

# Patterns and Trends in Adolescents' Contraceptive Use and Discontinuation in Developing Countries and Comparisons With Adult Women

**CONTEXT:** *The reproductive choices made by young women and men have an enormous impact on their health, schooling, employment prospects and overall transition to adulthood. As the largest cohort of young people in history enter their childbearing years, their reproductive behavior will determine the growth and size of the world's population for decades to come.*

**METHODS:** *Demographic and Health Survey data from more than 40 countries were used to examine the proportions of 15–19-year-old women who are currently married or are unmarried but sexually active; their rates of contraceptive adoption, current use, discontinuation, method switching and contraceptive failure; trends in these indicators; and comparisons with older women.*

**RESULTS:** *In many countries, the proportion of adolescent women using contraceptives increased substantially over the last two decades; prevalence among adolescents increased faster than among older women. Greater proportions of adolescents than of older women discontinued using a contraceptive method within a year or experienced contraceptive failure.*

**CONCLUSIONS:** *Adolescent contraceptive use is growing, and compared with adult use, is characterized by shorter periods of consistent use with more contraceptive failure and more stopping for other reasons. Use through the reproductive years is likely to grow, fueled further by growth in the numbers of young people. An expanded demand for contraceptive supplies, services and information can be expected to challenge the preparedness, capacity and resources of existing family planning programs and providers.*

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The reproductive choices made by young women and men have an enormous impact on their health, schooling and employment prospects, as well as their overall transition to adulthood.<sup>1,2</sup> In particular, school and work opportunities significantly influence young women's and men's marriage timing, quality of parenthood and ability to contribute to their families and society.<sup>1,3,4</sup> Young women's reproductive choices are especially important, as early childbearing can impair their health and limit their prospects for productive participation in society.

The literature suggests that, in general, sexually active unmarried adolescents are not seeking to become pregnant, and married adolescents wish not to become pregnant at a young age or, if they have already had a child, wish to delay a second pregnancy.<sup>5</sup> In nine national surveys conducted in South and Southeast Asian countries between 1996 and 1999, contraceptive prevalence among married female adolescents ranged from 6% in Nepal and Pakistan to 43–44% in Thailand and Indonesia.<sup>6</sup>

According to a study of nearly 34,000 15-year-old male and female students in 23 European countries and Canada, 14–38% were sexually experienced;<sup>7</sup> 82% of sexually active students reported using condoms or pills at last intercourse. Another study of 18 Demographic and Health Surveys conducted in Africa between 1993–2001 found

that two out of five unmarried females aged 15–24 were sexually active;<sup>8</sup> unlike the results from Europe and Canada, however, the median proportion reporting any contraceptive use by 2001 was just 37%.

Although levels of sexual activity and contraceptive use are both substantial among adolescents in the developing world, the upward shift in the former tends to be faster than in the latter.<sup>9,10</sup> According to a study of 27 Sub-Saharan countries, there was no pervasive shift toward early (before age 18) sexual initiation between 1994 and 2004, although the prevalence of premarital sex before age 18 increased significantly in 19 countries.<sup>11</sup> Condom use for pregnancy prevention rose significantly during the period, from 5% to 19%. Similar trends in condom use are found in the reproductive and contraceptive histories of single women aged 15–24 in eight Latin American countries,<sup>9</sup> where use of condoms increased faster than reliance on any other method used by this group.

Contraceptive continuation over sustained periods of time is not assured, and discontinuation occurs for reasons of failure, method features, such as side effects or convenience of use, or change in need. Some women stop using altogether or immediately switch to another method, whereas others experience a gap in pregnancy protection of a month or more. Discontinuation is a par-

ticularly important issue for adolescents and young women because they tend to have more limited access than older individuals to family planning, as well as more unpredictable and irregular sexual activity, and are probably less knowledgeable about how to use contraceptive methods effectively.<sup>10</sup> According to a study of six developing countries, women younger than 25 were more likely than others to stop using their contraceptive method after 24 months.<sup>12</sup>

Unplanned pregnancies among adolescents happen despite the best of contraceptive intentions, and the effectiveness of adolescent pregnancy prevention programs remains below desired levels.<sup>13-15</sup> Adolescents' success in avoiding pregnancy often depends on having access to contraceptive information, methods and services. According to estimates from 2000, close to 25%—or 11 million—married women aged 15–19 in the developing world and former Soviet Union have an unmet need for contraception (i.e., have a desire to avoid or delay pregnancy, but are not using any contraceptive method); this estimate does not include unmet need among never-married, sexually active women.<sup>16</sup>

In this study, we provide an overview of country-level change in sexual activity, contraceptive use and contraceptive discontinuation among adolescent females in the developing world. In addition, we compare annual rates of change in contraceptive use and rates of discontinuation across age-groups. Specifically, we address three questions. What proportions of female adolescents are sexually active and thus exposed to the risk of pregnancy, and how have these levels changed over time? What are the levels of and trends in adolescent females' contraceptive use? And what proportions of adolescent contraceptive users stop using, switch methods or experience a contraceptive failure, and how do these proportions compare with those for older users?

## DATA AND METHODS

We used nationally representative Demographic and Health Survey (DHS) data from more than 40 developing countries in Africa, Asia and Latin America. The exact number of countries included in each analysis varies by the availability of data for each country. The surveys were conducted between 1986 and 2006; 45 countries had two or more surveys during that time, and we used these data to examine trends and rates of change over time. For countries with more than two surveys during the period, we selected the earliest and latest. The interval between the in-

\*We defined "sexually active" as having had sexual intercourse in the four weeks preceding the survey.

†See reference 17 for a discussion of the quality of the contraceptive histories in DHS calendar data.

‡This methodology allowed us to utilize data from respondents up to age 24 at the time of the survey who were asked to report on behavior over the last five years, which would cover some or all of the years between ages 15 and 19, depending on the current age of the respondent.

§For comprehensive documentation and discussion of this trend, see reference 1, chapter 7.

dividual country surveys varies; the average interval is almost 11 years.

To assess youths' exposure to the risk of pregnancy and their potential need for contraception, we examined the proportion of adolescents who reported being married, as well as the proportion who said they were unmarried but sexually active,\* for countries with two survey rounds in the 1986–2006 period.

For 21 countries, detailed contraceptive histories were collected. Female respondents were asked to report whether they had used a contraceptive method during each month of the five or three years prior to the survey (depending on survey), and if so, which method they had used. For months in which a woman reported discontinuing the use of a method, she was asked the main reason.† Using data from the contraceptive histories, we examined the rate at which adolescent females adopted contraceptives. We included the experience of women who were 15–19 at any time during the five years prior to the survey to calculate the cumulative proportion who had ever used a contraceptive method by single years of age.‡ In addition, we calculated life table rates of contraceptive discontinuation. We compared the pattern for 15–19-year-olds to that for women aged 20–49, to highlight the distinctive characteristics of adolescent contraceptive dynamics.

Using DHS contraceptive histories, we constructed multiple decrement life tables that categorize the reasons for contraceptive method discontinuation into four groups: method failure, method switching, abandoned (in need) and abandoned (not in need).<sup>17</sup> A contraceptive failure occurs when a woman becomes pregnant while she is using a method. The category abandoned (in need) includes women who reported discontinuing method use because their husband disapproved, they wanted a more effective method or their method was inconvenient to use; women who discontinued because of side effects, health concerns, access or availability problems or other reasons; and those who responded "don't know." The category abandoned (not in need) includes women who stopped using because they wanted to become pregnant or because of infrequent sex, menopause or infecundity, or marital dissolution. Women who reported being sterilized were excluded from the calculations.

## RESULTS

### Exposure to the Risk of Pregnancy

The proportion of females aged 15–19 who reported in the most recent survey being married varied dramatically across countries—from more than 40% in Bangladesh, Chad, Mali and Niger to fewer than 10% in Armenia, Jordan, Kazakhstan, Namibia, the Philippines, Rwanda and Vietnam (Table 1). In most of the African and Asian countries, the proportion of married adolescents declined over time, regardless of the prevalence of teenage marriage (see Web Appendix Figure 1 at <http://www.guttmacher.org/pubs/ipsrh/appendix/3506309.pdf>).§ Particularly large

**TABLE 1. Percentage of women aged 15–19 who were married at interview or were unmarried but sexually active, by country and survey year, Demographic and Health Surveys, 1986–2006**

Country and survey year	No.	Married	Unmarried/ sexually active	Country and survey year	No.	Married	Unmarried/ sexually active
Armenia, 2000	1,160	8.5	0.0	Kazakhstan, 1999	791	8.0	5.0
Armenia, 2005	1,123	6.9	0.0	Kenya, 1989	1,497	18.5	6.4
Bangladesh, 1994	2,912	42.0	u	Kenya, 2003	1,856	17.9	3.6
Bangladesh, 2004	3,533	43.5	u	Madagascar, 1992	1,420	21.4	15.6
Benin, 1996	1,075	28.6	9.0	Madagascar, 2004	1,528	27.2	9.7
Benin, 2006	3,067	21.7	8.9	Malawi, 1992	1,082	35.8	u
Bolivia, 1989	1,682	12.5	1.1	Malawi, 2004	2,392	32.9	3.6
Bolivia, 2003	3,874	11.0	3.3	Mali, 1987	523	71.5	0.9
Brazil, 1986	1,305	13.2	3.1	Mali, 2001	2,565	45.9	6.5
Brazil, 1996	2,464	13.8	8.8	Morocco, 1987	2,406	11.5	u
Burkina, 1993	1,373	44.2	4.3	Morocco, 2003	3,295	10.5	u
Burkina, 2003	2,776	31.6	5.6	Mozambique, 1997	1,836	45.0	11.0
Cambodia, 2000	3,618	12.1	0.1	Mozambique, 2003	2,454	38.2	16.4
Cambodia, 2004	3,602	10.1	0.1	Namibia, 1992	1,259	6.9	16.4
Cameroon, 1991	919	41.1	11.3	Namibia, 2000	1,499	5.0	11.8
Cameroon, 2004	2,685	30.9	7.0	Nepal, 1996	2,229	43.3	u
Chad, 1997	1,716	46.7	3.7	Nepal, 2006	2,437	32.2	0.1
Chad, 2004	1,361	42.0	2.1	Nicaragua, 1998	3,307	25.6	1.2
Colombia, 1986	1,208	12.3	2.3	Nicaragua, 2001	3,141	22.3	2.4
Colombia, 2005	7,589	12.3	10.9	Niger, 1992	1,379	56.5	0.6
Cote D'Ivoire, 1994	1,961	26.4	19.4	Niger, 2006	1,718	59.0	0.2
Cote D'Ivoire, 1998	775	23.9	18.3	Nigeria, 1990	1,612	37.0	10.2
Dom. Rep., 1986	1,960	16.7	0.0	Nigeria, 2003	1,716	31.7	6.8
Dom. Rep., 2002	4,550	22.4	4.1	Peru, 1986	1,097	11.7	0.0
Egypt, 1992	3,037	13.7	u	Peru, 2004	2,283	10.0	4.3
Egypt, 2005	6,446	12.3	u	Philippines, 1993	3,158	7.4	0.1
Eritrea, 1995	1,129	32.5	0.0	Philippines, 2003	2,648	9.0	0.2
Eritrea, 2002	2,001	29.0	0.4	Rwanda, 1992	1,464	8.4	0.9
Ethiopia, 2000	3,710	23.2	1.1	Rwanda, 2005	2,585	2.5	0.8
Ethiopia, 2005	3,266	21.8	0.4	Senegal, 1986	975	41.9	0.0
Ghana, 1988	849	20.5	10.2	Senegal, 2005	3,556	28.5	u
Ghana, 2003	1,148	12.0	8.0	Tanzania, 1992	2,183	25.6	11.8
Guatemala, 1987	1,182	23.6	0.4	Tanzania, 2004	2,245	26.3	7.4
Guatemala, 1999	1,332	23.8	0.2	Togo, 1988	724	26.5	14.5
Guinea, 1999	1,321	43.9	6.4	Togo, 1998	1,787	19.1	16.5
Guinea, 2005	1,648	35.6	9.0	Turkey, 1993	2,460	13.4	u
Haiti, 1994	1,290	14.9	5.4	Turkey, 2003	2,003	11.9	u
Haiti, 2005	2,701	16.6	5.6	Uganda, 1988	1,157	36.5	7.5
India, 1993	23,147	38.4	u	Uganda, 2006	1,936	19.6	4.1
India, 2006	24,811	27.1	0.1	Vietnam, 1997	1,661	7.7	u
Indonesia, 1987	3,638	16.5	u	Vietnam, 2002	1,630	4.1	u
Indonesia, 2002	6,531	14.0	u	Zambia, 1992	1,984	26.5	12.1
Jordan, 1990	3,394	10.4	u	Zambia, 2002	1,812	24.2	7.1
Jordan, 2002	2,563	6.0	u	Zimbabwe, 1988	1,021	17.6	4.5
Kazakhstan, 1995	669	12.0	4.1	Zimbabwe, 2005	2,152	20.8	1.6

Note: u=unavailable.

and consistent declines of 10 percentage points or more occurred over the course of about a decade in Burkina Faso, Cameroon, India, Mali, Nepal, Senegal and Uganda. Some evidence suggests that the trend toward increasing age at marriage is linked to urbanization and the expansion of education among young women, factors that are also linked to contraceptive use.<sup>2,4</sup>

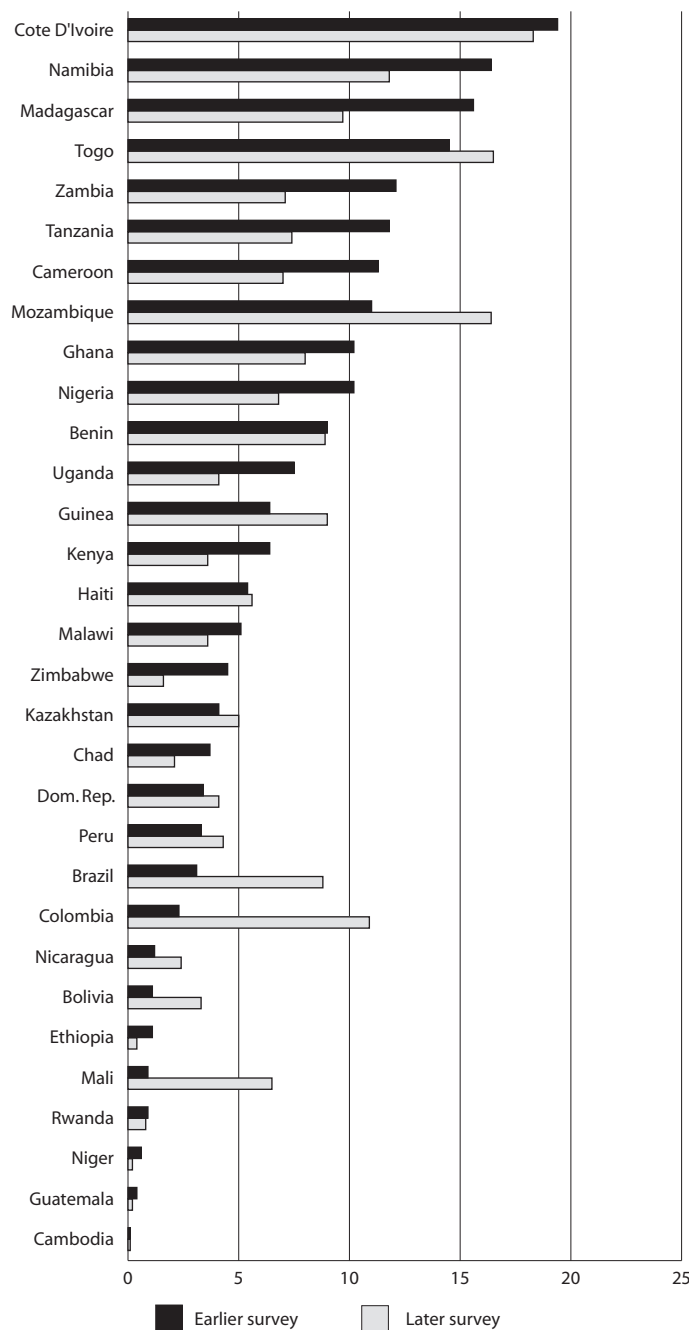
The proportion of women aged 15–19 who reported being unmarried and sexually active varied widely by country. At the upper end of the range, 10–18% of unmarried adolescent females in Colombia, Cote D'Ivoire, Mozambique, Namibia and Togo reported being sexually active at the most recent survey. In most countries, the proportion of 15–19-year-old women who reported being married exceeded the proportion who were unmarried but sexually active; Namibia is a notable exception. In general, the vast majority of adolescent women at risk of pregnancy were married.

Among the roughly 30 countries for which data from two surveys were available, no consistent trend across time was evident (Figure 1, page 66). Some countries had large (greater than five percentage points) increases from the earlier to later survey in the proportion who were sexually active (e.g., Brazil, Colombia and Mali), but others had noticeable (greater than two percentage points) declines (e.g., Kenya, Tanzania, Uganda and Zambia). It is difficult to generalize about trends, especially given questions about the quality and consistency of the data on sexual activity, although the direction in Sub-Saharan Africa is mostly downward.<sup>11</sup>

#### Adoption of Contraception

Among the 25 countries with appropriate data from the most recent survey, roughly 25% of all young women, on average, had used contraceptives by age 19; ever-use by age 19 was as high as 51–61% in Bangladesh, Brazil and

**FIGURE 1. Trends in percentage of unmarried sexually active females aged 15–19 in countries with two rounds of Demographic and Health Surveys, by earliest and most recent survey, 1986–2006**



Colombia (not shown). Among the 16 countries with contraceptive history data for at least two surveys, 12 experienced increases in the proportion of adolescent females using contraceptives by age 19 of 2–17% annually during the period between the two surveys; results for four countries from different regions (Bangladesh, Colombia, Egypt and Zimbabwe) are shown in Web Appendix Figure 2 (<http://www.guttmacher.org/pubs/ipsrh/appendix/3506309.pdf>). The proportion of women who had ever used a method by age 19 rose from 23% to 60% in Colom-

bia between 1990 and 2005; in Bangladesh, that proportion rose from 39% to 61% between 1994 and 2004. The two countries had similar patterns of contraceptive adoption in spite of different levels of exposure to pregnancy: Nearly 44% of adolescent women in Bangladesh were married,\* whereas only 23% of same-aged Colombians were either married or unmarried but sexually active. In 2005, only 10% of Egyptian 19-year-olds had ever used contraceptives; this proportion was only three percentage points higher than in 1992. In Zimbabwe, about a third of young women had used contraceptives by age 19, and the proportion changed little between 1994 and 2005.

**Levels and Trends in Current Use of Contraceptives**

In the most recent survey, 42–68% of married and unmarried but sexually active adolescent females in all the Latin American countries (except Guatemala and Haiti) and in Bangladesh, Indonesia, Kazakhstan and Turkey reported currently using contraceptives (Table 2). Among the African countries, there were nine in which contraceptive prevalence was 20–35%, but only one—Namibia—in which it reached at least 40%.† The lowest levels of contraceptive use occurred in five countries of the African Sahel—Chad, Eritrea, Mali, Niger and Senegal. In Nigeria, the most populous country in the Sahel—as well as in Africa as a whole—only 12% of adolescent females used contraceptives, although there were wide regional variations in prevalence (not shown).

Overall, current use of contraceptives was higher among sexually active, unmarried adolescents than among married youth (for example, 38% vs. 60% in Kazakhstan, and 4% vs. 45% in Nigeria). Presumably, this pattern reflects unmarried youth's stronger desire to avoid pregnancy. The difference in prevalence between the two groups was very large in some countries, especially those in West Africa, where it was not unusual for the level of use among unmarried adolescents to be four or more times greater than that among married youth (for example, 54% vs. 8% in Benin). The differential tended to be greatest in countries in which married women had low levels of contraceptive use.

Along with wide disparities across countries in the levels of contraceptive use, there was considerable variation in the predominant contraceptive method used by 15–19-year-old females (not shown). In 28 countries, the most commonly used method according to the most recent survey was either the pill or the injectable (14 each); in 12, traditional methods, including periodic abstinence; in eight countries, the condom; and in 10 countries, the IUD or withdrawal (five each). In general, the trend between surveys was from traditional methods toward more effective modern methods. In the Philippines, however, the main

\*Data of the proportion of women in Bangladesh who are unmarried but sexually active is unavailable.

†Although not shown in Table 2 (because they have only one survey each), four countries in Africa have reached prevalence of 40% or more—Congo, Gabon, Namibia and South Africa.

**TABLE 2. Percentage of women aged 15–19 using contraceptives at interview, by marital and sexual status, according to country and survey year**

Country and survey year	Married	Unmarried/ sexually active	Married and unmarried/ sexually active	Country and survey year	Married	Unmarried/ sexually active	Married and unmarried/ sexually active
Armenia, 2000	25.5	u	25.5*	Kazakhstan, 1999	38.3	60.3	46.8
Armenia, 2005	16.5	u	16.5*	Kenya, 1989	13.0	12.0	12.8
Bangladesh, 1994	24.7	u	24.7*	Kenya, 2003	16.4	49.4	22.0
Bangladesh, 2004	42.2	u	42.2*	Madagascar, 1992	6.4	16.8	10.8
Benin, 1996	9.4	47.2	18.4	Madagascar, 2004	12.7	30.8	17.5
Benin, 2006	7.9	53.9	21.2	Malawi, 1992	7.3	u	7.3*
Bolivia, 1989	16.0	u	15.1*	Malawi, 2004	18.9	25.3	19.6
Bolivia, 2003	45.6	49.7	46.5	Mali, 1987	8.6	u	8.6*
Brazil, 1986	47.8	32.6	44.9	Mali, 2001	4.9	23.8	7.3
Brazil, 1996	54.1	66.0	58.7	Morocco, 1987	17.0	u	17.0*
Burkina, 1993	13.9	31.0	15.4	Morocco, 2003	38.4	u	38.4*
Burkina, 2003	6.8	50.4	13.3	Mozambique, 1997	0.6	7.0	1.9
Cambodia, 2000	8.9	u	9.3*	Mozambique, 2003	20.0	43.0	26.9
Cambodia, 2004	20.8	u	20.6*	Namibia, 1992	20.5	29.0	26.5
Cameroon, 1991	18.4	64.6	28.3	Namibia, 2000	45.2	50.9	49.2
Cameroon, 2004	23.6	73.9	33.0	Nepal, 1996	6.5	u	6.5*
Chad, 1997	3.1	14.2	3.9	Nepal, 2006	16.0	u	16.1*
Chad, 2004	2.2	4.8	2.3	Nicaragua, 1998	39.8	22.3	39.0
Colombia, 1986	28.9	44.9	31.5	Nicaragua, 2001	55.2	53.4	55.1
Colombia, 2005	57.2	79.5	67.6	Niger, 1992	2.2	20.6	2.4
Cote D'Ivoire, 1994	8.7	47.0	24.9	Niger, 2006	4.3	u	4.3*
Cote D'Ivoire, 1998	10.7	54.1	29.5	Nigeria, 1990	1.3	40.4	9.8
Dom. Rep., 1986	24.6	u	24.6*	Nigeria, 2003	4.3	45.0	11.5
Dom. Rep., 2002	41.5	41.4	41.5	Peru, 1986	22.7	u	22.7*
Egypt, 1992	13.3	u	13.3*	Peru, 2004	56.7	85.5	65.3
Egypt, 2005	26.3	u	26.3*	Philippines, 1993	17.2	u	17.1*
Eritrea, 1995	3.3	u	3.4*	Philippines, 2003	25.6	u	25.5*
Eritrea, 2002	2.4	u	3.1*	Rwanda, 1992	10.8	u	14.7*
Ethiopia, 2000	3.9	45.7	5.9	Rwanda, 2005	3.2	u	3.6*
Ethiopia, 2005	8.9	u	9.7*	Senegal, 1986	9.5	u	9.5*
Ghana, 1988	4.6	26.4	11.9	Senegal, 2005	5.0	u	5.1*
Ghana, 2003	8.4	46.2	23.5	Tanzania, 1992	5.2	10.4	6.9
Guatemala, 1987	5.4	u	5.6*	Tanzania, 2004	9.6	31.8	14.4
Guatemala, 1999	14.6	u	14.8*	Togo, 1988	16.7	51.4	29.0
Guinea, 1999	3.4	42.4	8.4	Togo, 1998	15.0	56.2	34.2
Guinea, 2005	8.8	42.6	15.6	Turkey, 1993	24.1	u	24.1*
Haiti, 1994	10.7	23.2	14.1	Turkey, 2003	44.3	u	44.3*
Haiti, 2005	28.5	33.6	29.8	Uganda, 1988	1.7	5.8	2.4
India, 1993	7.1	u	7.1*	Uganda, 2006	11.4	37.2	15.9
India, 2006	13.0	u	13.1*	Vietnam, 1997	18.1	u	18.1*
Indonesia, 1987	25.5	u	25.5*	Vietnam, 2002	22.8	u	22.8*
Indonesia, 2002	47.3	u	47.3*	Zambia, 1992	8.7	5.5	7.7
Jordan, 1990	12.3	u	12.3*	Zambia, 2002	25.5	22.6	24.9
Jordan, 2002	21.3	u	21.3*	Zimbabwe, 1988	30.0	34.8	31.0
Kazakhstan, 1995	31.5	56.1	37.7	Zimbabwe, 2005	36.7	36.8	36.7

\*Includes only married women. Note: u=unavailable.

method shifted from the pill to withdrawal. The trend toward more effective methods use among young females, mostly those in a union, suggests concerted efforts to prevent pregnancy by use of efficient methods; however, use of less efficient means, such as periodic abstinence, condoms and withdrawal continues to be common.

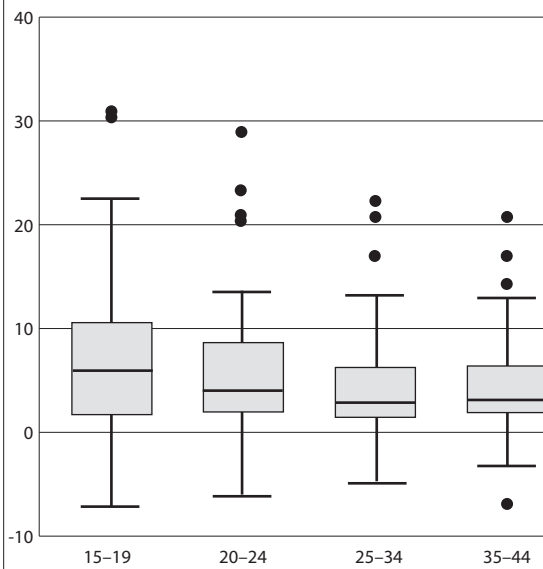
For the 34 countries for which we had data on both married and unmarried sexually active women from at least two surveys, we calculated each country's annual rate of change in contraceptive prevalence between the earliest and the most recent survey; the average interval between surveys was 11 years, with a range of 3–19 years. Ten countries had annual increases of more than 10%, 14 increased 5–10% per year, and the remainder experienced smaller increases or remained constant, except for Chad and Rwanda, where contraceptive use decreased (see Web Appendix Figure 3 at <http://www.guttmacher.org/pubs/>

[ipsrh/appendix/3506309.pdf](http://www.guttmacher.org/pubs/ipsrh/appendix/3506309.pdf)).\* The increases were rapid compared with those during the 1970s and early 1980s, when contraceptive use rose more slowly.<sup>18</sup>

Given the striking trends in contraceptive use among adolescent females, we compared their annual rates of change with those of other age-groups. For each age-group included, contraceptive prevalence increased on average (i.e., the median country value was above zero—Figure 2, page 68). The median rate of change, however, was greatest for 15–19-year-olds, at about 5% a year, followed by 20–24-year-olds, at about 3% per year. In addition, the variation across countries was greatest for 15–19-year-olds. Although the prevalence of contraceptive use was gener-

\*In spite of overall increases in prevalence among adolescents, the availability of more than two surveys for some countries shows that upward trends have stagnated or even reversed recently in some countries (e.g., Kenya, Tanzania and Uganda).

**FIGURE 2. Annual rate of change in contraceptive prevalence for all sexually active females of reproductive age, by age-group, in 45 countries, 1986–2006**



Notes: Excludes Mozambique as an outlier. The boxes contain the middle 50% of the data values. The median value is the line in the box, while the lower and upper edges are the 25th and 75th quartile values. The ends of the vertical lines identify minimum and maximum values; points outside the ends are outliers.

ally much lower among adolescents than among older women, the use of family planning methods expanded more rapidly over the last two decades among the youngest women.

**Discontinuation**

In almost every country, a greater proportion of 15–19-year-olds than of women aged 20–49 reported experiencing a contraceptive failure within a year of starting method use (Table 3). On average, failure rates for adolescents were about 25% higher than those for older women. This difference is likely due to several factors, including that adolescents tend to use less effective methods than older women (especially in countries where a substantial proportion of older women are sterilized), use methods less effectively and are more fecund.<sup>17,24</sup> A few countries had notably high failure rates among young women, including Bolivia (19%), where periodic abstinence is the most prominent method used by adolescents, and Jordan, the Philippines and Turkey (10–14%), where withdrawal is the most common method.

The proportion of adolescent women who reported discontinuing their method while still in need of contraception ranged from 4% in Morocco to 28% in Guatemala. In all countries except one, Ethiopia, a greater proportion of adolescents than of older women discontinued method use while still in need. Although the DHS data provide little insight into the reasons for this difference, it suggests that younger women face more obstacles to consistent use and perhaps that they are more likely to abandon a method and try another if they experience side effects. Because discontinuation while still in need puts women at risk of having an unwanted pregnancy, the rates would ideally decline over time, although there is little evidence that this has happened in most countries (not shown).

In all countries for which data were available, a greater proportion of adolescents than of their older counterparts

**TABLE 3. Percentage of contraceptive users who discontinued a method within 12 months after starting to use it, by age and reason for discontinuation, according to country and survey year**

Country and survey year	15–19						Mos. of exposure	20–49						
	All			Abandoned				All	Abandoned			Mos. of exposure		
	Method failure	Switched	Total	Total	In need**	Not in need**			Method failure	Switched	Total		In need*	Not in need**
Bangladesh, 2004	60.0	6.4	25.5	28.0	8.1	19.9	3,188	44.2	3.6	23.9	16.8	6.0	10.8	7,114
Bolivia, 1994	59.7	19.1	17.7	22.9	8.2	14.7	527	38.6	11.1	14.3	13.1	7.4	5.8	3,972
Brazil, 1996	52.3	7.2	16.8	28.3	16.5	11.8	1,764	41.0	5.5	20.9	14.5	8.9	5.7	6,486
Colombia, 2005	54.6	9.4	20.2	24.9	9.0	16.0	7,710	37.9	6.4	17.8	13.7	5.9	7.7	22,704
Dom. Rep., 2002	63.5	7.9	15.6	39.9	24.9	15.0	3,669	42.1	5.5	12.9	23.7	14.0	9.7	11,210
Egypt, 2005	43.2	4.1	15.6	23.3	12.7	10.6	1,128	31.5	3.1	12.9	15.5	7.5	8.0	14,269
Ethiopia, 2005	54.7	2.4	15.2	32.9	11.3	21.6	407	38.2	1.0	11.3	23.9	13.5	10.4	2,027
Guatemala, 1999	62.7	7.7	11.3	43.7	28.3	15.4	297	39.0	5.6	15.4	18.0	10.9	7.1	1,856
India, 2006	44.5	5.1	7.8	29.6	8.5	21.2	5,058	24.2	2.9	5.5	14.7	5.3	9.4	30,048
Indonesia, 2002	29.2	2.9	8.2	18.0	5.5	12.5	1,935	19.5	1.9	9.1	8.4	3.9	4.5	14,477
Jordan, 2002	61.7	13.6	15.0	33.1	13.4	19.7	252	41.2	10.3	14.9	15.9	6.3	9.7	6,019
Kenya, 2003	53.2	8.4	8.5	36.4	22.6	13.8	608	34.4	4.9	7.6	21.9	14.1	7.8	3,081
Malawi, 2004	49.3	4.3	4.6	40.3	19.9	20.5	945	32.8	3.1	3.5	26.2	16.5	9.7	4,347
Moldova, 2005	45.5	5.9	22.3	17.2	5.8	11.4	752	36.3	6.8	17.0	12.5	5.4	7.1	3,800
Morocco, 2003	50.7	6.6	13.2	30.8	4.0	26.9	872	42.5	5.2	16.8	20.5	3.6	16.8	9,286
Peru, 2004	59.9	9.6	27.6	22.8	11.4	11.4	1,433	47.7	5.8	26.8	15.1	6.7	8.4	8,296
Philippines, 2003	54.9	13.1	15.6	26.3	15.6	10.7	407	38.0	7.4	13.1	17.4	10.7	6.7	5,378
Tanzania, 2004	50.1	2.9	13.0	34.2	16.9	17.3	768	35.3	4.1	8.6	22.5	13.0	9.5	3,904
Turkey, 2003	56.3	9.8	22.6	23.9	5.8	18.1	762	37.8	8.5	19.0	10.4	3.2	7.1	6,394
Vietnam, 2002	45.3	9.3	17.7	18.3	6.1	12.2	147	23.9	7.5	9.9	6.5	1.9	4.7	3,404
Zimbabwe, 2005	28.4	3.1	4.1	21.2	7.9	13.4	1,024	18.4	1.9	4.6	11.9	5.4	6.6	4,272

\*Includes women who reported discontinuing use because their husband disapproved, because they wanted a more effective method or because their method was inconvenient to use; women who discontinued because of side effects, health concerns, access or availability problems or other reasons; and those who responded "don't know." \*\*Includes women who stopped using because they wanted to become pregnant or because of infrequent sex, menopause or infertility, or marital dissolution.

discontinued their method use within a year for any reason. Thus, compared with adult contraceptive use, adolescent use is characterized by shorter periods of consistent use, more contraceptive failure and more stopping for other reasons. This pattern is not surprising: Unmarried adolescents commonly report infrequent sex as a reason for not using contraceptives,<sup>19</sup> and many married adolescents stop use to get pregnant.

## DISCUSSION

In many of the countries included in this study, substantial proportions of 15–19-year-old women are married or are unmarried yet sexually active. The prevalence of marriage in this age-group has declined in the majority of countries included in this study. This decline has been accompanied in several countries by an increase in the prevalence of sexual activity outside of marriage, but there is a great deal of variation in the pattern of change, suggesting that country-level analyses of patterns of exposure to pregnancy risk by age are needed.

According to our findings, current use of contraceptives is often greater among unmarried sexually active women than among their married counterparts, especially in Sub-Saharan Africa. This suggests that young women at the onset of sexual activity are learning to use contraceptives to prevent unplanned pregnancies. At the same time, most adolescents in the study countries who are sexually active are married. Contraceptive use in this group has increased in most countries, and it has risen faster among adolescents than among older women. Contraceptive practice among adolescent women appears to involve much experimentation and inconsistent use. We find higher levels of method failure and method discontinuation while still in need among adolescents than among older females. This pattern has been seen in studies of U.S. adolescents,<sup>20,21</sup> as well as in multivariate analyses of earlier DHS data.<sup>22–24</sup> Further insights into the contraceptive dynamics of adolescents could be gained through a more detailed look at their adoption and discontinuation of specific methods and their reasons for discontinuing, as well as at the interaction between contraceptive use patterns and marital or relationship status.

Given the shift over time toward adolescents' lower desired family sizes and earlier initiation of contraceptive use, we can surmise that lifetime experience with and use of contraceptives through the reproductive years will grow. Because young people exhibit a clear pattern of contraceptive experimentation, it is likely that their lifetime practice will not be without failure, resulting in accidental pregnancies. An expanded demand for contraceptive supplies, services and information can be expected to challenge the preparedness, capacity and resources of existing family planning programs and providers. This trend of expanded demand is likely to be profound, both for the rising number of female contraceptive users and the public sector programs charged with providing family planning services.

There are many barriers to the use of family planning services by young people—including fear, embarrassment, cost and lack of knowledge. Thus, special efforts are needed to respond effectively to adolescents' needs.<sup>25</sup> The quality of services offered to young people is likely to have an important effect on both their adoption and continuation of method use; their higher rates of contraceptive failure and method discontinuation while still at risk of an unwanted pregnancy suggest that existing service models are inadequate. For example, some family planning programs continue to restrict unmarried women's access to contraceptives; others emphasize methods that stop childbearing, such as sterilization, rather than those that delay childbearing.

The extent to which national public and private health care can respond to this growing need for effective, high-quality pregnancy and contraceptive services in the coming decades will significantly influence the quality of reproductive health transitions among couples forming their families. Fortunately, the body of evidence on what makes for effective reproductive health programs for young people has grown over the last decade. Although there remains a shortage of rigorous evaluations of programs aimed at youth, there is now some evidence-based guidance that can be used to direct program and policy design.<sup>26,27</sup> Community-based, life-skills programs and those aimed at couples have shown some promise for improving reproductive outcomes among young people, as have conditional cash transfer programs (e.g., those which give money for staying in school).<sup>2</sup>

The findings from this study indicate a need for resources to be invested in research that can illuminate the patterns and influences behind the sexual and reproductive health transitions experienced by cohorts of young people in developing countries. Personal, social and institutional factors determine the initiation, timing and shifting of contraceptive practices at a young age and have consequences for subsequent reproductive behaviors. Studying the changing dynamics of use, especially in relation to reproductive events, from the perspective of both genders requires investments in longitudinal data systems that have the potential to offer reliable explanations beyond what is possible from the macro-level overview offered in this study. Modeling individual-level change will help address issues regarding contraceptive adoption and continuation raised by this study and identify responsible contextual factors.

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## RESUMEN

**Contexto:** Las decisiones que toman las mujeres y los hombres jóvenes en cuanto a su reproducción, tienen un enorme impacto en su salud, escolaridad, perspectivas de empleo y su transición a la vida adulta en general. Dado que la más grande cohorte de jóvenes en la historia está entrando en sus años reproductivos, su conducta reproductiva determinará el crecimiento y tamaño de la población mundial en las décadas por venir.

**Métodos:** Se utilizó datos de Encuestas Demográficas y de Salud de más de 40 países, para examinar las proporciones de mujeres de 15-19 años de edad que estaban casadas; o que, no estando casadas, eran sexualmente activas; y sus tasas de adopción, uso y discontinuación de anticonceptivos, cambio de método y falla de anticonceptivos. También se examinó las tendencias en estos indicadores, y se realizó comparaciones con mujeres de mayor edad.

**Resultados:** En muchos países, la proporción de mujeres adolescentes que usan anticonceptivos aumentó sustancialmente en las últimas dos décadas; la prevalencia del uso anticonceptivo aumentó más rápido en las adolescentes que en mujeres de mayor edad. Una mayor proporción de adolescentes que de mujeres de mayor edad discontinuaron el uso anticonceptivo en un lapso de un año o tuvieron una falla de su método.

**Conclusiones:** El uso de anticonceptivos en adolescentes está creciendo y, comparado con su uso por personas adultas, está caracterizado por períodos más cortos de uso consistente, con más fallas de los anticonceptivos y con más interrupciones por otras razones. Es probable que crezca el uso de anticonceptivos a través de los años reproductivos, impulsado por el crecimiento en el número de jóvenes. Puede esperarse que una demanda expandida de suministros, servicios e información de anticoncepción ponga a prueba el grado de preparación, capacidad y recursos de los programas y prestadores de planificación familiar existentes.

## RÉSUMÉ

**Contexte:** Les choix génésiques des jeunes femmes et hommes ont un impact énorme sur leur santé, leur scolarité, leurs perspectives d'emploi et leur transition globale vers l'âge adulte. Tandis que la plus vaste cohorte de jeunes de l'histoire accède à sa période de vie génésique, son comportement sexuel déterminera la croissance démographique et l'ampleur de la population mondiale à venir.

**Méthodes:** Les données d'Enquête démographique et de santé de plus de 40 pays ont servi à l'examen des proportions de

femmes de 15 à 19 ans actuellement mariées ou célibataires mais sexuellement actives, de leurs taux d'adoption, de pratique actuelle, d'abandon, de changement de méthode et d'échec de la contraception, des tendances de ces indicateurs et à la comparaison par rapport à leurs aînées.

**Résultats:** Dans de nombreux pays, la proportion d'adolescentes qui pratiquent la contraception a augmenté considérablement au cours des 20 dernières années. Parmi les adolescentes, la prévalence s'est accrue plus rapidement que parmi les femmes plus âgées. De plus grandes proportions d'adolescentes que de femmes plus âgées ont cependant abandonné une méthode adoptée en l'espace d'un an ou ont connu un échec contraceptif.

**Conclusions:** La pratique contraceptive des adolescentes est en hausse et, par rapport à celle des adultes, elle se caractérise par de plus brèves périodes d'usage constant avec plus d'échecs contraceptifs et plus d'abandons pour d'autres raisons. La pratique contraceptive durant les années de fécondité devrait s'accroître, alimentée davantage encore par la croissance numérique des jeunes. La demande accrue de produits contraceptifs, de services et d'information mettra vraisemblablement au défi l'état de préparation, la capacité et les ressources des programmes et prestataires de planification familiale existants.

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