. In some cases, however, the category of periodic abstinence users (and their failure rates) may include some women using fertility awareness methods who were not identified as such through the survey.

[2] In some countries, the most recent survey did not collect the reproductive calendar or did not include the information on reasons for discontinuation in the calendar necessary for contraceptive failure. Details are available in the full report.

[3] In seven DHS surveys that included only ever-married women, the sample does not include any unmarried contraceptive users.

[4] We exclude information from the month of interview or the two preceding months because women in their first trimester may not yet recognize that they are pregnant, possibly as the result of contraceptive failure, which would lead to underestimation of failure rates.