

# DHS

# Comparative Reports

# 9

## Infecundity, Infertility, and Childlessness in Developing Countries



MEASURE *DHS+* assists countries worldwide in the collection and use of data to monitor and evaluate population, health, and nutrition programs. Funded by the U.S. Agency for International Development (USAID), MEASURE *DHS+* is implemented by ORC Macro in Calverton, Maryland. The opinions expressed herein are those of the authors and do not necessarily reflect the views of the U.S. Agency for International Development.



The main objectives of the MEASURE *DHS+* project are:

- 1) to provide decisionmakers in survey countries with information useful for informed policy choices,
- 2) to expand the international population and health database,
- 3) to advance survey methodology, and
- 4) to develop in participating countries the skills and resources necessary to conduct high-quality demographic and health surveys.

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# DHS Comparative Reports No. 9

## Infecundity, Infertility, and Childlessness in Developing Countries

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## Preface

One of the most significant contributions of the MEASURE *DHS+* program is the creation of an internationally comparable body of data on the demographic and health characteristics of populations in developing countries. The *DHS Comparative Reports* series examines these data across countries in a comparative framework. The *DHS Analytical Studies* series focuses on specific topics. The principal objectives of both series are to provide information for policy formulation at the international level and to examine individual country results in an international context. Whereas *Comparative Reports* are primarily descriptive, *Analytical Studies* take a more analytical approach.

The *Comparative Reports* series covers a variable number of countries, depending on the availability of data sets. Where possible, data from previous DHS surveys are used to evaluate trends over time. Each report provides detailed tables and graphs organized by region. Survey-related issues such as questionnaire comparability, survey procedures, data quality, and methodological approaches are addressed as needed.

The topics covered in *Comparative Reports* are selected by MEASURE *DHS+* staff in conjunction with the MEASURE *DHS+* Scientific Advisory Committee and USAID. Some reports are updates and expansions of reports published previously.

It is anticipated that the availability of comparable information for a large number of developing countries will enhance the understanding of important issues in the fields of international population and health by analysts and policymakers.

Martin Vaessen  
Project Director



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## Executive Summary

The inability to bear children is a tragedy for many couples, bringing a sense of loss, failure, and exclusion. Infertility also has important demographic and health implications. This study utilizes data from 47 Demographic and Health Surveys in developing countries to examine levels, trends, and differentials in women's inability to bear children. Five principal measures were used in the analysis on infertility: childlessness, primary and secondary infertility, self-reported infecundity, and indications of secondary infecundity. In addition, levels of sexual experience, pregnancy, and live births were measured. Overall, by age 45 to 49, only 3 percent of sexually experienced women have not had a birth. Countries with more than 5 percent of sexually experienced women age 45 to 49 without a birth include the Central African Republic, Cameroon, Mozambique, Niger, Haiti, Colombia, and Brazil. Some women do not desire to have children. For women with no living children and whose ideal is to have no children, the countries with the highest percentages are Brazil, Ethiopia, Bolivia, Colombia, Turkey, and Nicaragua (4 to 6 percent).

Self-reports of infecundity include women who say they have never menstruated, women who have not menstruated for five or more years, women who are postmenopausal, and women who have had a hysterectomy. Seventeen percent of women age 15 to 49 report themselves as infecund. Secondary sterility is the inability to have further children after a woman has given birth to one or more children. Its measurement is complicated by the use of contraception. In this study, a woman is considered secondarily sterile if she has not had a child in the past five years, although she was continuously married and did not use contraception during that period. Secondary sterility is most common in sub-Saharan Africa. For women age 25 to 49, all eight countries except one (Cambodia) with more than 30 percent of women secondarily sterile are in sub-Saharan Africa.

The study estimates that in 2002, more than 186 million ever-married women of reproductive age (15 to 49) in the developing countries (excluding China) were infertile because of primary or secondary infertility. This number represents more than one-fourth of the ever-married women of reproductive age in these countries. However, using comparable data, the study shows that infertility, both primary and secondary, has declined in most countries. There is no obvious pattern to changes in the levels of infertility in the countries most affected by HIV.

Finally, the study examines some of the consequences and coping mechanisms of couples affected by infertility. Women who have never had a child are more likely to be divorced or separated, and childless women are more likely to have been married more than once. Adoption is an important means of coping with childlessness, and childless women are 15 percent more likely to live in households with adopted children than are women with children of their own. In five West African countries, more than half of childless couples live in households with adopted children.





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# 1

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## Introduction

For many couples, the inability to bear children is a tragedy. The conflux of personal, interpersonal, social, and religious expectations brings a sense of failure, loss, and exclusion to those who are infertile. Relationships between couples can become very strained when children are not forthcoming. One partner may seek to blame the other as being defective or unwilling. Socially, most societies are organized, especially in the developing countries, such that children are necessary for care and maintenance of older parents. Even in developed countries with social support systems, children and family are expected to provide much of the care for the elderly. Childless couples are also excluded from taking leading roles in important family functions and events such as birthdays, christenings, confirmations, bar mitzvahs, and weddings of their children. Moreover, many religions assign important ceremonial tasks to the couple's children.

The incidence of infertility in a population has important demographic and health implications as well. Because high infertility has a dampening effect on overall fertility and the rate of population growth, improvements in the ability to bear children may impede efforts to lower the fertility rate. For example, it has been estimated that a reduction in infertility in sub-Saharan Africa to "normal" levels would increase fertility in that region by 15 percent (Frank, 1983). Similarly, Bongaarts, Frank, and Lesthaeghe (1984) found that infertility accounts for 60 percent of the variation in total fertility in 18 sub-Saharan countries and that fertility decreases by one birth for each increase in 9 percentage points in the proportion of women age 45 to 49 who have no children. In Cameroon, a country with an unusually high level of infertility, Larsen and Menken estimated that the then current total fertility rate of 5.5 children would rise to 7.3 in the absence of sterility (Larsen and Menken, 1989).

Reports from Demographic and Health Surveys (DHS) data have provided up-to-date measurements of levels and trends in fertility in conjunction with data on important fertility determinants, such as first marriage and union, first birth, contraception, breastfeeding, and infant and child mortality. Outside of sub-Saharan Africa, no major attention has been paid to the DHS data relating to infecundity, although there is no doubt that infecundity is also an important determinant of fertility there.

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The incidence of infertility in a population has important demographic and health implications.

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## Definitions and Measurement Problems

The terms infertility, sterility, and infecundity are often used loosely, without regard to precise definition. Moreover, definitions of these terms may differ substantially between demographic and medical usage and between languages. In English demographic terminology, primary infertility (also called primary sterility) is defined as the inability to bear any children, either due to the inability to conceive or the inability to carry a pregnancy to a live birth. In medical studies, however, infertility is usually defined only as the inability to conceive. In English demographic language, the term “infecundity” refers to the inability to conceive after several years of exposure to the risk of pregnancy. Inability to conceive within two years of exposure to pregnancy is the epidemiological definition recommended by the World Health Organization (WHO, 1975; WHO, 2001).<sup>1</sup> Clinical studies often use a one-year period of exposure. It is common in demographic studies to use a period of five years.

The term “infecundity” is sometimes preferred to “infertility” because in English demographic language, “fertility” is the term used to describe the quantity of offspring rather than the physiological ability to reproduce. Both terms will be used interchangeably in this report.

Secondary infertility, which has been shown to have a high geographical correlation with primary infertility (Mammo and Morgan, 1986), is the inability to bear a child after having an earlier birth.

There are practical measurement problems no matter which definition is used. It is difficult to measure continuous exposure to the risk of pregnancy over a period of years. A comprehensive measure of exposure requires data on marital status, abstinence, coital frequency and timing, contraceptive use, and the partner’s presence or absence for all women for the entire period under consideration. Some but not all of these data are provided by the DHS reproductive calendar. However, the calendar has been used only in DHS surveys of countries with high contraceptive prevalence.

Infertility measured on the basis of currently married women may underestimate infecundity if couples who are unable to have children are more likely to dissolve their marriage or union than are couples with children (see Mtimavalye and Belsey, 1987; Sherris and Fox, 1983). However, in countries where there is a high rate of remarriage, Vaessen (1984) states that there would not be a strong bias.<sup>2</sup>

Use of contraception complicates the estimation of infertility and infecundity. On the one hand, if couples are using contraception, then the lack of fertility and conception is explained. On the other hand, more fertile couples are more likely to use contraception than are less fertile couples. Including couples who have used contraception during the measurement period, with the assumption that all such couples are fecund, biases infertility estimates downward because there is probably some degree

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Use of contraception complicates the estimation of infertility and infecundity.

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<sup>1</sup> The percentage of women of reproductive age (15 to 49) at risk of pregnancy (not pregnant, sexually active, noncontracepting, and nonlactating) who report trying for a pregnancy for two or more years.

<sup>2</sup> The authors believe there still may be such a bias even where the rate of remarriage is high.

of infertility among them, although it may be lower than for couples who have not used contraception. Excluding couples who used contraception biases infertility estimates upward because the most fecund are likely to be excluded. These biases become important when use of contraception is substantial, especially if use of sterilization is high.

Other biases arise because women who have borne a child during the period of measurement may have subsequently become infecund or because women who have not borne a child during that period may have had an unreported miscarriage or an induced abortion, been temporarily separated from their partner, been ill, failed to report contraceptive use, or stopped having intercourse (Vaessen, 1984). One of the more serious problems with infertility measures that are based on the fertility of couples at the end of the childbearing period is that these measures do not reflect recent trends in infertility. Moreover, most sample surveys include a relatively small number of women over age 40 and, therefore, high sampling errors result. Larsen and Menken (1989) have identified two further problems with some of the infecundity measures that were used in the World Fertility Survey: The ages to which the measures refer are not specified, and the sensitivity of the estimators to different age patterns of sterility is not tested.<sup>3</sup>

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<sup>3</sup> Larsen and Menken (1989) propose a new measure of subsequent infertility that can be calculated from incomplete birth histories and that yields information on current infecundity. This measure cannot be used to analyze DHS data because it is appropriate only for countries with negligible contraceptive prevalence and because it requires a complete marriage history.

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# 3

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## Data and Methodology

The data for this report come from 47 surveys conducted in developing countries under the Demographic and Health Surveys (DHS) program. These surveys were the latest available in each of the countries at the time of tabulation of the data in this report. Fieldwork in these surveys took place between 1995 and 2000. This report extends similar work for 29 DHS surveys in sub-Saharan Africa by Larsen and Ridders (2001) but uses differing measures of infertility.

The surveys interviewed women between the ages of 15 and 49 and are nationally and subnationally representative. Relative to infertility, women are asked about each one of their live births, their past and current use of contraception, their marital status, and their breastfeeding and abstinence from sexual relations, as well as a host of other reproductive health and background information. In 15 of the surveys, information is available from a month-to-month reproductive calendar. The calendar was used principally in countries with high contraceptive prevalence. The reproductive calendar collected information on birth dates, pregnancies, non-live-birth pregnancy terminations, use of contraceptive methods, and periods when the woman was in a marital union (including informal consensual unions). The surveys examined in this report and the number of women in each survey are shown in Table 1. The report includes data from more than 495,000 women.

Several different measures of infertility are used in this report. The definition of the measures depends on whether the reproductive calendar was used in the survey. Unless otherwise indicated, the term “married” includes formal and informal consensual unions. In surveys with reproductive calendars, women are considered to have been married for the past five years if they were continuously married (or in a consensual union) for each of the 60 months before the date of interview or for the length of time for which the calendar has information, whichever is shorter. In surveys without reproductive calendars, women are considered to have been married for the past five years if they are currently married and their first marriage occurred five or more years before the interview. An alternative would be to consider only women who have had one marriage. This restriction was thought to be too strict because older women may have been married for at least five years in second or subsequent marriages.

The use of contraception also varies according to whether a reproductive calendar was used. In surveys with a calendar, nonuse of contraception refers to no current use and no use during the past 60 months or the length of time covered by the calendar, whichever is shorter. In surveys without a calendar, nonuse refers to never having used contraception.

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In this analysis, the definition of measures of infertility depends on whether the reproductive calendar was used in the survey.

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**Table 1**  
**Characteristics of surveys included in the report**

Region and Country	Survey date	Number of respondents	Type of respondent	Used reproductive calendar
<b>Sub-Saharan Africa</b>				
Benin	1996	5,491	All women	No
Burkina Faso	1998/99	6,445	All women	No
Cameroon	1998	5,501	All women	No
Central African Republic	1994/95	5,884	All women	No
Chad	1996	7,454	All women	No
Comoros	1996	3,050	All women	No
Côte d'Ivoire	1998/99	8,099	All women	No
Eritrea	1995	5,054	All women	No
Ghana	1998	4,843	All women	No
Guinea	1999	6,753	All women	No
Kenya	1998	7,881	All women	Yes
Madagascar	1997	7,060	All women	No
Malawi	2000	13,220	All women	No
Mali	1995/96	9,704	All women	No
Mozambique	1997	8,779	All women	No
Niger	1998	7,577	All women	No
Nigeria	1999	8,206	All women	No
Senegal	1997	8,593	All women	No
Tanzania	1999	4,029	All women	No
Togo	1998	8,569	All women	No
Uganda	1995	7,070	All women	No
Zambia	1996	8,021	All women	No
Zimbabwe	1999	5,907	All women	Yes
<b>North Africa/West Asia</b>				
Egypt	1995	14,779	Ever married	Yes
Jordan	1997	5,548	Ever married	Yes
Morocco	1995	4,753	All women	Yes
Turkey	1998	8,576	Ever married	Yes
Yemen	1997	10,414	Ever married	No
<b>Central Asia/South and Southeast Asia</b>				
Bangladesh	1999/00	8,982	Ever married	Yes
Cambodia	2000	15,351	All women	No
India	1998/99	90,303	Ever married	No
Indonesia	1997	28,810	Ever married	Yes
Kazakhstan	1999	4,800	All women	No
Kyrgyz Republic	1997	3,848	All women	No
Nepal	1996	8,429	Ever married	No
Philippines	1998	13,983	All women	Yes
Turkmenistan	2000	7,919	All women	No
Uzbekistan	1996	4,415	All women	No
Vietnam	1997	5,664	All women	Yes
<b>Latin America/Caribbean</b>				
Bolivia	1998	11,817	All women	No
Brazil	1996	12,612	All women	Yes
Colombia	2000	11,585	All women	Yes
Dominican Republic	1996	8,422	All women	Yes
Guatemala	1998/99	6,021	All women	Yes
Haiti	1994/95	5,356	All women	No
Nicaragua	1997/98	13,634	All women	No
Peru	2000	27,843	All women	Yes
<b>Total</b>	<b>47</b>	<b>497,054</b>		

In the measures described below, the definitions refer to surveys with calendars. The alternate definitions for marriage and contraception, as given above, are used for surveys without calendars. Although the difference in these definitions means that the measures are not totally comparable, they are the most precise for the data available for each country. We do not feel that the differences in definition invalidate intercountry comparisons.

**Childlessness**

Percentage of women who are currently married, have been so for at least five years, and who have no living children.

**Primary infertility**

Percentage of women who have been married for the past five years, who have ever had sexual intercourse, who have not used contraception during the past five years, and who have not had any births.

**Self-reported infecundity**

Percentage of women who report having had a hysterectomy, or say they have gone through menopause, or report not having had a menstrual period in the past five years, or have never had a menstrual period.

**Secondary infertility**

Percentage of women with no births in the past five years but who have had a birth at some time, among women who have been married for the past five years and did not use contraception during that period.

**Secondary infecundity**

Percentage of women with no births and no pregnancies in the past five years but who have had a birth or pregnancy at some time, among women who have been married for the past five years but did not use contraception during that period.





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# 4

## Results

### 4.1 Childlessness

Childlessness at the end of the reproductive years is most effectively studied by using women in the oldest age cohort: women 45 to 49 years. However, there are well-known reporting problems with this age group that involve both the determination of age and of fertility (for example, see Arnold, 1990; Goldman, 1985; Rutstein, 1985; and Rutstein and Bicego, 1990). Therefore, Table 2 presents data on women in the next younger age cohort (40 to 44 years) to measure lifetime childlessness. Using this age cohort instead of the oldest cohort should have little effect because fertility is very low in the oldest age group and first births are rare. The term “childless” in this report is defined as having no living children at the time of the survey. Childlessness can be the result of having had no live births or having had all children die by the time of the survey.

The lowest levels of childlessness among women age 40 to 44 who have been married for at least five years occurs in four countries: Kyrgyz Republic (0.5 percent) and Uzbekistan (0.9 percent) in Central Asia, Vietnam in Southeast Asia (0.9 percent), and Peru in South America (0.9 percent). Thirteen countries have childlessness rates between 1.0 and 1.9 percent. In only six countries, all in sub-Saharan Africa, is the childless rate 4.0 percent or higher for women age 40 to 44 years (Chad and Niger, 4.4 percent; Madagascar, 4.7 percent; Comoros, 5.5 percent; Cameroon, 7.3 percent; and the Central African Republic, 10.5 percent).

Childlessness among women age 40 to 44 has declined substantially from the levels reported by the World Fertility Survey (Vaessen, 1984). In his overview, Vaessen found no countries with less than 1 percent childless and only two with 1.0 to 1.9 percent childless, compared with 17 countries with less than 2 percent childless among current DHS surveys. At the same time, Vaessen found that the level of childlessness exceeded 4.0 percent in 43 percent of the WFS survey countries (12 of 28). By comparison, a 4.0 percent level of childlessness was reached in only 13 percent of DHS survey countries (6 of 24).

The second column of Table 2 shows the level of childlessness among women age 25 to 49. Vaessen (1984) recommends using this age group as an indicator of childlessness because of the problems associated with age-specific data. Specifically, small sample size for women in some countries can lead to large sampling errors and omission of children by some of the older women. Comparing two age groups (women 40 to 44 and 25 to 49) gives an idea of the trends in childlessness. Such trends reflect improving or deteriorating health conditions that impact both potential parents and children.

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Childlessness among women age 40 to 44 has declined substantially from the levels reported by the World Fertility Survey.

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**Table 2**  
**Childlessness and infertility among women age 40-44 and 25-49**

Among currently married women age 40-44 and 25-49 who have been married for at least five years, percentage who have no living children and percentage who have had no fertile pregnancies, Demographic and Health Surveys 1994-2000

Country	No living children		No fertile pregnancies	
	Age 40-44	Age 25-49	Age 40-44	Age 25-49
<b>Sub-Saharan Africa</b>				
Benin	3.2	2.3	2.1	1.4
Burkina Faso	1.4	2.2	1.0	1.3
Cameroon	7.3	6.6	3.7	4.4
Central African Rep.	10.5	9.3	7.3	6.4
Chad	4.4	3.4	3.0	2.0
Comoros	5.5	4.2	4.4	3.2
Côte d'Ivoire	3.7	3.8	2.0	2.2
Eritrea	1.2	3.3	0.9	1.8
Ghana	1.1	2.5	0.6	2.0
Guinea	3.0	4.5	1.9	2.6
Kenya	1.5	1.6	1.5	1.3
Madagascar	4.7	4.8	3.3	3.4
Malawi	2.8	3.8	1.6	1.7
Mali	3.3	4.3	1.7	2.5
Mozambique	3.1	6.0	1.9	3.3
Niger	4.4	4.2	2.7	2.4
Nigeria	2.1	9.4	1.8	5.2
Senegal	3.8	2.9	2.1	2.0
Tanzania	2.8	4.0	2.0	2.8
Togo	1.4	2.5	0.9	1.7
Uganda	3.2	4.2	1.9	3.0
Zambia	2.3	3.6	1.5	1.9
Zimbabwe	2.7	2.7	2.3	1.6
<b>North Africa/West Asia</b>				
Egypt	2.8	3.1	2.6	2.7
Jordan	2.4	2.8	2.4	2.7
Morocco	2.0	4.5	1.2	3.7
Turkey	1.8	3.2	1.5	2.8
Yemen	2.5	2.5	2.2	2.1
<b>Central Asia/South and Southeast Asia</b>				
Bangladesh	1.8	6.0	1.1	4.0
Cambodia	2.1	2.0	1.8	1.4
India	2.6	3.1	2.0	2.5
Indonesia	3.7	3.2	2.9	2.6
Kazakhstan	2.0	2.1	2.0	2.0
Kyrgyz Republic	0.5	1.9	0.5	1.5
Nepal	3.2	3.3	1.4	2.2
Philippines	1.6	2.3	1.4	2.0
Turkmenistan	1.3	1.9	1.3	1.5
Uzbekistan	0.9	1.4	0.8	1.2
Vietnam	0.9	1.3	0.8	1.1
<b>Latin America/Caribbean</b>				
Bolivia	1.1	1.2	0.7	0.8
Brazil	3.3	3.7	2.9	3.4
Colombia	2.5	2.9	2.3	2.6
Dominican Republic	3.7	3.2	3.0	2.7
Guatemala	1.7	1.3	1.5	1.1
Haiti	3.9	5.3	2.5	3.4
Nicaragua	1.4	1.8	1.2	1.5
Peru	1.4	1.5	1.3	1.3

On average, childlessness rates are higher by 0.7 percent for women age 25 to 49 than for those age 40 to 44. In 16 countries, childlessness is greater by 1 percent or more for the 25 to 49 age group. Eleven of these are in sub-Saharan Africa. The three countries with the greatest differences are Nigeria (7.3 percent higher for age 25 to 49), Bangladesh (4.2 percent higher), and Mozambique (2.9 percent higher). It is unlikely that some of these large differences are due to understatement of childlessness among women age 40 to 44 because omission of births among these older women would make their proportions higher than those of the broader age group. In three countries (Central African Republic, Chad, and Comoros) the broader age group has a percentage of childlessness that is lower by 1 percent or more. These differences may be due to improving health conditions and the lower exposure to children's mortality in the broader age group. Some of the smaller differences in childlessness between the two groups could be due to sampling error.

#### 4.1.1 Fertile Pregnancies

A more refined measure of the inability to produce offspring is the percentage of women who have not had a fertile pregnancy. A fertile pregnancy is a pregnancy that ended in a live birth or a current pregnancy that is presumed to end in a live birth, on average about 85 percent (Singh, 1989). In columns 3 and 4 of Table 2, the percentages of women without a fertile pregnancy are shown for women 40 to 44 and women 25 to 49, respectively. This measure eliminates the effect of children's mortality on the data.

Fifty-seven percent of the countries (26 of 46) have percentages of no fertile pregnancies for women 40 to 44 that are below 2 percent. Comoros, at 4.4 percent, and the Central African Republic, at 7.3 percent, are the only two countries above 4 percent. Removing the effect of mortality reduces the percentage of childlessness by 0.8 percent on average. In 16 countries, the reduction is 1 percent or more, but only 2 of these 16 countries, Haiti and Nepal, are outside of sub-Saharan Africa. Although the effect of mortality is greatest in the Central African Republic and Cameroon, these two countries have the highest levels of childlessness at age 40 to 44, even when this effect is removed.

For the broader age group 25 to 49, removing the effect of mortality reduces the estimation of childlessness by 1 percent or more in most of sub-Saharan Africa, but does so in only three countries outside this region: Bangladesh, Nepal, and Haiti. The percentage with no fertile pregnancies among the broader age group is the childless measure that is probably closest to primary infertility. The country with the lowest percentage is Bolivia (0.8 percent), and Bangladesh (4.0 percent), Cameroon (4.4 percent), Nigeria (5.2 percent) and the Central African Republic (6.4 percent) are the countries with the highest percentages in the broader age group.

#### 4.1.2 Discussion

Among currently married women age 40 to 44 who have been married for at least five years, about 96 percent have one or more surviving children in the majority of countries (40 out of 46). In more than half of the countries (29 of 46), 97 percent or more women have at least one surviving child. Of the same women, at least 92 percent have had at least one fertile pregnancy, and in 40 countries this proportion is 97 percent or higher.

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Among currently married women age 40 to 44 who have been married for at least five years, about 96 percent have one or more surviving children in the majority of countries.

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Among currently married women age 25 to 49 who have at least five years' exposure to the risk of pregnancy, a similar pattern emerges. In 38 countries, 97 percent or more of these women have had one or more pregnancies, and only in the Central African Republic does this level drop below 94 percent.

## 4.2 Primary Infertility

Primary infertility is measured among women who have engaged in regular sexual intercourse for five or more years, have not used contraception for that period of time, and have not had a live birth. Primary infecundity is measured among the same women, but the women have had neither a pregnancy nor a birth in the specified period. We will examine each of the conditions in turn.

### 4.2.1 Sexual Experience

Table 3 shows the proportion of women who have never had sex by five-year age groups, for age group 25 to 49, and for all women age 15 to 49 and age 25 to 49 standardized on the age distribution of Peru. In several countries in North Africa and Asia, only ever-married women were interviewed, and questions on sexual activity were not asked. In Nepal, the survey was based on ever-married women, but sexual activity questions were asked.

The percentage of women who have not had sexual intercourse in the age group 15 to 19 ranges from 27 percent in Côte d'Ivoire to 94 percent in Turkmenistan. Overall, 59 percent of women in this age group have not had sexual intercourse. By age 20 to 24, the mean percentage who are still sexually inexperienced drops to 18 percent and by age 25 to 29 to 6 percent. By age 45 to 49, only 1 percent of women report not having had sexual intercourse at some time in their life. To smooth the effects of sampling variation caused by small numbers, women age 25 to 49 are grouped together. To further comparability, we have calculated age-standardized percentages for this age group, on the basis of the age distribution of Peru, as shown in the last column of Table 3. Overall, only 2.6 percent of women age 25 to 49 have not had sexual intercourse. The highest percentage of women with no sexual experience is in the Philippines (12.4 percent), where even by age 45 to 49, 6.3 percent have still not had intercourse. Other countries with a high proportion of sexually inexperienced women age 25 to 49 are Cambodia (9.1 percent), Comoros (6.9 percent), and Peru (6.7 percent). The lowest levels occur in sub-Saharan Africa, where 17 of 23 countries have less than 0.6 percent of women age 25 to 29 who have never had sexual intercourse. In the Central Asian republics, the percentage of women age 25 to 49 with no sexual experience ranges from 2.2 to 5.7 percent. In the Latin America/Caribbean region, the percentage is about 4 to 5 percent, except in Peru.

The overall means and the regional mean for Asia are affected by the lack of information for countries in North Africa, West Asia, and South Asia, where cultural tradition makes it difficult to ask questions about sexual activity.

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The percentage of women who have not had sexual intercourse in the age group 15 to 19 ranges from 27 percent in Côte d'Ivoire to 94 percent in Turkmenistan.

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**Table 3**  
**Primary infertility (1): No sex**

Percentage of women age 15-49 who have never had sexual intercourse, by age group, Demographic and Health Surveys 1994-2000

Country	15-19	20-24	25-29	30-34	35-39	40-44	45-49	Total 25-49	Age	Age
									standardized 15-49	standardized 25-49
<b>Sub-Saharan Africa</b>										
Benin	47.0	5.5	0.3	0.2	0.0	0.0	0.0	0.1	11.0	0.1
Burkina Faso	50.9	3.4	0.3	0.0	0.0	0.2	0.2	0.1	11.5	0.1
Cameroon	34.9	2.7	0.1	0.1	0.0	0.2	0.2	0.1	8.0	0.1
Central Afr. Rep.	38.0	3.0	0.9	0.1	0.4	0.0	0.0	0.4	8.8	0.3
Chad	45.2	4.9	1.0	0.1	0.1	0.0	0.1	0.4	10.7	0.3
Comoros	83.2	44.6	19.5	6.4	1.4	0.0	0.0	7.5	29.9	6.9
Côte d'Ivoire	27.3	2.6	0.1	0.0	0.0	0.0	0.0	0.0	6.3	0.0
Eritrea	62.4	20.8	7.3	4.3	1.5	2.3	1.1	3.6	19.3	3.8
Ghana	62.2	8.6	1.8	0.2	0.0	0.0	0.0	0.6	15.1	0.5
Guinea	40.2	6.0	0.7	0.3	0.0	0.2	0.0	0.3	9.8	0.3
Kenya	56.4	11.1	1.8	0.2	0.0	0.0	0.0	0.6	14.3	0.5
Madagascar	43.5	8.3	3.1	1.4	0.8	1.1	0.5	1.6	11.7	1.6
Malawi	42.7	4.3	0.8	0.2	0.0	0.3	0.0	0.3	10.0	0.3
Mali	34.0	2.7	0.6	0.2	0.2	0.1	0.0	0.3	7.9	0.3
Mozambique	30.5	2.1	0.1	0.0	0.0	0.1	0.0	0.1	6.9	0.0
Niger	36.5	8.7	1.6	0.4	0.0	0.2	0.2	0.6	9.7	0.6
Nigeria	56.9	15.9	4.0	1.1	0.5	0.4	0.0	1.7	15.9	1.5
Senegal	65.1	29.0	10.9	2.4	0.6	0.2	0.0	3.9	21.3	3.6
Tanzania	47.4	6.2	1.1	0.8	0.3	0.0	0.0	0.6	11.5	0.5
Togo	39.3	4.4	0.6	0.1	0.1	0.0	0.1	0.2	9.3	0.2
Uganda	38.4	3.2	1.1	0.3	0.2	0.0	0.0	0.5	9.0	0.4
Zambia	41.7	5.2	0.5	0.5	0.1	0.0	0.0	0.3	10.0	0.3
Zimbabwe	67.7	15.9	2.4	1.2	0.3	0.2	0.0	1.1	17.9	1.0
<b>North Africa/West Asia</b>										
Egypt	u	u	u	u	u	u	u	u	u	u
Jordan	u	u	u	u	u	u	u	u	u	u
Morocco	u	u	u	u	u	u	u	u	u	u
Turkey	u	u	u	u	u	u	u	u	u	u
Yemen	u	u	u	u	u	u	u	u	u	u
<b>Central Asia/South and Southeast Asia</b>										
Bangladesh	u	u	u	u	u	u	u	u	u	u
Cambodia	87.1	44.2	16.3	9.0	6.1	5.1	4.9	8.6	32.1	9.1
India	u	u	u	u	u	u	u	u	u	u
Indonesia	u	u	u	u	u	u	u	u	u	u
Kazakhstan	82.5	30.3	7.2	2.6	1.9	1.7	2.2	3.2	25.1	3.5
Kyrgyz Rep.	85.7	19.5	4.2	2.3	0.7	1.2	1.6	2.1	23.0	2.2
Nepal	u	u	u	u	u	u	u	u	u	u
Philippines	90.9	54.5	24.0	10.9	7.4	7.2	6.3	12.2	36.7	12.4
Turkmenistan	94.1	52.6	15.2	4.2	2.5	0.8	0.5	5.6	33.0	5.7
Uzbekistan	87.0	22.7	5.2	1.9	1.2	0.4	1.4	2.3	24.0	2.3
Vietnam	u	u	u	u	u	u	u	u	u	u
<b>Latin America/Caribbean</b>										
Bolivia	80.3	33.0	8.5	3.9	3.3	2.0	1.7	4.3	25.7	4.4
Brazil	67.2	26.6	9.9	3.6	4.1	3.1	3.6	5.1	22.3	5.3
Colombia	59.9	18.9	6.6	4.4	1.9	3.4	2.9	4.0	18.6	4.1
Dominican Rep.	67.3	26.7	10.3	3.2	3.1	1.5	0.4	4.6	21.8	4.4
Guatemala	72.6	26.2	9.0	5.6	2.3	4.1	2.2	5.1	23.3	5.1
Haiti	71.0	25.6	8.6	4.3	1.0	1.9	1.0	3.9	22.1	3.9
Nicaragua	63.7	23.1	9.9	4.5	2.5	1.6	1.6	4.8	20.5	4.6
Peru	77.8	34.2	14.7	5.4	4.0	2.5	2.6	6.5	26.8	6.7

u = Unknown (not available for ever-married samples)

#### 4.2.2 Pregnancy among Sexually Experienced Women

Once sexual relations are begun on a regular basis, pregnancy soon follows for the majority of women unless contraception is used. Table 4 shows the proportion of women who have had sexual relations (any marital status for all-women surveys and non-single women for ever-married surveys) but have not had a pregnancy.

There is a clear decline with increasing age from an overall average of about 40 percent with no pregnancy at age 15 to 19 to 16 percent at age 20 to 24 to 7 percent at age 25 to 29. This rapid decline is probably due to three factors: some adolescent subfecundity for sexually active women, particularly at age 15 to 17, a delay in establishing regular sexual relations even though a first experience of intercourse occurred, and some use of contraception among young women in order to delay the first pregnancy. By age 30, almost all sexually experienced women have had a pregnancy; the percentage without a pregnancy at age 35 to 49 is about 2.5 percent.

At age 15 to 19, the countries with the smallest proportion of women who are sexually experienced but have not had a pregnancy are the Philippines and Guatemala (20.2 and 20.3 percent, respectively). It is interesting that the Philippines has the second highest proportion of women without sexual experience in this age group (Table 3). At 93 percent and 89 percent, respectively, Turkey and Morocco are the countries with the highest proportions of sexually experienced women age 15 to 19 who have not had a pregnancy. These percentages are unrealistically high and may indicate omission of some pregnancies, or perhaps, more sporadic sex on the part of respondents. These countries also have the highest proportions of sexually experienced women without a pregnancy at ages 20 to 24, 25 to 29, and 30 to 34.

Among women age 25 to 49, the highest proportion of sexually experienced women who have not had a pregnancy is in Morocco (17.8 percent, age standardized). Morocco is followed by Turkey (8.9 percent), and Brazil and Colombia (both 7.7 percent). In six countries, less than 2 percent of sexually experienced women age 25 to 49 have not had a pregnancy: Guatemala (1.2 percent), Vietnam (1.7 percent), Burkina Faso (1.8 percent), and Bangladesh, Malawi, and Uzbekistan (all 1.9 percent).

#### 4.2.3 Births among Sexually Experienced Women

Table 5 shows the proportion of women who have had sexual relations but have not had a birth. The data indicate that, overall, 18.8 percent of women age 15 to 49 who are sexually experienced have not had a birth. This percentage consists of 13.9 percent who have not had a pregnancy and 4.9 percent who have had at least one pregnancy but who have not brought this pregnancy to term. Some of these women have lost the pregnancy through miscarriage and stillbirth, some have had an induced abortion, and others are currently pregnant for the first time. By age 25, however, most women would have completed their first pregnancy, allowing comparison between countries using the age group 25 to 49 years. Overall, 5.0 percent of sexually experienced women age 25 to 49 have not had a birth, compared with 4.0 percent who have not had a pregnancy.

The countries with the highest proportions of sexually experienced women without a birth are Morocco, Turkey, Colombia, Brazil, and the Central African Republic, all over 8 percent; Morocco is highest at 19.1 percent. As with pregnancies, the countries with lowest proportions of sexually experienced women without a birth are Guatemala, Bangladesh, Burkina Faso, and Malawi, all under 3 percent.

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Overall, 5.0 percent of sexually experienced women age 25 to 49 have not had a birth, compared with 4.0 percent who have not had a pregnancy.

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**Table 4**  
**Primary infertility (2): Sex but no pregnancy**

Percentage of women age 15-49 who have had sexual intercourse but have never been pregnant, by age group, Demographic and Health Surveys 1994-2000

Country	15-19	20-24	25-29	30-34	35-39	40-44	45-49	Total 25-49	Age standardized 15-49	Age standardized 25-49
<b>Sub-Saharan Africa</b>										
Benin	51.0	20.4	8.4	2.2	1.3	2.2	1.3	3.6	16.6	3.3
Burkina Faso	48.2	11.1	3.5	1.5	1.6	1.0	0.8	1.9	13.4	1.8
Cameroon	47.9	21.5	5.4	2.3	3.4	1.9	4.5	3.7	16.2	3.5
Central Afr. Rep.	35.2	12.1	5.7	3.7	3.8	5.7	5.5	4.8	12.6	4.8
Chad	29.8	7.9	2.9	2.5	2.5	4.0	4.2	3.0	9.6	3.1
Comoros	45.8	22.9	11.9	8.6	3.9	4.7	2.4	6.9	18.1	6.9
Côte d'Ivoire	51.9	18.3	6.2	3.1	1.9	3.4	3.4	4.0	16.6	3.7
Eritrea	37.7	12.2	7.2	4.4	2.9	2.6	1.2	3.9	12.7	4.0
Ghana	57.6	24.0	11.0	3.3	1.7	0.5	1.9	4.5	19.2	4.1
Guinea	37.8	14.8	6.2	3.3	2.2	2.3	2.1	3.6	12.8	3.4
Kenya	50.9	16.9	5.0	1.7	1.6	1.4	2.3	2.7	15.4	2.5
Madagascar	35.6	12.4	7.1	5.6	3.3	4.6	4.7	5.3	13.0	5.2
Malawi	41.1	8.3	2.5	2.3	1.9	1.0	1.2	1.9	11.4	1.9
Mali	34.1	9.3	3.7	2.5	1.5	1.4	2.3	2.4	10.4	2.3
Mozambique	42.5	15.7	6.2	3.9	3.3	4.2	5.7	4.8	14.7	4.6
Niger	32.1	7.7	3.4	2.5	1.4	2.8	5.5	2.9	10.0	2.9
Nigeria	46.5	25.7	11.8	5.7	2.3	3.3	2.7	6.2	18.1	5.6
Senegal	36.1	13.4	7.2	2.8	2.2	2.2	1.7	3.7	12.3	3.5
Tanzania	51.6	11.1	5.4	3.8	2.8	1.9	0.5	3.4	14.9	3.2
Togo	68.0	34.6	10.1	3.7	2.6	1.6	2.1	4.8	23.5	4.4
Uganda	30.4	9.2	5.5	4.3	2.9	2.2	2.2	3.9	10.4	3.6
Zambia	47.4	14.0	6.9	3.3	1.3	1.3	0.9	3.5	14.5	3.1
Zimbabwe	32.2	11.4	4.1	2.8	2.6	2.0	1.7	2.9	10.6	2.8
<b>North Africa/West Asia</b>										
Egypt	26.8	10.7	5.3	3.4	3.6	2.4	2.3	3.5	9.8	3.6
Jordan	23.1	10.2	4.1	3.3	4.2	2.5	2.9	3.5	8.9	3.5
Morocco	92.5	62.2	40.6	18.9	10.7	4.8	3.4	19.2	42.2	17.8
Turkey	89.3	47.2	19.3	8.8	5.5	3.5	3.1	9.2	33.1	8.9
Yemen	39.1	10.9	3.6	2.8	2.0	2.3	1.3	2.6	11.9	2.5
<b>Central Asia/South and Southeast Asia</b>										
Bangladesh	26.9	8.6	3.6	1.2	1.4	1.7	1.2	2.1	8.5	1.9
Cambodia	36.0	13.6	3.4	2.8	1.8	2.1	2.8	2.5	11.7	2.6
India	37.3	11.2	4.3	2.8	2.5	2.3	2.3	3.0	11.8	2.9
Indonesia	30.2	9.4	4.8	3.0	3.0	3.3	2.7	3.4	10.2	3.4
Kazakhstan	49.9	19.8	7.8	5.1	1.8	2.1	2.2	3.8	16.8	4.1
Kyrgyz Rep.	31.2	11.6	3.6	2.1	1.6	1.2	0.4	1.9	10.0	2.0
Nepal	41.6	9.7	2.9	2.7	1.2	1.5	2.8	2.3	12.0	2.2
Philippines	20.2	7.4	4.3	3.5	1.6	2.2	2.1	2.8	7.4	2.9
Turkmenistan	25.1	8.1	3.9	1.8	2.0	1.5	0.6	2.1	8.1	2.1
Uzbekistan	24.9	8.8	4.1	1.5	0.7	1.2	1.3	1.9	8.1	1.9
Vietnam	26.1	7.2	2.6	2.0	1.0	0.9	1.5	1.6	7.9	1.7
<b>Latin America/Caribbean</b>										
Bolivia	30.3	15.2	8.5	3.9	2.2	2.0	2.5	4.1	11.8	4.1
Brazil	41.3	25.8	14.9	7.5	4.7	4.2	4.6	7.5	18.3	7.7
Colombia	49.4	29.5	14.5	8.3	4.9	3.7	4.3	7.6	20.7	7.7
Dominican Rep.	25.6	13.4	7.0	4.3	3.2	2.3	1.5	4.1	10.3	4.0
Guatemala	20.3	4.4	1.2	0.5	1.7	1.4	1.4	1.2	5.8	1.2
Haiti	48.9	27.0	11.8	4.4	2.7	3.0	4.6	5.7	18.8	5.6
Nicaragua	23.7	8.2	4.8	2.5	2.0	0.9	1.6	2.6	8.1	2.5
Peru	39.0	21.1	11.6	5.9	3.1	3.1	2.9	5.6	15.7	5.8



**Table 5**  
**Primary infertility (3): Sex but no birth**

Percentage of women age 15-49 who have had sexual intercourse but have never had a birth, by age group, Demographic and Health Surveys 1994-2000

Country	15-19	20-24	25-29	30-34	35-39	40-44	45-49	Total 25-49	Age standardized 15-49	Age standardized 25-49
<b>Sub-Saharan Africa</b>										
Benin	63.3	23.5	9.3	2.8	1.3	2.2	1.3	4.0	20.1	3.7
Burkina Faso	58.9	13.0	4.1	1.8	1.6	1.0	0.8	2.1	16.1	2.0
Cameroon	61.5	30.1	9.4	4.7	5.7	4.3	7.9	6.6	22.4	6.4
Central African Rep.	54.2	20.4	10.7	6.6	7.1	7.9	8.4	8.3	20.2	8.1
Chad	45.6	11.1	3.5	2.7	2.5	4.0	4.2	3.3	13.7	3.3
Comoros	56.3	26.3	12.9	8.9	4.1	4.7	2.4	7.3	21.2	7.2
Côte d'Ivoire	60.7	20.8	6.8	3.2	1.9	3.4	3.4	4.2	19.0	3.8
Eritrea	50.0	18.5	9.3	5.3	3.1	2.7	1.2	4.7	17.0	4.8
Ghana	69.0	33.5	16.1	5.9	3.2	1.1	2.5	7.0	24.8	6.4
Guinea	46.6	17.8	6.7	3.5	2.2	2.3	2.1	3.8	15.4	3.6
Kenya	60.3	22.2	5.7	2.5	2.4	1.7	2.6	3.3	18.7	3.1
Madagascar	45.7	16.4	9.3	6.7	3.7	4.9	4.9	6.3	16.5	6.1
Malawi	55.7	12.9	3.3	2.9	2.2	1.5	1.9	2.6	15.7	2.5
Mali	49.1	12.7	5.8	3.2	1.7	2.0	3.8	3.5	14.8	3.4
Mozambique	56.3	19.4	6.7	3.9	3.3	4.2	5.7	4.9	18.4	4.7
Niger	42.7	9.7	3.8	2.6	1.6	2.8	5.5	3.1	12.7	3.1
Nigeria	57.2	33.8	15.0	7.7	3.0	3.7	3.0	7.8	22.7	7.1
Senegal	47.7	18.0	8.3	2.8	2.3	2.2	1.7	4.0	15.8	3.7
Tanzania	62.6	16.4	7.0	4.9	3.0	1.9	0.6	4.2	18.7	3.9
Togo	74.4	38.2	11.3	3.8	2.6	1.6	2.1	5.2	25.7	4.7
Uganda	44.6	12.5	6.0	4.3	3.2	2.2	2.2	4.2	14.1	3.8
Zambia	59.1	16.9	7.6	3.4	1.3	1.3	0.9	3.7	17.7	3.2
Zimbabwe	49.8	17.6	5.4	4.0	3.4	2.5	1.9	3.9	16.0	3.7
<b>North Africa/West Asia</b>										
Egypt	48.8	21.1	8.4	5.0	4.8	3.3	2.8	5.1	17.4	5.2
Jordan	51.4	20.7	7.3	5.2	4.9	3.1	3.4	5.1	17.8	5.0
Morocco	95.1	66.1	43.0	20.3	12.1	5.0	4.2	20.6	44.3	19.1
Turkey	92.1	53.9	22.8	10.2	6.0	3.8	3.7	10.7	35.8	10.3
Yemen	55.0	16.2	5.4	3.7	2.2	2.7	1.5	3.4	16.7	3.3
<b>Central Asia/South and Southeast Asia</b>										
Bangladesh	38.2	12.5	4.8	1.9	1.9	1.9	1.3	2.8	12.0	2.5
Cambodia	57.1	21.4	5.0	3.3	2.1	2.7	3.4	3.3	18.1	3.3
India	52.5	17.7	6.3	3.6	3.1	2.8	2.9	4.0	16.8	3.9
Indonesia	47.4	16.7	7.4	4.1	3.6	3.5	3.0	4.5	15.9	4.5
Kazakhstan	74.8	33.5	12.6	6.6	2.8	3.8	3.6	5.9	25.9	6.3
Kyrgyz Rep.	55.7	18.7	6.0	3.2	2.4	1.9	1.1	3.1	17.2	3.2
Nepal	56.3	14.1	4.3	3.2	1.7	1.9	2.9	3.0	16.3	2.9
Philippines	39.9	15.4	7.7	5.1	2.2	2.7	2.6	4.2	14.0	4.3
Turkmenistan	55.0	18.7	7.3	2.5	2.7	1.8	0.9	3.3	17.2	3.3
Uzbekistan	52.0	22.9	6.4	2.4	1.1	1.4	1.5	2.9	17.0	2.8
Vietnam	54.9	17.4	5.1	2.8	1.2	1.2	1.8	2.5	16.4	2.6
<b>Latin America/Caribbean</b>										
Bolivia	42.0	18.6	10.0	4.1	2.2	2.0	2.5	4.5	15.1	4.5
Brazil	56.4	33.1	18.0	9.0	5.9	5.0	5.4	9.1	23.8	9.3
Colombia	62.3	36.5	17.7	10.7	6.1	4.5	5.4	9.4	25.8	9.6
Dominican Rep.	43.9	20.4	10.2	6.1	4.5	4.0	2.8	6.1	16.7	5.9
Guatemala	37.0	8.8	3.0	1.0	1.8	1.5	1.5	1.8	10.5	1.8
Haiti	62.7	34.5	16.0	6.2	4.4	3.8	5.6	7.9	24.4	7.6
Nicaragua	39.2	13.2	6.0	2.7	2.5	1.4	1.6	3.1	12.6	3.1
Peru	52.1	27.0	14.5	8.0	3.9	3.9	3.8	7.2	20.6	7.4

Even though the results may be based on small numbers, it is interesting to consider the group of women at the upper limits of the reproductive age span, 45 to 49 years. Overall, 3.0 percent of sexually experienced women in this age group have not had a birth. The proportions with no births range from 0.6 percent (Tanzania) to 8.4 percent (Central African Republic). Three other sub-Saharan countries have percentages higher than 5 percent: Cameroon (7.9 percent), Mozambique (5.7 percent), and Niger (5.5 percent). In the Latin America/Caribbean region, there are three countries in which more than 5 percent of sexually experienced women age 45 to 49 have not had a birth: Colombia and Brazil (both 5.4 percent) and Haiti (5.6 percent).

#### **4.2.4 Observed Primary Infecundity**

The measurement of primary infecundity is complicated by contraceptive use and women's fertility preferences. The determination of infecundity depends on a certain amount of exposure to the risk of pregnancy. In demographic studies, the period of risk is five years. A woman who fails to give birth during this period, while engaging regularly in sexual intercourse and not using any form of contraception nor induced abortion, is considered infertile. Marital union is considered to be the indicator of regularly engaging in sexual intercourse. Where contraceptive use is low, excluding women who have ever used contraception does not substantially bias the estimation of infecundity. Where contraceptive use is high, however, exclusion of women who use or who have ever used a contraceptive method is selective for infertile women, especially if most women use contraception for limiting the number of births. In these countries, the estimation of infecundity may be highly biased if contraceptive users are excluded from the denominator in calculating the percentage of women who are infertile. However, including contraceptive users in the denominator implies that they all are fertile and biases the estimate of infecundity downward. Moreover, there may be a difference between voluntary and involuntary infecundity. Some women do not desire to have any children and use contraception to achieve this desire. Other women want children but use contraception to postpone their first and/or subsequent births. When some of these latter women are ready to have children, some find that they cannot and so are involuntarily infertile. Tabulations that do not take into account the desire for a child may underestimate the level of involuntary infecundity.

#### **4.2.5 Women Who Do Not Want Children**

The desire for children is not universal. In every region there are countries where a considerable number of women do not want to have a child. Table 6 shows this negative desire for children in two ways. Column one shows the percentage of women who do not want a child (or another child) among those who have no living children. The percentages reach as high as 3.3 percent in North Africa/West Asia, 6.0 percent in sub-Saharan Africa, 7.8 percent in Central Asia/South and Southeast Asia, and 12.0 percent in Latin America/Caribbean. Some of these women have had children who died, and may consider themselves too old to have additional children.

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The measurement of primary infecundity is complicated by contraceptive use and women's fertility preferences.

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**Table 6**  
**Women who do not want children**

Percentage of women who want no (more) children and percentage who are sterilized among women with no living children, and percentage of women whose ideal number of children is zero among women with no living children and among all women, Demographic and Health Surveys 1986-2001

Country and Survey	Women with no living children			Ideal number of children is zero	
	Wants no (more) children	Sterilized	Number	Among women with no living children	Among all women
<b>Sub-Saharan Africa</b>					
Benin 1996	1.0	0.0	228	0.2	0.2
Botswana 1988	1.9	0.0	104	1.0	0.4
Burkina Faso 1998/99	0.3	0.0	365	0.1	0.1
Cameroon 1998	0.2	0.0	449	0.2	0.2
Central African Rep. 1994/95	0.9	0.3	570	0.2	0.1
Chad 1996/97	0.1	0.4	440	0.2	0.1
Comoros 1996	4.0	0.8	126	0.1	0.5
Côte d'Ivoire 1998/99	1.1	0.0	163	0.1	0.2
Eritrea 1995	1.4	0.3	345	0.8	0.7
Ethiopia 2000	5.4	0.0	802	5.6	3.5
Gabon 2000	1.1	0.4	379	0.4	0.3
Ghana 1998	0.8	0.0	222	0.2	0.1
Guinea 1999	1.7	0.0	453	0.3	0.3
Kenya 1998	1.7	0.0	251	0.5	0.3
Liberia 1986	1.7	0.7	395	0.1	0.1
Madagascar 1997	1.3	0.0	347	0.2	0.1
Malawi 2000	3.2	1.8	654	0.4	0.1
Mali 1995/1996	0.9	0.2	666	0.7	0.5
Mozambique 1997	1.0	0.0	750	0.4	0.4
Namibia 1992	6.0	2.2	161	1.6	1.2
Niger 1998	0.8	0.0	628	0.2	0.0
Nigeria 1999	2.0	0.0	460	1.5	0.8
Rwanda 1992	1.4	0.0	189	0.1	0.2
Senegal 1997	0.8	0.0	513	0.1	0.1
Tanzania 1996	0.4	0.2	408	0.4	0.1
Togo 1998	1.5	0.2	344	0.1	0.3
Uganda 1995	1.6	0.0	419	0.9	0.3
Uganda 2000/01	1.0	1.3	273	0.5	0.2
Zambia 1996	1.5	0.2	343	0.6	0.2
Zimbabwe 1999	4.2	0.0	261	1.3	0.6
<b>North Africa/West Asia</b>					
Armenia 2000	3.3	0.9	160	1.0	0.4
Egypt 1995	1.0	0.0	953	0.0	0.1
Egypt 2000	1.1	0.0	861	0.1	0.0
Jordan 1997	1.1	0.4	333	0.0	0.3
Morocco 1992	1.3	0.0	451	1.1	0.8
Turkey 1998	2.2	0.0	453	4.2	1.6
Yemen 1997	2.6	0.2	915	2.6	4.1
<b>Central Asia/South and Southeast Asia</b>					
Bangladesh 1996/97	1.8	1.5	788	0.1	0.0
Bangladesh 1999/2000	0.8	0.3	888	0.2	0.0
Cambodia 2000	2.8	0.2	526	0.3	0.2
India 1992/1993	1.8	0.9	8,916	0.1	0.0
India 1998/1999	1.2	0.9	7,620	0.1	0.1
Indonesia 1997	2.3	0.2	1,751	0.0	0.0
Kazakhstan 1995	1.1	0.0	134	0.4	0.5
Kazakhstan 1999	1.7	2.7	157	0.4	0.3
Kyrgyz Republic 1997	1.2	0.8	146	0.2	0.2
Nepal 1996	1.1	0.7	811	0.2	0.0
Nepal 2001	1.2	0.7	784	0.2	0.0
Philippines 1998	1.4	0.0	378	0.8	0.3
Thailand 1987	7.8	1.0	511	2.0	1.4
Turkmenistan 2000	2.7	0.5	215	0.1	0.1
Uzbekistan 1996	2.2	0.0	142	0.2	0.1
Vietnam 1997	0.4	0.4	186	0.0	0.0
<b>Latin America/Caribbean</b>					
Bolivia 1998	8.2	0.0	226	5.0	4.7
Brazil 1996	9.8	2.4	506	6.3	7.1
Colombia 2000	6.6	1.1	318	4.7	3.3
Dominican Republic 1996	2.3	1.1	357	0.0	0.7
Guatemala 1998/99	12.0	0.0	152	1.8	0.8
Haiti 1994/95	1.5	0.4	259	0.5	0.2
Haiti 2000	0.4	0.0	447	0.2	0.1
Nicaragua 1997/98	4.3	0.6	479	4.0	2.8
Peru 1996	4.3	0.1	562	0.4	0.3
Peru 2000	3.6	0.1	569	2.9	2.3

The last two columns of Table 6 show another way to look at women's desire for no children. In the next-to-last column are women whose ideal number of children is zero among those who have no living children. For several countries the proportion is more than 2.0 percent. From lowest to highest, they are Yemen (2.6 percent), Peru (2.9 percent), Nicaragua (4.0 percent), Turkey (4.2 percent), Colombia (4.7 percent), Bolivia (5.0 percent), Ethiopia (5.6 percent), and Brazil (6.3 percent). Most of the countries with high percentages among women with no living children whose ideal number of children is zero are in the Latin America/Caribbean region. The last column shows the percentage of all women whose ideal number of children is zero, irrespective of the number of children they have. The pattern tends to follow that of the women with no living children.

#### 4.2.6 Self-reported Infecundity

In the DHS surveys, women are not asked direct questions about fecundity or the capacity to reproduce. Rather, the information is interpreted from responses to questions on the time since the last menstrual period, reason for not using contraception in the future, and desire for the next child. Additionally, women may report that they 1) have never menstruated, 2) have not menstruated for five or more years, 3) are postmenopausal, or 4) have had a hysterectomy. The five-year period is used to assure that lack of childbearing is not due to the postpartum effects of amenorrhea.

These self-reports of infecundity are shown by age in Table 7. There is a curvilinear relationship between age and self-reported infecundity. In the youngest age group (15 to 19), an average of 7 percent of women are infecund. The majority of this infecundity is related to not having had their first menstruation (menarche). The lowest level of reported infecundity occurs at age 20 to 24 and rises thereafter, slowly at first and then more rapidly, until reaching an average of 57 percent among women age 45 to 49, mostly due to menopause. The overall and regional averages are shown in Figure 1. Among all women age 15 to 49, 17.0 percent reported being infecund. The differences between regions are diminished by the overall pattern by age. However, there is still substantial variation by country. The highest levels of self-reported infecundity at age 15 to 19 occur in sub-Saharan Africa, where in 14 of 23 countries 10 percent or more of girls reported that they were infecund. In the other regions, only in Cambodia does the percentage who reported themselves infecund at age 15 to 19 exceed 10 percent. The age-adjusted percentages for women age 25 to 49 who reported themselves infecund vary from a low of 5.4 percent in Senegal to a high of 35.4 percent in Cambodia. The reader is cautioned that some of the variation between countries may be due to differences in the available information, because direct questions were not asked.

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Most of the countries with high percentages among women with no living children whose ideal number of children is zero are in the Latin America/Caribbean region.

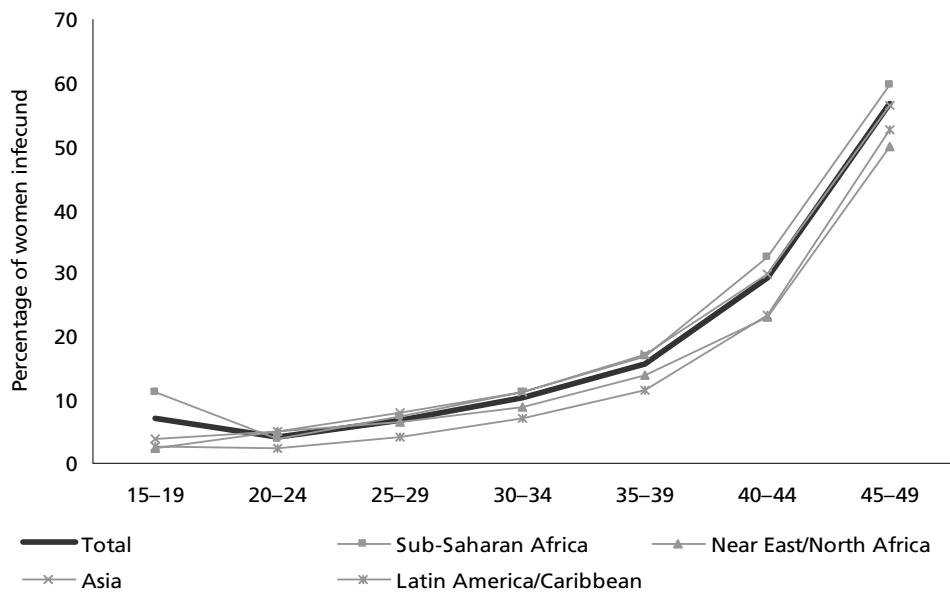
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**Table 7**  
**Self-reported infecundity**

Percentage of women who report they have not menstruated in the past five years, have never menstruated, are postmenopausal, or have had a hysterectomy, by age group, Demographic and Health Surveys 1994-2000

Country	15-19	20-24	25-29	30-34	35-39	40-44	45-49	Total 25-49	Age standardized 15-49	Age standardized 25-49
<b>Sub-Saharan Africa</b>										
Benin	8.5	1.6	4.1	5.5	11.9	27.7	61.3	17.2	14.8	17.2
Burkina Faso	22.2	2.2	4.6	8.7	12.5	31.9	68.5	19.8	17.7	19.9
Cameroon	6.7	2.7	4.6	8.3	17.4	34.8	62.7	19.4	17.7	20.5
Central African Rep.	16.1	3.5	9.6	13.0	22.2	41.2	73.6	25.0	23.0	26.4
Chad	15.8	3.3	6.5	10.6	19.5	48.2	81.1	25.5	23.2	26.6
Comoros	3.6	2.3	4.0	9.5	11.4	24.4	46.9	15.0	13.5	15.7
Côte d'Ivoire	4.2	4.1	10.3	15.2	26.9	46.9	73.6	26.4	24.8	29.1
Eritrea	14.9	4.1	8.4	13.4	18.0	35.4	69.6	26.6	20.9	23.8
Ghana	11.1	2.6	7.2	9.2	14.8	25.5	56.8	18.8	16.2	18.6
Guinea	6.1	5.4	9.9	15.5	20.3	41.7	71.5	26.0	22.9	26.5
Kenya	14.2	3.0	8.8	13.6	21.1	33.4	62.3	22.0	20.3	23.4
Madagascar	10.2	3.9	4.5	11.8	14.3	28.2	52.1	17.4	16.1	18.3
Malawi	11.5	4.3	5.9	11.2	15.4	24.0	48.9	17.0	15.7	17.6
Mali	10.3	2.8	6.4	11.9	15.7	35.5	68.0	21.4	19.3	22.3
Mozambique	10.8	5.5	9.6	12.2	19.4	42.6	59.6	23.6	21.1	24.1
Niger	15.3	3.4	5.7	5.8	12.6	33.1	67.2	18.5	17.3	19.5
Nigeria	13.3	5.0	9.7	15.2	23.3	42.3	65.0	24.8	23.0	26.3
Senegal	0.1	0.1	0.2	1.2	2.2	10.0	22.8	4.7	4.5	5.4
Tanzania	15.8	2.6	5.1	12.1	16.7	24.7	46.4	17.0	15.7	17.7
Togo	8.5	1.7	3.7	5.6	11.7	25.4	49.6	14.2	13.2	15.3
Uganda	23.1	21.3	26.2	25.9	30.7	34.2	64.0	31.7	31.1	33.2
Zambia	9.3	3.2	5.4	8.9	11.8	24.2	56.5	16.0	15.0	17.2
Zimbabwe	5.1	2.4	6.2	11.7	15.6	31.7	47.5	17.7	16.2	19.0
<b>North Africa/West Asia</b>										
Egypt	0.4	2.1	4.1	6.8	13.1	23.0	55.6	18.4	13.8	16.3
Jordan	0.6	2.4	3.7	5.8	10.8	19.6	41.6	13.0	11.2	13.1
Morocco	0.2	1.5	4.3	7.7	12.8	18.0	44.6	13.8	12.0	14.1
Turkey	4.2	10.2	10.9	10.5	14.2	21.7	53.0	19.1	16.9	18.6
Yemen	5.7	8.3	10.2	13.5	18.7	33.2	54.3	21.4	19.7	22.2
<b>Central Asia/South and Southeast Asia</b>										
Bangladesh	2.9	5.7	8.2	10.1	16.7	35.3	64.3	20.4	19.2	22.1
Cambodia	14.2	9.3	16.4	26.1	35.7	48.9	73.4	37.4	31.1	35.4
India	2.5	5.7	10.0	15.1	24.3	40.8	64.0	25.9	22.5	26.2
Indonesia	2.4	8.9	12.2	17.2	23.0	34.2	60.3	26.5	22.3	25.4
Kazakhstan	1.5	2.4	5.4	7.1	10.8	20.4	50.7	17.1	12.9	14.7
Kyrgyz Republic	5.9	7.3	9.0	8.3	13.9	21.2	39.7	15.8	14.2	15.8
Nepal	3.1	4.0	7.8	13.5	19.8	37.9	67.9	24.7	20.8	24.3
Philippines	2.5	3.8	4.3	8.9	15.1	30.6	58.2	19.3	16.3	18.9
Turkmenistan	6.0	4.9	7.3	9.2	13.4	23.6	58.5	19.0	16.0	18.2
Uzbekistan	2.4	2.0	4.5	5.7	11.5	23.9	47.2	14.5	12.7	14.9
Vietnam	0.0	1.5	2.1	2.7	4.1	12.5	37.9	9.0	7.6	8.9
<b>Latin America/Caribbean</b>										
Bolivia	1.2	1.1	2.5	4.9	10.9	27.1	61.0	17.1	13.7	16.3
Brazil	1.0	1.2	2.6	4.9	8.9	18.6	42.8	13.1	10.3	12.2
Colombia	0.7	0.7	1.6	5.0	7.1	14.6	35.6	10.9	8.4	10.1
Dominican Republic	3.5	3.3	5.5	9.0	17.0	26.9	46.5	16.9	15.1	17.5
Guatemala	2.6	2.5	5.2	9.2	14.2	28.2	65.9	20.5	16.6	19.5
Haiti	7.5	2.9	4.9	8.9	13.2	25.7	58.6	17.9	15.5	17.8
Nicaragua	3.2	3.4	5.0	6.8	11.5	26.2	57.3	16.3	14.6	16.9
Peru	2.3	3.5	6.3	7.2	9.2	20.3	53.0	16.4	13.3	14.6

Figure 1  
Percentage of women who reported themselves infecund, by age group and region, DHS surveys 1994-2000



### 4.3 Secondary Sterility

Among women who have had one or more live births, the inability to have another child is called secondary sterility. Secondary infertility is used to estimate the prevalence of secondary sterility. Secondary infertility is measured by the lack of a birth (or a current pregnancy) among women who were married for the past five years and did not use contraception during that period. In countries with low contraceptive prevalence where the reproductive calendar was not used, there is no information on non-live birth pregnancies, marriage, or contraceptive use in the past five years. In these countries, time since first marriage greater than five years for currently married women is taken as the substitute. Women who have never used contraception are taken as the substitute for women who have not used contraception in the past five years. Because countries without a reproductive calendar are principally those with low contraceptive prevalence, the biases created by excluding women who have used contraception are small. Moreover, only secondary infertility can be determined for these countries. Secondary infecundity is measured by the lack of any pregnancy, whether ending in a live birth or not, among these women and includes women who reported themselves as infecund.

#### 4.3.1 Prevalence of Secondary Infecundity

Table 8 shows the prevalence of secondary infecundity by five-year age groups, for women age 25 to 49 (actual and standardized by age), and for all women age 15 to 49. In this table, the percentages of women without a birth are calculated from women who have been married for the past five years or longer and who did not use contraception during this time. Women who used contraception during the past five years and currently married women who have been married for less than five years are excluded from the numerator but are included in the denominator, implying that they are considered fecund during the whole time period.<sup>4</sup> Also included are women who reported themselves to be infecund at the time of the survey.

Averaging the countries together, we see that secondary infecundity increases sharply with age, from about 5 percent at age 20 to 24 to about 62 percent at age 45 to 49, following more or less the pattern of self-reported infecundity, but a little bit higher, especially at the older ages. At age 20 to 24, the country with the lowest percentage of women with secondary infecundity is Colombia (0.8 percent) and the country with the highest is Uganda (21.6 percent).

Although we exclude women who presumably are not exposed to the risk of pregnancy, we have not controlled for regularity of sexual intercourse, which may slow or stop at longer durations of marriage, at older ages, and after a certain number of children are reached. Terminal abstinence may vary by culture and thus affect comparisons at the higher ages. At age 45 to 49, the countries with the highest levels of secondary infecundity are Chad, Côte d'Ivoire, and the Central African Republic, where 80 percent or more of all women are secondarily infecund.

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<sup>4</sup> In many countries, values for secondary infecundity at age 15 to 19 should be ignored because of the small number of women in the age group who have had a live birth. These small numbers are likely to be selective and may not represent the majority of women that age in the country.

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Averaging the countries together, we see that secondary infecundity increases sharply with age, from about 5 percent at age 20 to 24 to about 62 percent at age 45 to 49.

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**Table 8**  
**Secondary infecundity**

Percentage of women who either report themselves as infecund or who, being continuously married for the five years preceding the survey and not using contraception during that period, did not have a live birth in the past five years, by age group, Demographic and Health Surveys 1994-2000

Country	15-19	20-24	25-29	30-34	35-39	40-44	45-49	Total 25-49	Age standardized 15-49	Age standardized 25-49
<b>Sub-Saharan Africa</b>										
Benin	8.7	2.5	5.5	8.7	16.0	36.0	67.9	21.3	18.5	22.0
Burkina Faso	22.7	2.9	5.4	11.2	15.7	36.5	72.7	22.6	20.2	23.2
Cameroon	7.2	3.9	7.9	12.0	25.1	43.3	66.8	24.6	22.2	26.4
Cent. African Rep.	16.5	6.9	16.5	21.9	34.4	50.2	79.8	33.7	30.6	35.8
Chad	16.2	4.8	8.9	15.4	28.1	55.8	86.1	30.8	27.9	32.8
Comoros	3.7	3.5	7.3	15.9	21.2	39.0	59.3	23.1	20.6	24.7
Côte d'Ivoire	4.8	6.6	15.4	21.5	35.7	57.5	82.1	33.5	31.3	37.3
Eritrea	15.2	6.4	10.7	15.1	21.4	37.6	73.6	29.3	23.4	26.9
Ghana	11.1	3.2	9.5	15.0	21.3	32.4	62.9	24.0	20.6	24.3
Guinea	7.1	6.8	13.8	19.9	27.4	52.6	76.4	31.8	28.1	33.1
Kenya	14.3	3.2	9.2	13.8	21.1	33.7	62.3	22.2	20.5	24.0
Madagascar	10.7	4.9	8.7	19.9	22.8	36.8	62.3	24.8	22.5	26.3
Malawi	11.5	4.7	8.6	16.0	23.3	33.2	57.0	22.7	20.7	24.1
Mali	10.5	4.3	9.2	14.8	21.1	43.5	76.6	26.3	23.6	27.9
Mozambique	12.1	9.0	15.9	26.2	32.9	51.6	68.7	33.8	30.3	35.2
Niger	15.6	5.5	8.5	10.2	20.7	43.9	77.1	24.9	23.0	26.6
Nigeria	13.7	6.3	12.3	18.5	27.7	47.6	69.3	28.5	26.3	30.7
Senegal	0.7	2.3	6.1	9.1	17.5	34.1	53.7	18.4	16.8	20.3
Tanzania	16.0	3.1	8.7	15.2	23.2	35.0	55.6	22.7	20.6	24.1
Togo	8.9	2.2	4.7	7.8	15.4	27.7	53.6	16.6	15.3	18.1
Uganda	23.3	21.6	29.1	30.0	36.0	39.1	68.6	35.8	34.6	37.7
Zambia	9.6	3.9	8.1	12.8	16.6	29.1	64.1	20.3	18.8	22.0
Zimbabwe	5.1	2.5	6.4	11.8	15.9	31.9	47.5	17.9	16.4	19.5
<b>North Africa/West Asia</b>										
Egypt	0.7	2.1	4.5	7.2	13.4	23.2	55.6	18.7	14.0	17.0
Jordan	1.5	2.6	3.7	6.1	10.9	19.6	41.6	13.1	11.4	13.5
Morocco	0.2	1.7	5.1	8.2	13.6	18.5	44.9	14.5	12.5	15.2
Turkey	4.2	10.3	11.1	10.5	14.3	21.7	53.2	19.2	17.0	18.9
Yemen	8.0	9.3	11.2	14.7	21.1	35.9	57.5	23.3	21.5	24.5
<b>Central Asia/South and Southeast Asia</b>										
Bangladesh	3.7	6.1	8.6	10.4	17.0	35.3	64.3	20.6	19.4	22.7
Cambodia	14.9	10.6	17.4	28.2	38.0	52.0	77.8	39.8	33.2	38.4
India	4.9	7.0	11.0	16.1	25.1	41.2	64.2	26.7	23.4	27.5
Indonesia	2.4	9.1	12.4	17.5	23.5	34.5	60.4	26.8	22.6	26.1
Kazakhstan	1.5	2.4	6.0	7.1	11.1	20.4	50.7	17.3	13.1	15.7
Kyrgyz Republic	6.2	7.6	10.5	9.5	14.0	22.0	41.1	16.8	15.1	17.0
Nepal	6.1	5.7	9.3	15.5	22.3	40.6	69.3	26.7	22.8	26.9
Philippines	2.6	3.9	4.7	9.6	15.7	30.8	58.2	19.7	16.7	19.8
Turkmenistan	6.0	4.9	7.5	9.4	13.5	23.8	58.7	19.1	16.1	18.7
Uzbekistan	2.8	2.6	5.5	7.4	13.3	24.9	48.8	15.8	13.9	16.6
Vietnam	0.0	1.5	2.4	3.0	4.2	12.8	37.9	9.2	7.8	9.3
<b>Latin America/Caribbean</b>										
Bolivia	1.3	1.1	2.5	5.7	11.8	28.3	62.1	17.8	14.4	17.5
Brazil	1.0	1.4	2.9	4.9	8.9	18.6	42.9	13.2	10.4	12.6
Colombia	0.7	0.8	1.7	5.0	7.1	14.6	35.6	10.9	8.5	10.3
Dominican Republic	3.5	3.5	5.6	9.1	17.3	27.1	46.9	17.1	15.3	18.1
Guatemala	2.6	2.6	5.6	9.3	14.8	28.2	65.9	20.7	16.9	20.2
Haiti	7.7	3.9	7.4	14.3	20.5	35.8	66.5	24.0	20.7	24.5
Nicaragua	3.3	3.7	5.7	7.0	12.0	26.3	57.5	16.7	15.0	17.7
Peru	2.3	3.5	6.4	7.3	9.3	20.4	53.0	16.5	13.3	15.7

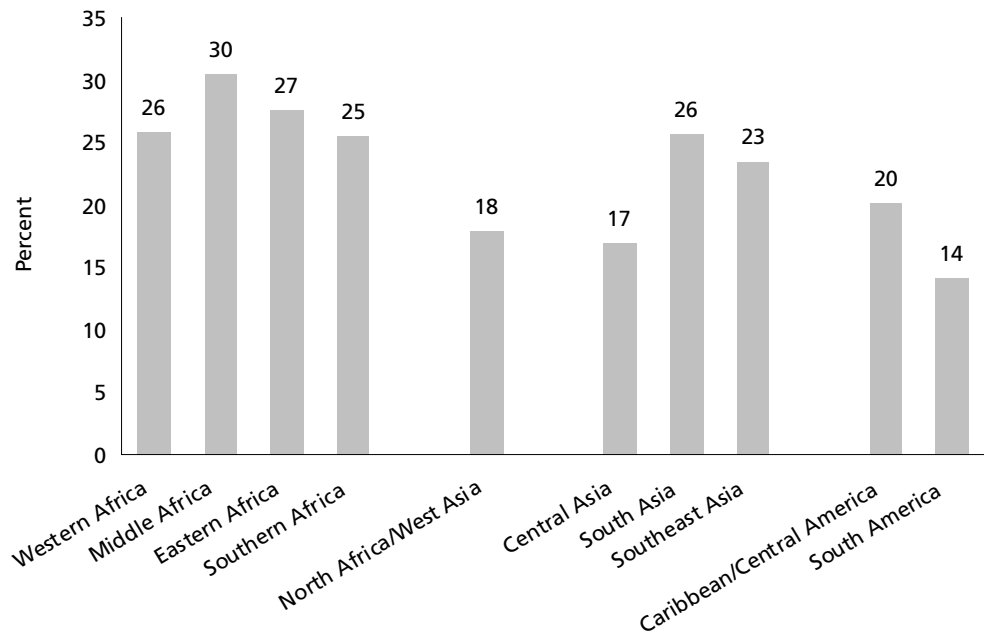
Note: Women who were not married for the entire five years preceding the survey or who used contraception during that period and who did not declare themselves as infecund are considered fecund.



As an indicator of overall secondary infecundity, we use the age-standardized percentages for women age 25 to 49. It is interesting to note that neighboring countries in Southeast Asia have both the lowest and highest percentages with secondary infecundity of all countries surveyed: Vietnam at 9.3 percent and Cambodia at 38.4 percent, respectively. Other countries with more than 30 percent of women secondarily infecund are all in sub-Saharan Africa: Central African Republic, Chad, Côte d'Ivoire, Guinea, Mozambique, and Nigeria.

Figure 2 shows secondary infecundity by subregional average for women age 25 to 49 (age-adjusted). Middle and Eastern Africa have the highest average levels of secondary infecundity. These subregions are followed by Western Africa, Southern Africa, and South Asia, which have similar levels. The lowest levels of secondary infecundity are in South America. However, there may be some bias in these estimates because of the inclusion of contraceptive users in the denominator (implying fecundity). Three of the South American countries—Brazil, Colombia, and Peru—have high rates of contraceptive sterilization.

**Figure 2**  
**Percentage of women age 25-49 with secondary infecundity, by region, DHS surveys 1994-2000**



As of mid-2002, it was estimated that more than 186 million ever-married women age 15 to 49 in developing countries (excluding China) were infertile because of primary or secondary infertility.

#### 4.3.2 Estimates of the Number of Infertile Women in Developing Countries

As of mid-2002, it was estimated that more than 186 million ever-married women age 15 to 49 in developing countries (excluding China) were infertile because of primary or secondary infertility (Table 9). This number represents more than one in four ever-married women of reproductive age in these countries. Some 18 million were involuntarily primarily infertile without having experienced a birth (about 2.5

**Table 9**  
**Regional estimates of childlessness, primary infertility, and secondary infertility**

Regional estimates of the number and percentage of women age 25-49 who are childless, primarily infertile, and secondarily infertile											
Region	Women 15-49 in 2002 <sup>1</sup>	Ever-married women		Childless women age 25-49		Women with involuntary primary infertility		Women with secondary infertility		Women with primary or secondary infertility	
		Percent	Number (thousands)	Percent	Number (thousands)	Percent	Number (thousands)	Percent	Number (thousands)	Percent	Number (thousands)
World	1,592,006.6										
More developed	147,064.8										
Less developed	1,294,195.1										
China	354,398.4										
LDC-China	939,796.7	77.2	725,192.1	2.7	19,569.3	2.5	18,360.7	23.8	168,190.9	25.7	186,551.6
Africa	196,852.4										
North Africa	46,924.9										
Sub-Saharan Africa	149,927.5	76.8	115,089.1	3.2	3,670.8	2.6	2,953.0	28.2	31,609.8	30.0	34,562.8
East Africa	60,349.6	75.2	45,355.3	2.3	1,056.8	2.4	1,087.7	27.5	12,178.3	29.2	13,266.0
Middle Africa <sup>2</sup>	22,068.3	76.1	16,788.3	4.7	795.6	2.9	481.3	30.2	4,922.9	32.2	5,404.2
Southern Africa	13,374.2	78.8	10,535.7	2.6	270.5	2.8	293.2	26.7	2,736.7	28.8	3,029.9
West Africa	54,115.9	78.1	42,279.4	2.0	847.9	2.1	877.3	26.7	11,072.5	28.3	11,949.8
Asia	980,017.1										
South Central Asia	380,440.2	80.2	305,060.0	2.6	8,019.6	2.6	7,852.2	26.4	78,595.4	28.3	86,447.6
Southeast Asia	145,203.3	70.6	102,557.8	2.2	2,215.8	1.9	1,988.4	22.0	22,149.1	23.5	24,137.5
West Asia	48,613.1	74.6	36,268.6	1.5	547.8	1.5	545.1	16.5	5,910.5	17.8	6,455.6
China	354,398.4										
Asia-China/ Japan/West Asia	599,406.7	77.8	466,347.6	2.5	11,764.9	2.4	11,332.6	25.4	115,694.5	27.2	127,027.1
Near East/North Africa	65,071.5	68.4	44,512.5	2.8	1,260.9	2.8	1,262.6	18.1	7,815.2	20.4	9,077.9
Middle East	18,146.6										
North Africa	46,924.9										
Latin America/ Caribbean <sup>3</sup>	144,376.3	68.7	99,243.0	2.9	2,872.8	2.8	2,812.4	13.6	13,071.4	16.0	15,883.8
South America	96,796.0	68.2	66,031.0	3.0	1,976.1	2.9	1,924.6	12.7	8,130.7	15.2	10,055.3
Caribbean & Central America <sup>3</sup>	47,580.1	73.1	34,761.4	2.1	743.4	2.2	767.9	20.2	6,880.0	22.0	7,648.0

Note: Primary and secondary infertility excludes voluntary infertility (women who do not want children).

<sup>1</sup> United Nations Medium Projection (United Nations, 2003) interpolated by the authors.

<sup>2</sup> Includes Niger and Nigeria

<sup>3</sup> Includes Mexico

percent of ever-married women) and 168 million were secondarily infertile (24 percent of ever-married women).<sup>5</sup>

<sup>5</sup> Table 9 uses the number of women projected by five-year age groups for each developing country for the years 2000 and 2005, according to the United Nations Population Division (United Nations, 2003). For countries with DHS surveys, the proportions ever married at age 15-29 were tabulated and weighted by the number of women age 15-49 to obtain weighted averages of proportions ever married for world subregions. A country with no DHS survey was assumed to have the same proportion ever married as the weighted average for its subregion. The number of women age 15-49 in the subregions was then multiplied by the weighted average for the subregion to get the estimated number of ever-married women. Similarly, weighted averages for subregion proportions of women who were childless, involuntarily primarily infertile, or secondarily infertile, were calculated using the estimated number of ever-married women for the countries with DHS surveys. Again, non-DHS countries in the subregion were assumed to have the subregion average value. To get the number of childless and infertile women, the estimated proportions who were childless and infertile were multiplied by the total number of ever-married women in the subregion. The subregion numbers were then totaled to get the developing country total number of childless and infertile women (excluding China).



## Trends in Infertility

Trends in infertility, especially in view of the advent and spread of HIV and advances in assisted reproductive technologies, are of considerable importance. Questions are often raised about whether levels of infertility—primary or secondary—have risen because of sexually transmitted infections including HIV, environmental factors, or changes in sexual and reproductive behaviors. A decline may be expected with an upsurge in treatment-seeking behavior and increased use of modern technologies of assisted reproduction. A valid comparison of information at two or more points in time, however, requires common approaches and instruments for data collection and analysis. This section reviews levels of infertility from two main data sets. First, we compare the percentage of currently married women (age 25 to 49 and 40 to 44), who have been married for at least five years and report no living children, in surveys conducted under the auspices of the World Fertility Survey (WFS) Programme roughly 20 years before the Demographic and Health Surveys included in this report. WFS undertook nationally representative surveys of ever-married women in the reproductive age range 15 to 49, using questions on fertility similar to those used in the DHS surveys. We also consider the trends in the percentage of currently married women age 25 to 49 and 40 to 44, who have been married for at least five years and reported no live birth (also termed as “fertile pregnancy”). Comparable information was available for 11 countries that participated in both the WFS and DHS programs.

Second, we consider trends using data from the surveys conducted under the auspices of DHS in different countries. Of the 47 countries included in this report, 17 countries had two surveys, seven had three, and three had four; therefore, trends in infertility can be ascertained for 27 countries. Comparison across DHS surveys is relatively straightforward but the timeframe is shorter than when DHS and WFS surveys are compared.

### 5.1 Trends in No Surviving Children and No Live Birth, Based on Data Sets 20 Years Apart

Among currently married women age 40 to 44 who have been married for at least five years and who can be assumed to have completed their reproductive life, the proportion reporting no living children in the WFS surveys ranged from 2 percent in the Philippines (1978) to about 7 percent in Indonesia (1976) (Figure 3). In the DHS surveys about 20 years later in the same set of countries, the proportion ranged from 1 percent in Peru (2000) to 4 percent in Haiti (1994). In all countries except Jordan, the proportion of women age 40 to 44 with no living children declined substantially over the 20-year period, especially in Senegal, Indonesia, the Dominican Republic, and Haiti. In these countries, women age 40 to 44 with no living children exceeded 6 percent in the WFS surveys, but dropped to 3-4 percent in the DHS surveys. Countries with 3-4 percent of married women age 40 to 44 having no living children in the

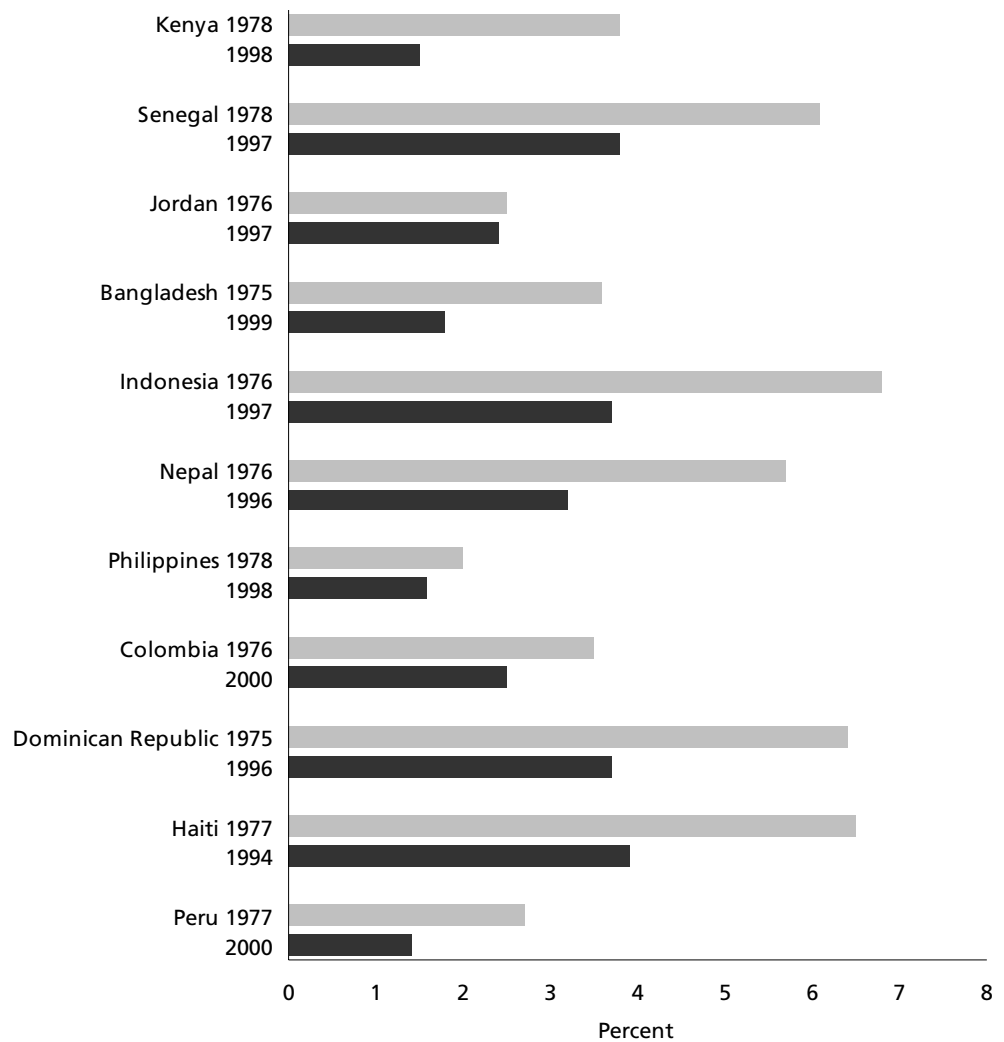
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In all countries except Jordan, the proportion of women age 40 to 44 with no living children declined substantially over the 20-year period.

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WFS surveys also witnessed major declines in the DHS surveys. Having at least one living child by age 40 to 44 implies that at least one live birth survived to the time the mother reached this age. Therefore, the effect of the prevailing mortality patterns cannot be isolated from infertility (that is, not having any pregnancy or live birth). Significant gains have been made in mortality reduction since the period when the WFS surveys were conducted.

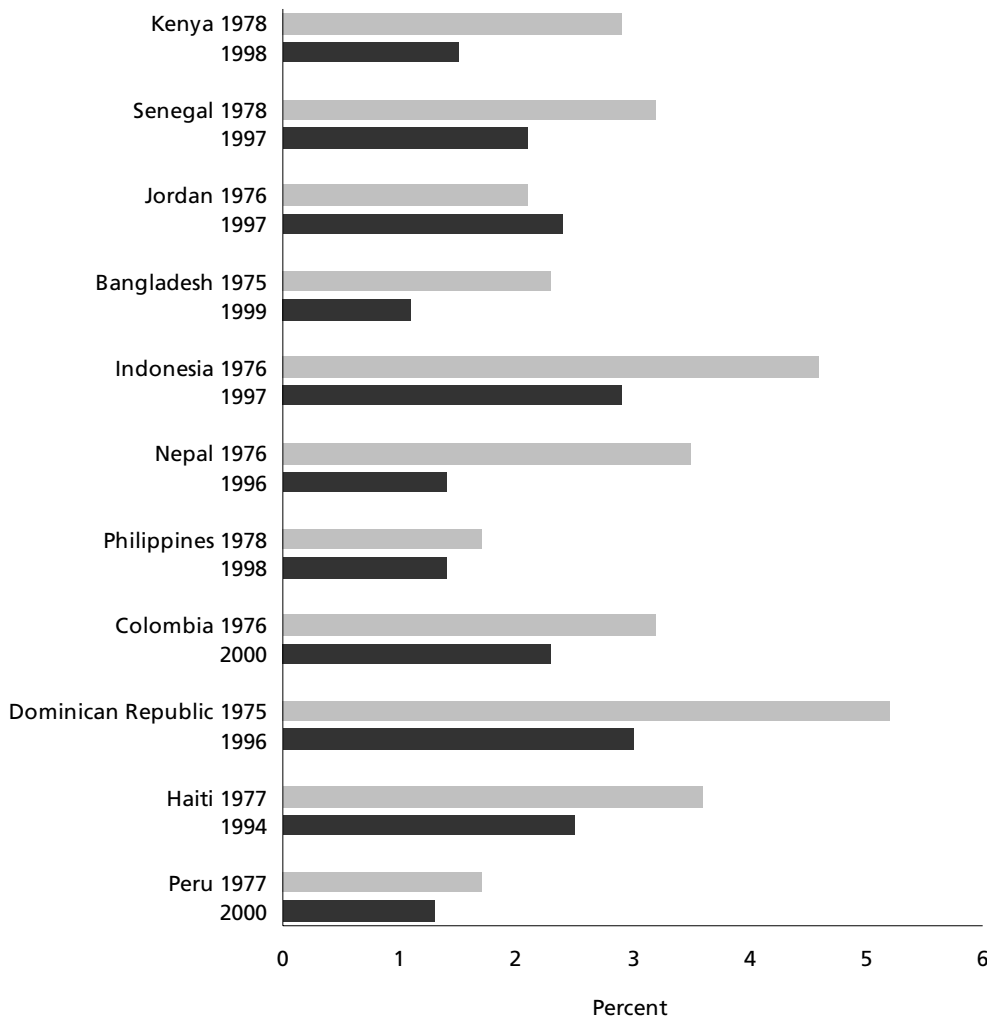
**Figure 3**  
**Percentage of currently married women age 40-44 who have been married for at least five years but have no living children, WFS and DHS surveys 1975-2000**



While comparing women who have no living children is a useful measure of infertility, comparing women who have not had a live birth by age 40 to 44 is a more meaningful measure for examining changes in infertility. Figure 4 shows a decline over the 20-year period covered by the WFS and DHS surveys (all countries except Jordan) in the proportion of currently married women age 40 to 44 who have been married for at least five years but have had no live births. The trends are consistent with those in Figure 3, but the levels are lower because mortality effects are excluded.

Around 5 percent of women in Indonesia and the Dominican Republic report having had no live birth by age 40 to 44 in the WFS surveys. In the DHS surveys, the percentage is about 1-2 percent, with the highest levels in Indonesia and the Dominican Republic (3 percent each).

**Figure 4**  
**Percentage of currently married women age 40-44 who have been married for at least five years but have not had a live birth, WFS and DHS surveys 1975-2000**

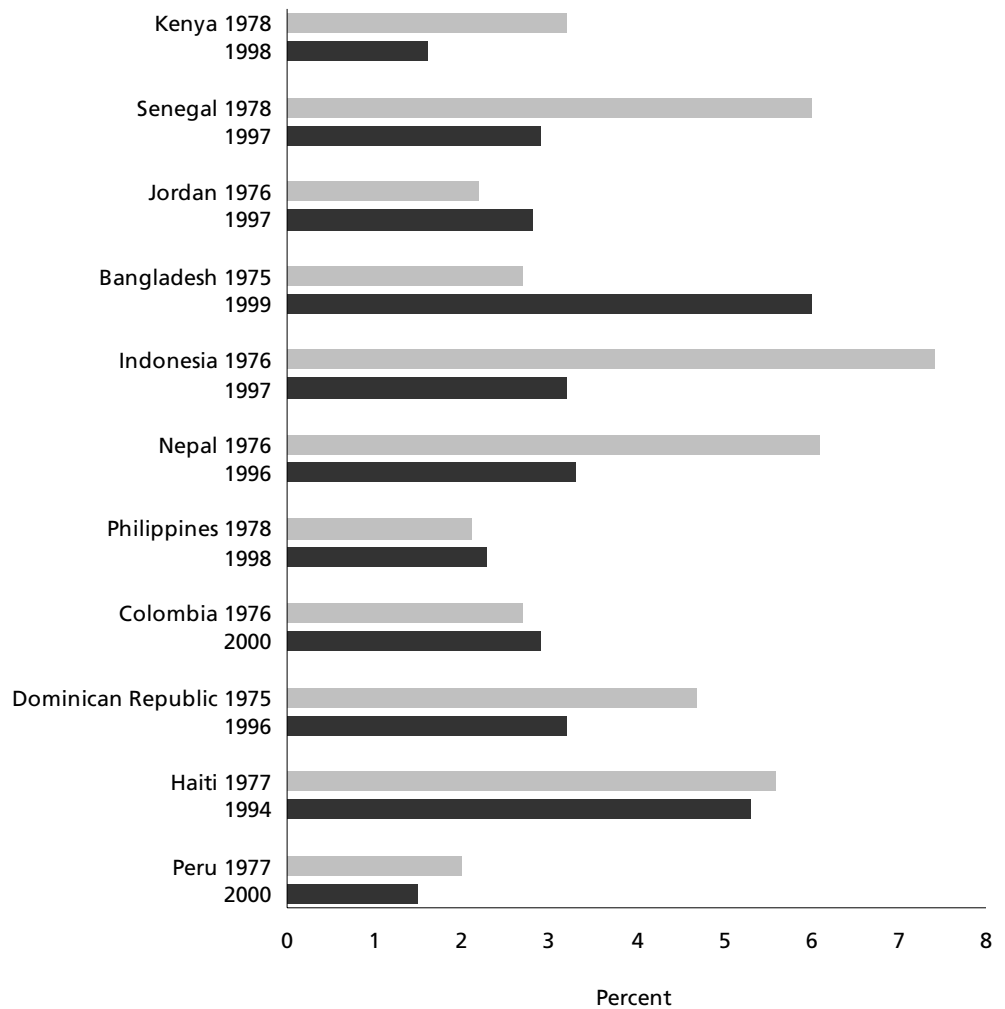


Between the 1970s and the 1990s there was a decrease in the number of women age 40 to 44 reporting no surviving children and no live births.

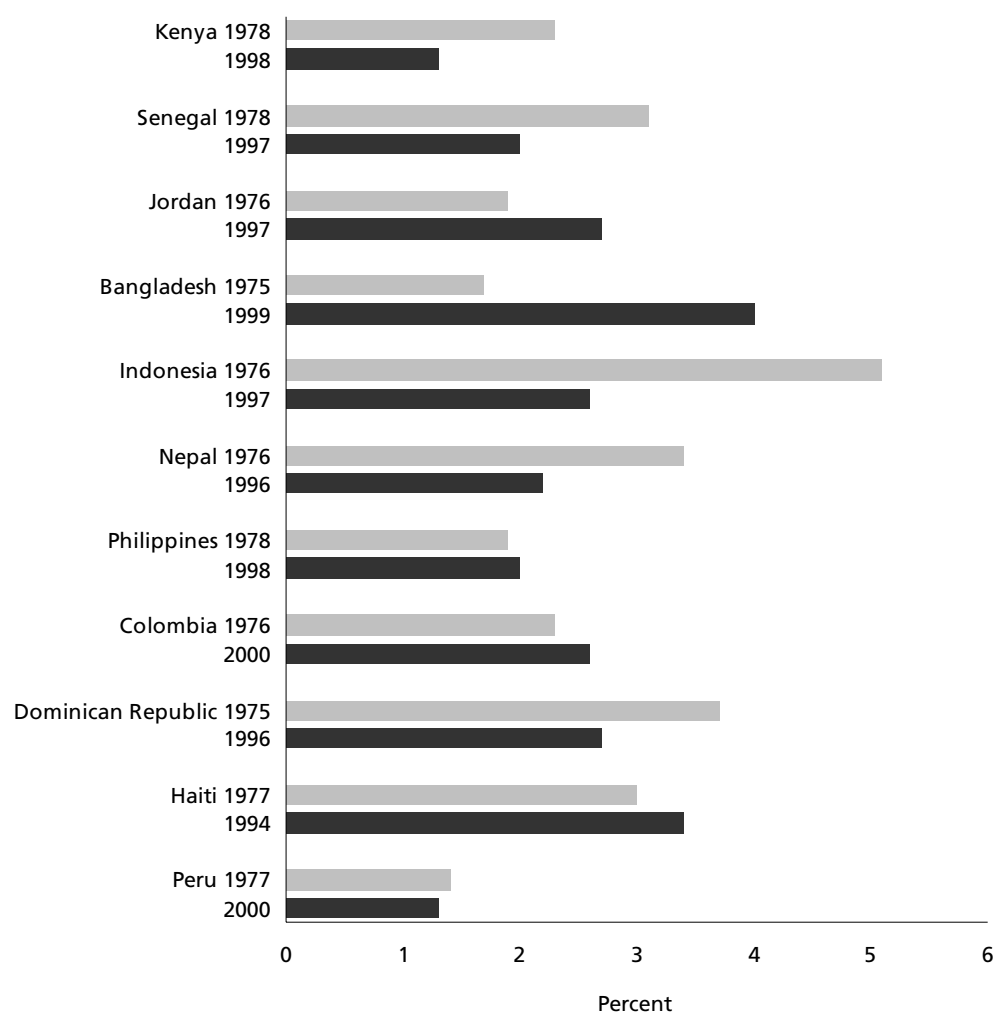
Between the 1970s and the 1990s there was a decrease in the number of women age 40 to 44 reporting no surviving children (Figure 3) and no live births (Figure 4). The WFS data show that in 7 of 11 countries, 3 percent or more of women reported having had no live birth compared with only two countries (Indonesia and the Dominican Republic) in the DHS data. When the percentages reporting no surviving children or no live births are compared, the decline is more detectable for women age 40 to 44 than for women age 25 to 49 because the former group represents women who have completed childbearing.

Figures 5 and 6 show similar comparisons for women age 25 to 49. In four countries (Bangladesh, Colombia, Jordan, and the Philippines), there is no decline in the percentage of women reporting no surviving child or no live birth over time. Instead, some rises are seen, especially in Bangladesh where the proportion of women reporting no surviving child doubled from 3 to 6 percent between 1975 and 1999. The proportion of women reporting no live birth also doubled, from about 2 percent in 1975 to 4 percent in 1999. In many other countries, the proportion of women reporting no surviving child or no live birth declined, except in Colombia, Haiti, Peru, and the Philippines where either no change or only modest changes occurred.

**Figure 5**  
**Percentage of currently married women age 25-49 who have been married for at least five years but have no living children, WFS and DHS surveys 1975-2000**



**Figure 6**  
**Percentage of currently married women age 25-49 who have been married for at least five years but have not had a live birth, WFS and DHS surveys 1975-2000**



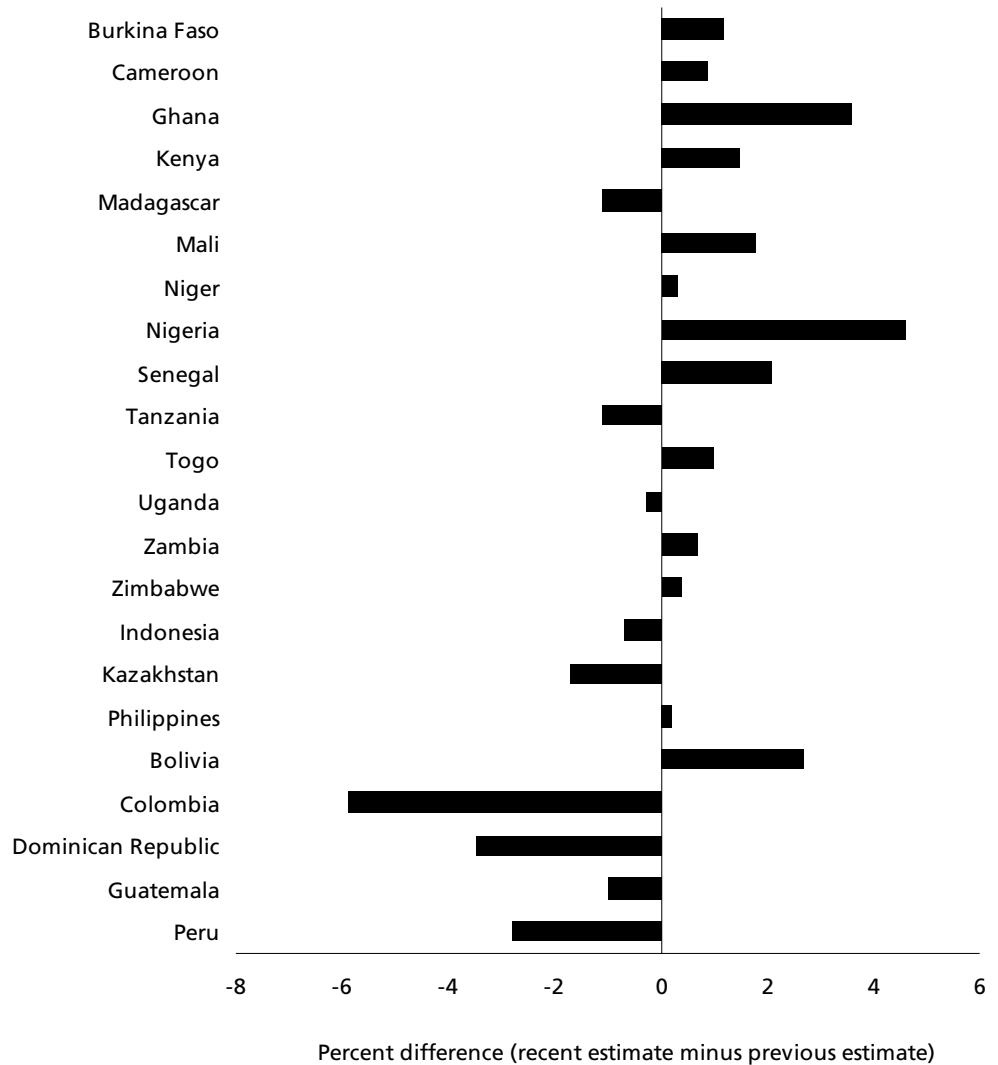
## 5.2 Trends in Primary Infertility Based on DHS Data from Two or More Surveys

In 27 countries with two or more surveys conducted under the DHS program, it is possible to compare data from the most recent survey with data from the previous survey (if there were only two surveys), or with data from the first survey (if there were more than two surveys). The interval between surveys varies, so the percentages for age groups 15 to 49 and 25 to 49 are age-standardized.



For most countries, there was no consistent trend in the percentage of women age 25 to 49 who reported never having had sex (Figure 7 and Table 10). In Colombia, the Dominican Republic, and Peru, fewer women reported never having had sex in the last survey than in the first survey—23 percent versus 29 percent; 22 percent versus 25 percent; and 27 percent versus 29 percent, respectively. In Bolivia, Nigeria, Senegal, and Ghana, however, a greater proportion of women reported never having

**Figure 7**  
**Changes in the percentage of women age 25-49 who have never had sex, most recent DHS survey compared with previous DHS survey**



**Table 10**  
**Trends in the proportion of women who have never had sex**

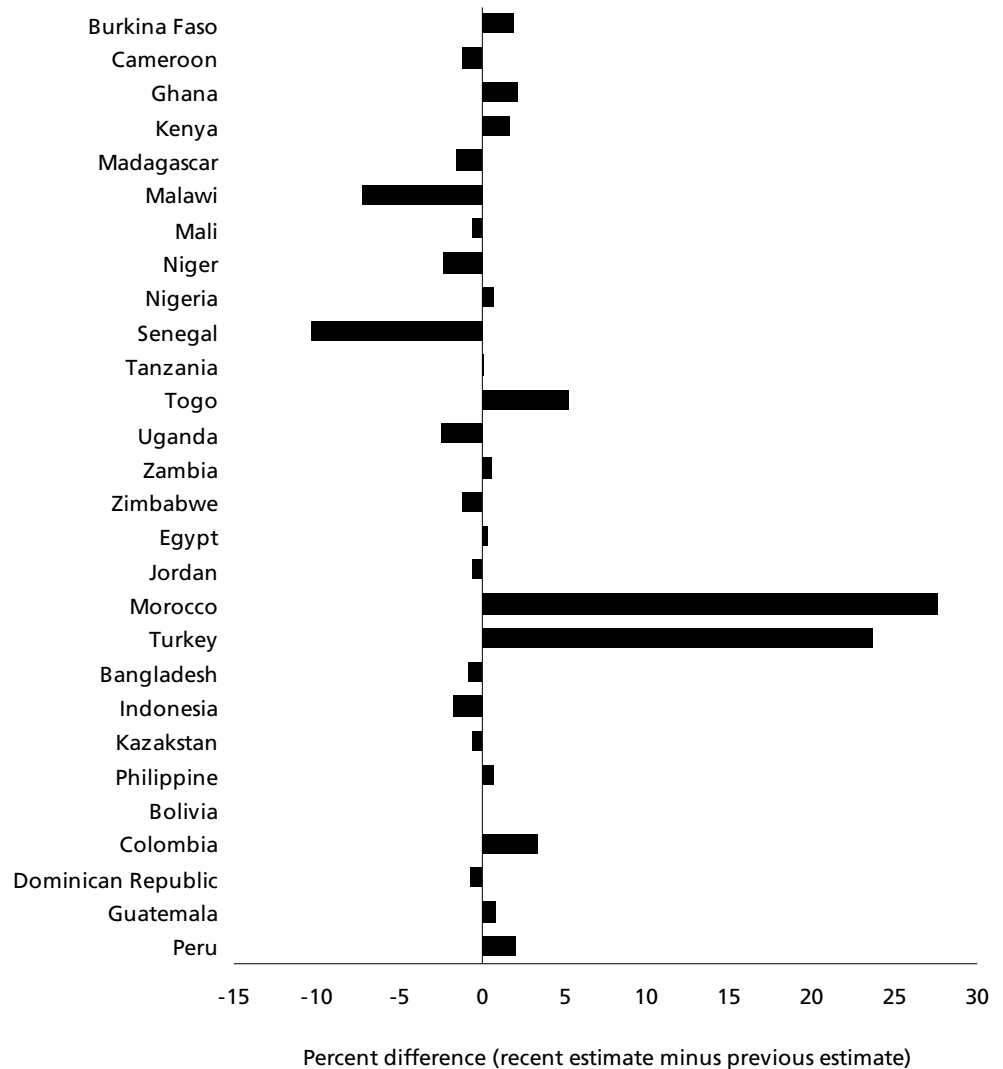
Percentage of women age 15-49 who have never had sex, by age, Demographic and Health Surveys 1986-2000

Country	DHS survey	Age								Total 25-49	Age standardized 25-49
		15-19	20-24	25-29	30-34	35-39	40-44	45-49			
<b>Sub-Saharan Africa</b>											
Burkina Faso	1992/93	45.9	2.9	0.4	0.1	0.1	0.0	0.0	0.2	10.3	
Burkina Faso	1998/99	50.9	3.4	0.3	0.0	0.0	0.2	0.2	0.1	11.5	
Cameroon	1991	31.5	2.4	0.1	0.0	0.0	0.0	0.0	0.0	7.1	
Cameroon	1998	34.9	2.7	0.1	0.1	0.0	0.2	0.2	0.1	8.0	
Ghana	1988	50.1	3.9	0.8	0.0	0.2	0.0	0.0	0.3	11.5	
Ghana	1993	41.0	4.2	0.8	0.3	0.0	0.0	0.0	0.3	9.6	
Ghana	1998	62.2	8.6	1.8	0.2	0.0	0.0	0.0	0.6	15.1	
Kenya	1989	53.7	6.7	0.3	0.1	0.5	0.0	0.1	0.2	12.8	
Kenya	1993	53.9	10.3	1.1	0.6	0.2	0.2	0.0	0.5	13.6	
Kenya	1998	56.4	11.1	1.8	0.2	0.0	0.0	0.0	0.6	14.3	
Madagascar	1992	46.8	10.5	3.3	1.1	0.9	0.3	1.3	1.6	12.8	
Madagascar	1997	43.5	8.3	3.1	1.4	0.8	1.1	0.5	1.6	11.7	
Mali	1987	26.7	1.8	0.6	0.0	0.0	0.0	0.0	0.2	6.1	
Mali	1995/96	34.0	2.7	0.6	0.2	0.2	0.1	0.0	0.3	7.9	
Niger	1992	39.1	5.2	0.9	0.0	0.1	0.1	0.0	0.3	9.4	
Niger	1988	36.5	8.7	1.6	0.4	0.0	0.2	0.2	0.6	9.7	
Nigeria	1990	45.6	7.5	1.4	0.4	0.2	0.0	0.0	0.6	11.3	
Nigeria	1999	56.9	15.9	4.0	1.1	0.5	0.4	0.0	1.7	15.9	
Senegal	1992/93	64.6	21.5	6.7	2.7	0.4	0.0	0.5	2.7	19.2	
Senegal	1997	65.1	29.0	10.9	2.4	0.6	0.2	0.0	3.9	21.3	
Tanzania	1991	51.5	7.4	1.5	0.6	0.2	0.0	0.2	0.7	12.6	
Tanzania	1999	47.4	6.2	1.1	0.8	0.3	0.0	0.0	0.6	11.5	
Togo	1988	35.6	3.9	0.5	0.0	0.0	0.0	0.0	0.2	8.3	
Togo	1998	39.3	4.4	0.6	0.1	0.1	0.0	0.1	0.2	9.3	
Uganda	1988	37.7	4.8	1.3	0.4	0.5	0.8	0.0	0.7	9.3	
Uganda	1995	38.4	3.2	1.1	0.3	0.2	0.0	0.0	0.5	9.0	
Zambia	1992	39.5	4.3	0.6	0.2	0.0	0.0	0.0	0.3	9.3	
Zambia	1996	41.7	5.2	0.5	0.5	0.1	0.0	0.0	0.3	10.0	
Zimbabwe	1988	67.5	14.9	2.5	0.3	0.2	0.0	0.7	0.9	17.5	
Zimbabwe	1994	70.3	17.3	2.1	0.7	0.3	0.1	0.0	0.8	18.5	
Zimbabwe	1999	67.7	15.9	2.4	1.2	0.3	0.2	0.0	1.1	17.9	
<b>Asia</b>											
Kazakhstan	1995	82.5	30.3	7.2	2.6	1.9	1.7	2.2	3.2	25.1	
Kazakhstan	1999	79.5	23.6	7.7	3.2	2.9	1.2	1.2	3.4	23.4	
Philippines	1993	91.9	53.4	24.4	11.3	6.4	5.1	5.9	12.0	36.5	
Philippines	1998	90.9	54.5	24.0	10.9	7.4	7.2	6.3	12.2	36.7	
<b>Latin America/Caribbean</b>											
Bolivia	1989	74.7	27.8	8.4	3.0	1.6	0.8	1.3	3.6	23.0	
Bolivia	1994	77.1	29.4	8.3	3.8	2.1	1.0	1.9	3.9	24.1	
Bolivia	1998	80.3	33.0	8.5	3.9	3.3	2.0	1.7	4.3	25.7	
Brazil	1986	80.2	35.8	14.1	6.8	4.1	2.8	*	7.6	*	
Brazil	1996	67.2	26.6	9.9	3.6	4.1	3.1	3.6	5.1	22.3	
Colombia	1986	79.8	38.4	15.4	7.2	5.8	3.9	2.3	8.3	28.7	
Colombia	1990	79.0	34.9	15.1	6.9	6.7	2.7	3.1	8.1	27.8	
Colombia	1995	59.9	18.9	6.6	4.4	1.9	3.4	2.9	4.0	18.6	
Colombia	2000	70.4	25.1	8.6	6.3	3.3	3.1	3.5	5.4	22.8	
Dominican Rep.	1986	75.8	34.8	12.5	3.5	1.2	1.6	1.0	5.2	25.3	
Dominican Rep.	1991	73.0	35.7	13.0	4.3	1.3	0.7	1.0	5.5	25.0	
Dominican Rep.	1996	67.3	26.7	10.3	3.2	3.1	1.5	0.4	4.6	21.8	
Guatemala	1987	71.0	26.8	8.3	3.5	3.4	2.2	*	4.8	*	
Guatemala	1995	75.0	28.3	11.2	3.9	3.8	2.2	2.4	5.2	24.3	
Guatemala	1998/99	72.6	26.2	9.0	5.6	2.3	4.1	2.2	5.1	23.3	
Peru	1986	82.2	42.4	17.0	6.6	2.2	1.9	2.0	7.2	29.4	
Peru	1992	81.4	42.5	16.2	6.5	3.5	2.8	2.5	7.4	29.4	
Peru	1996	77.8	34.2	14.7	5.4	4.0	2.5	2.6	6.5	26.8	
Peru	2000	79.7	33.7	13.2	4.5	3.4	2.3	1.9	5.9	26.6	

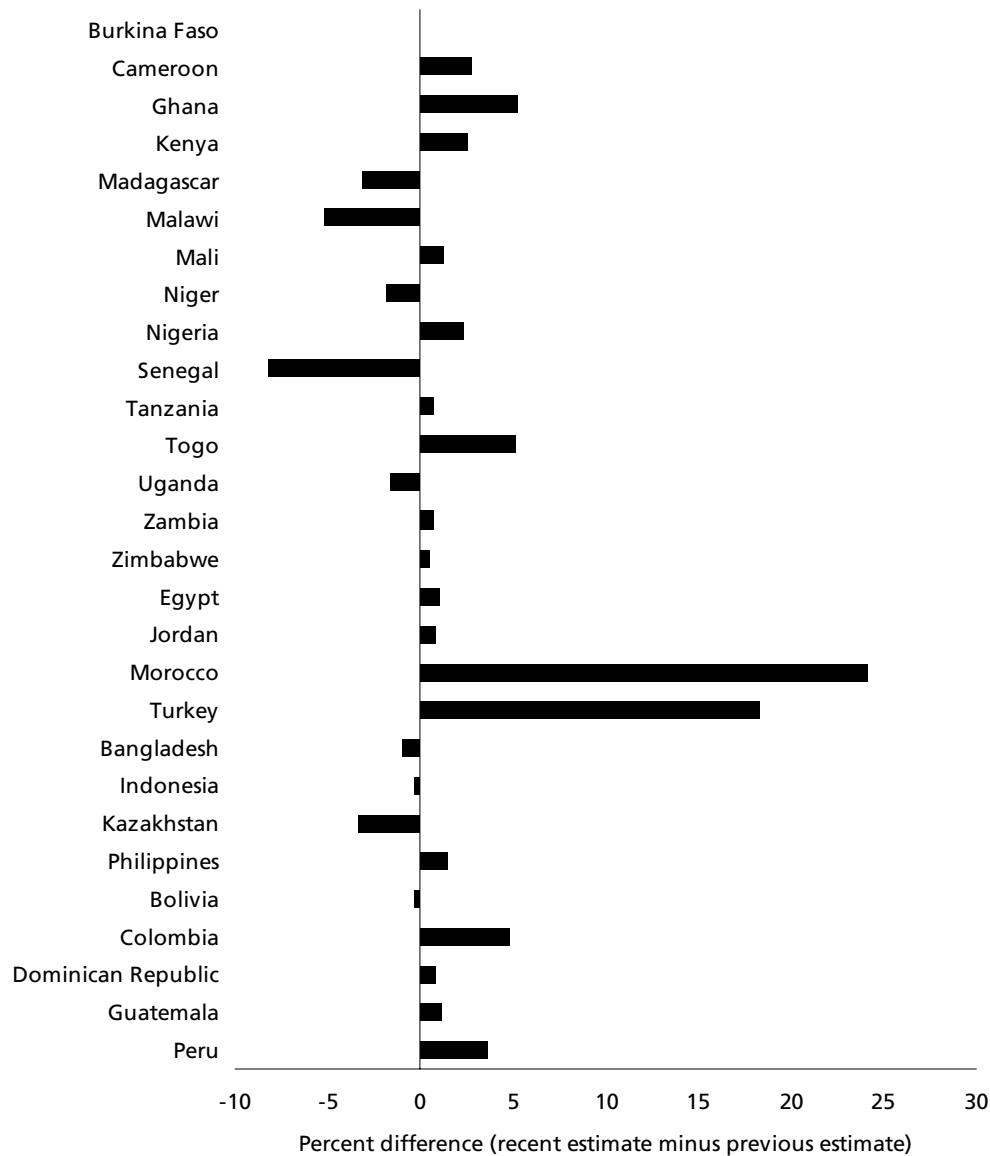
\* Less than 25 cases

had sex in the most recent survey than in the earlier survey. In other countries, the differences were less than two percentage points. Among women who had sex but reported no pregnancy, there were no trends in 22 of the 27 countries (Figure 8). In Turkey, Morocco, and Togo, the percentage who reported having had sex but no pregnancy increased, while in Senegal and Malawi the proportion declined between the first and last survey. A similar trend can be seen for the percentage of women who had sex but no live birth (Figure 9).

**Figure 8**  
**Changes in the percentage of women age 25-49 who have had sex but have not been pregnant, most recent DHS survey compared with previous DHS survey**



**Figure 9**  
**Changes in the percentage of women age 25-49 who have had sex but have not had a live birth, most recent DHS survey compared with previous DHS survey**



Among currently married women age 25 to 49 who have been married for five years, fewer women reported no live birth in the most recent survey compared with the previous survey. Figure 10 shows relatively modest changes, except in Senegal, Nigeria, Cameroon, and Burkina Faso, where the change is one to two percentage points. In Senegal, 98 percent reported having had at least one live birth in the last

survey, compared with 97 percent in the first survey (Table 11). In Burkina Faso, 99 percent reported having had at least one live birth compared with 97.5 percent in the previous survey. In Nigeria, on the other hand, 95 percent reported having had at

**Figure 10**  
**Changes in the percentage of women age 25-49 who have been married for the past five years but have had no live births, most recent DHS survey compared with previous DHS survey**

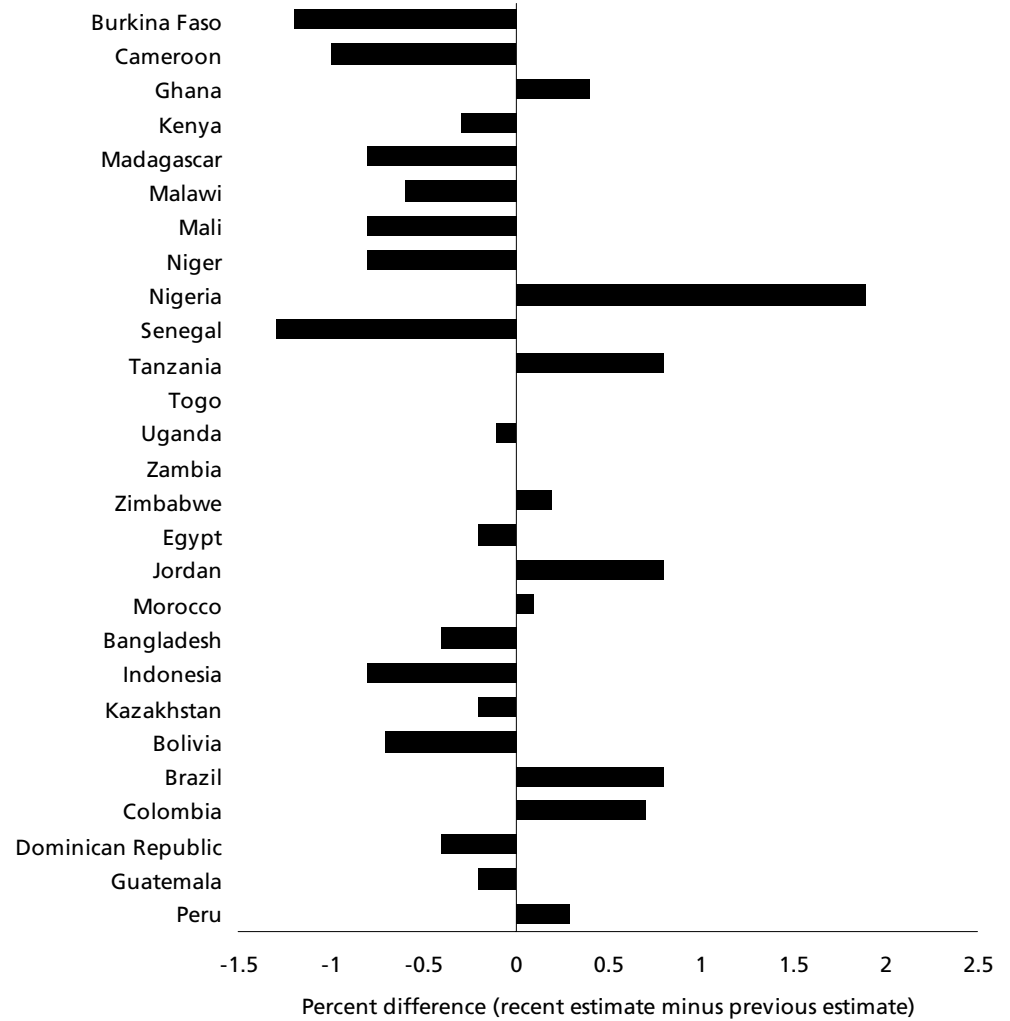


Table 11

**Trends in the proportion of currently married women who have no living children and who have had no fertile pregnancies**

Among currently married women age 40-44 and 25-49 who have been married for the past five years, percentage who have no living children and percentage who have had no fertile pregnancies, Demographic and Health Surveys 1986-2000

Country	DHS survey	No living children		No fertile pregnancies		Country	DHS survey	No living children		No fertile pregnancies	
		Age 40-44	Age 25-49	Age 40-44	Age 25-49			Age 40-44	Age 25-49		
<b>Sub-Saharan Africa</b>						Morocco	1987	4.3	4.4	3.4	3.6
Benin	1996	3.2	2.3	2.1	1.4	Morocco	1995	2.0	4.5	1.2	3.7
Burkina Faso	1992/93	2.1	3.5	1.5	2.5	Turkey	1993	*	*	*	*
Burkina Faso	1998/99	1.4	2.2	1.0	1.3	Turkey	1998	1.8	3.2	1.5	2.8
Cameroon	1991	7.0	7.4	5.1	5.4	Yemen	1997	2.5	2.5	2.2	2.1
Cameroon	1998	7.3	6.6	3.7	4.4	<b>Central Asia/ South and Southeast Asia</b>					
Central Afr. Rep.	1994/95	10.5	9.3	7.3	6.4	Bangladesh	1996/97	2.0	7.0	1.4	4.4
Chad	1996	4.4	3.4	3.0	2.0	Bangladesh	1999/2000	1.8	6.0	1.1	4.0
Comoros	1996	5.5	4.2	4.4	3.2	Cambodia	2000	2.1	2.0	1.8	1.4
Côte d'Ivoire	1998/99	3.7	3.8	2.0	2.2	India	1998/99	2.6	3.1	2.0	2.5
Eritrea	1995	1.2	3.3	0.9	1.8	Indonesia	1987	4.2	4.3	3.6	3.4
Ghana	1988	1.6	2.7	0.6	1.6	Indonesia	1991	4.5	3.7	3.8	2.8
Ghana	1993	2.8	2.6	2.5	1.9	Indonesia	1994	3.8	2.8	2.8	2.2
Ghana	1998	1.1	2.5	0.6	2.0	Indonesia	1997	3.7	3.2	2.9	2.6
Guinea	1999	3.0	4.5	1.9	2.6	Kazakhstan	1995	2.0	2.1	2.0	2.0
Kenya	1989	2.1	2.2	1.9	1.6	Kazakhstan	1999	1.3	2.4	1.2	1.8
Kenya	1993	2.1	1.7	1.9	1.4	Kyrgyz Rep.	1997	0.5	1.9	0.5	1.5
Kenya	1998	1.5	1.6	1.5	1.3	Nepal	1996	3.2	3.3	1.4	2.2
Madagascar	1992	7.5	6.0	4.4	4.2	Philippines	1993	*	*	*	*
Madagascar	1997	4.7	4.8	3.3	3.4	Philippines	1998	1.6	2.3	1.4	2.0
Malawi	1992	2.8	4.1	1.8	2.3	Turkmenistan	2000	1.3	1.9	1.3	1.5
Malawi	2000	2.8	3.8	1.6	1.7	Uzbekistan	1996	0.9	1.4	0.8	1.2
Mali	1987	5.5	6.3	3.8	3.3	Vietnam	1997	0.9	1.3	0.8	1.1
Mali	1995/96	3.3	4.3	1.7	2.5	<b>Latin America/ Caribbean</b>					
Mozambique	1997	3.1	6.0	1.9	3.3	Bolivia	1989				
Niger	1992	5.6	5.8	4.4	3.2	Bolivia	1994	2.4	2.0	1.9	1.5
Niger	1998	4.4	4.2	2.7	2.4	Bolivia	1998	1.9	2.0	1.6	1.3
Nigeria	1990	5.4	4.5	4.6	3.3	Bolivia	1998	1.1	1.2	0.7	0.8
Nigeria	1999	2.1	9.4	1.8	5.2	Brazil	1986	3.8	3.2	3.7	2.6
Senegal	1986	5.5	5.2	2.6	3.3	Brazil	1996	3.3	3.7	2.9	3.4
Senegal	1992/93	4.0	3.8	2.5	2.5	Colombia	1986	1.8	2.0	1.5	1.6
Senegal	1997	3.8	2.9	2.1	2.0	Colombia	1990	2.4	2.7	2.4	2.2
Tanzania	1996	2.5	3.5	1.3	2.0	Colombia	1995	2.5	2.9	2.3	2.6
Tanzania	1999	2.8	4.0	2.0	2.8	Colombia	2000	2.2	2.6	2.1	2.3
Togo	1988	1.7	2.7	0.4	1.7	Dominican	1986	2.2	2.6	2.1	2.3
Togo	1998	1.4	2.5	0.9	1.7	Dominican	1991	5.5	4.5	4.1	3.1
Uganda	1988	7.0	4.9	5.1	3.1	Dominican	1996	4.3	3.5	2.7	2.7
Uganda	1995	3.2	4.2	1.9	3.0	Dominican	1997	3.7	3.2	3.0	2.7
Zambia	1992	1.3	2.7	0.9	1.9	Guatemala	1995	3.2	1.8	2.7	1.3
Zambia	1996	2.3	3.6	1.5	1.9	Guatemala	1998/99	1.1	1.3	1.1	1.2
Zimbabwe	1988	2.4	2.0	1.2	1.4	Guatemala	1994/95	1.7	1.3	1.5	1.1
Zimbabwe	1994	3.2	2.2	1.9	1.2	Haiti	1994/95	1.7	1.3	1.5	1.1
Zimbabwe	1999	2.7	2.7	2.3	1.6	Nicaragua	1997/98	3.9	5.3	2.5	3.4
<b>North Africa/ West Asia</b>						Peru	1986	1.4	1.8	1.2	1.5
Egypt	1992	3.1	3.5	2.5	2.9	Peru	1992	1.7	1.3	1.5	0.9
Egypt	1995	2.8	3.1	2.6	2.7	Peru	1996	1.1	1.2	1.0	1.0
Jordan	1990	0.8	2.0	0.8	1.9	Peru	2000	1.4	1.5	1.3	1.3
Jordan	1997	2.4	2.8	2.4	2.7			0.9	1.5	0.8	1.2

least one live birth in the most recent survey, compared with 97 percent in the previous survey. More women reported having at least one living child in the latest survey compared with the previous survey in most countries except Nigeria (Figure 11). Declining percentages of women reporting no live births or no surviving children are more pronounced when we consider women age 40 to 44, who have largely completed childbearing (Figures 12 and 13). Only in Jordan did more women report no live birth or no living children (2.4 percent) in the latest survey compared with the previous survey (0.8 percent).

**Figure 11**  
**Changes in the percentage of women age 25-49 who have been married for the past five years but have no living children, most recent DHS survey compared with previous DHS survey**

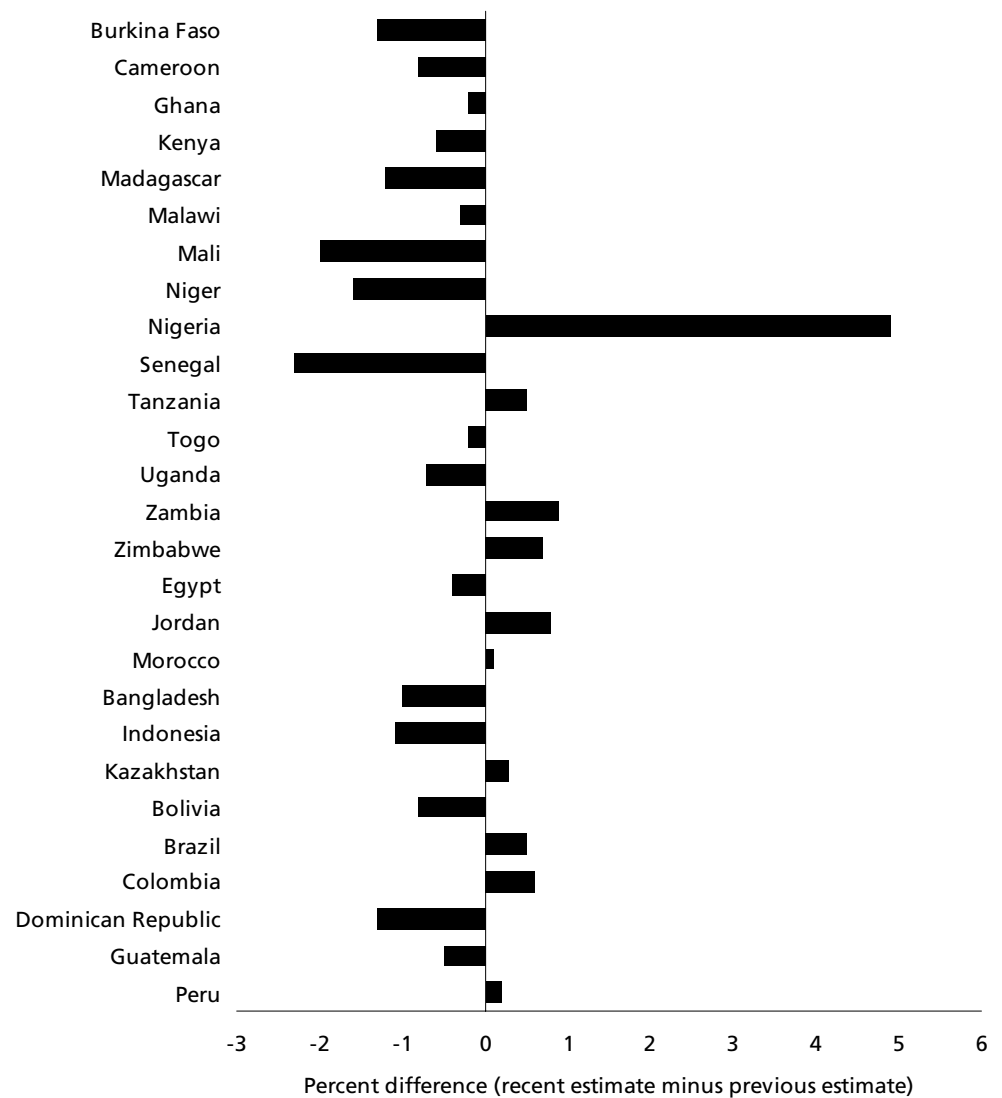
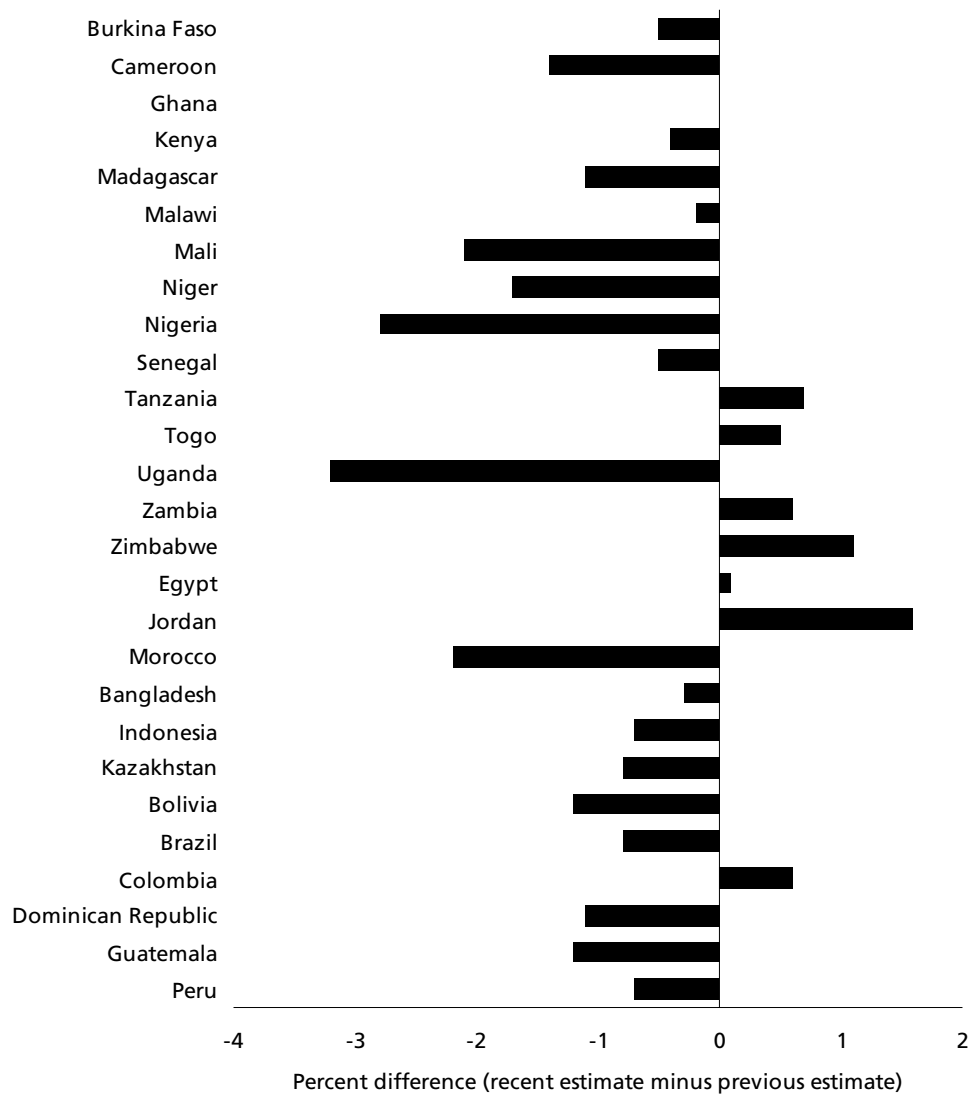
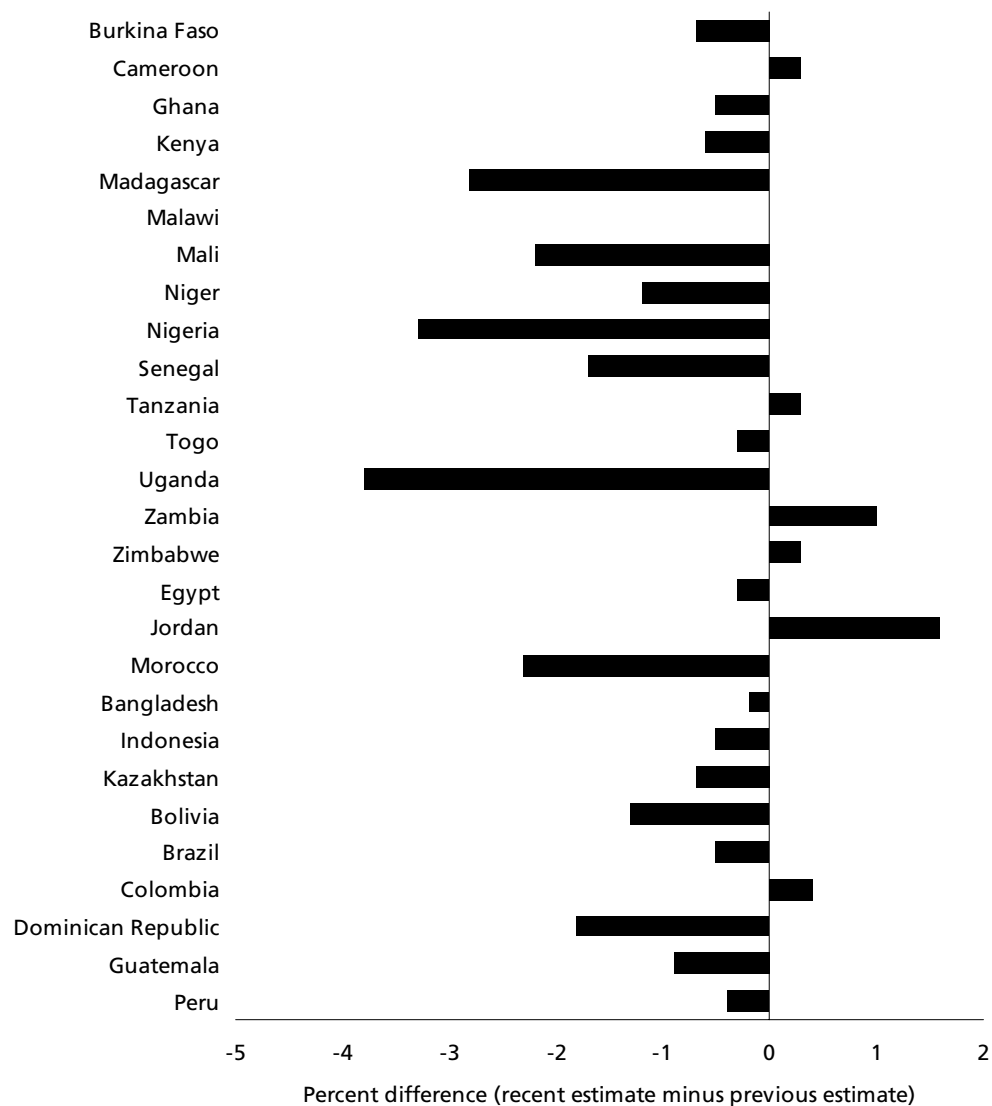


Figure 12  
**Changes in the percentage of women age 40-44 who have been married for the past five years but have had no live births, most recent DHS survey compared with previous DHS survey**



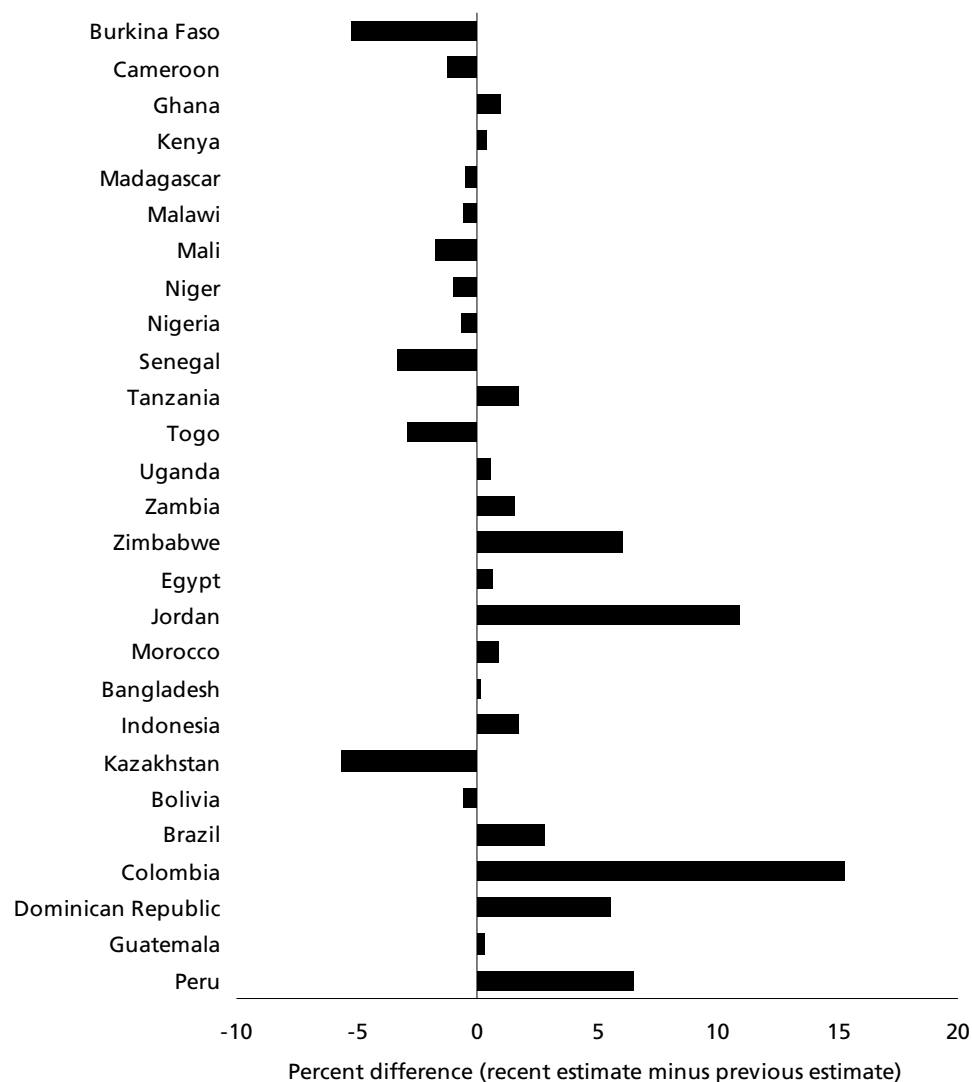


**Figure 13**  
**Changes in the percentage of women age 40-44 who have been married for the past five years but have no living children, most recent DHS survey compared with previous DHS survey**



Among currently married women age 15 to 49 years who are sexually active, not using contraception, and have been married for the past five years, the percentage reporting no live birth or pregnancy has changed little except in seven countries (Figure 14). In Kazakhstan, the percentage with no live birth or pregnancy declined by six percentage points, and in Burkina Faso the decline was five percentage points. Increases of 5 percentage points or more were noted for Peru, the Dominican Republic, Colombia, Jordan, and Zimbabwe.

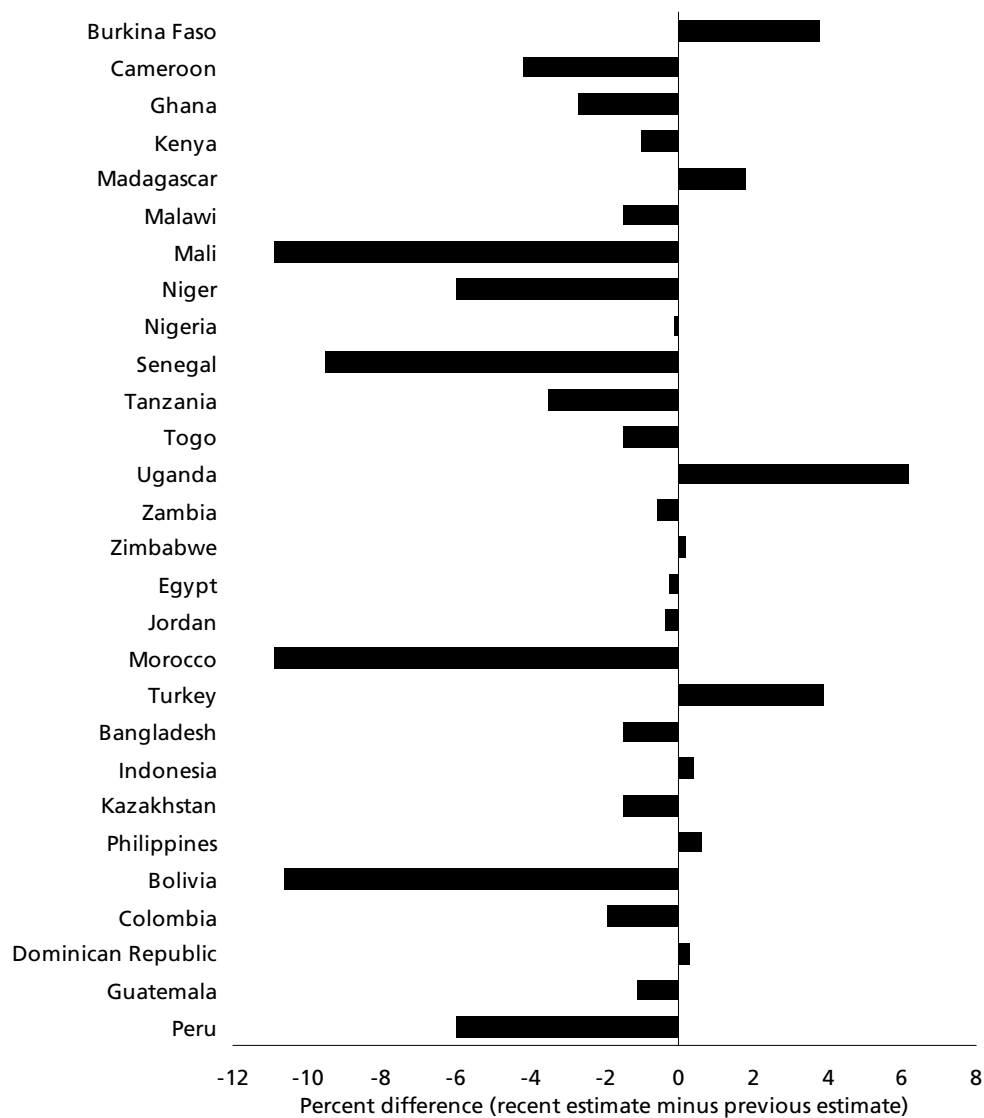
**Figure 14**  
**Changes in the percentage of noncontracepting, sexually experienced women age 15-49 who have been married for the past five years but have had no live births or pregnancies, most recent DHS survey compared with previous DHS survey**



### 5.3 Trends in Secondary Infertility

Choosing an appropriate indicator to assess the trends in secondary infertility is not straightforward. Among the various indicators, we have selected the percentage of currently married noncontracepting women with at least one pregnancy or live birth who reported no birth or pregnancy in the five years preceding the survey. We assume that women who were using contraception or were married for less than five years are fecund. Major declines were noted in the percentage reporting no live birth or pregnancy in the most recent survey compared with the previous survey, except in Turkey, Togo, and Burkina Faso (Figure 15).

Figure 15  
**Changes in the percentage of currently married noncontracepting women who have had no live births or pregnancies in the past five years, most recent DHS survey compared with previous DHS survey**



Note: Contraceptive users or those married for less than five years are assumed to be fecund.

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# 6

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## Consequences of Infertility

The onus of infertility in most societies is placed on the woman. When the couple is unable to produce children, the couple may divorce or separate, or the man may take another wife if they live in a culture that permits polygyny. The breakup of the relationship is therefore both a coping strategy for men and an unfortunate consequence for women. In some cultures, the woman needs to “prove” her fertility before entering into a formal union. In these societies, women may remain unmarried if they cannot bear children. Tables 12 to 15 present these relationship consequences for women age 30 or older in various subgroups, type of childlessness and infecundity.

Table 12 shows the percentage of women who were divorced or separated at the time of the survey by whether they were childless, primarily sterile, or secondarily sterile. The table also shows the difference in marital status between those who are and are not childless or sterile. Overall, women who have never had a child or are currently childless are more likely to be divorced or separated, 14 percent for primary sterility and 12 percent for childlessness. The increased likelihood of divorce or separation due to secondary sterility is 5 percent, much less than the increase for primary sterility. By region, the largest difference for primary sterility is in Latin America, where 21 percent of women are more likely to be divorced or separated than women who are not primarily sterile. This region also has the largest effect for secondarily sterile women, with 10 percent being divorced or separated. In three countries, Nicaragua, the Dominican Republic, and Eritrea, more than 40 percent of primarily sterile women are divorced or separated. At the other extreme is Mali, where only 4 percent of primarily sterile women are divorced or separated.

For women age 30 or older who have had sexual relations, Table 13 shows the percentage that never married, by primary sterility status. Overall, women who are primarily sterile are 7 percent more likely to have never married than other women. At 10 percent, Latin America is the region with the greatest percent difference in never marrying, by primary sterility status. In four countries, more than 20 percent of sexually experienced primarily sterile women have never married: Côte d’Ivoire (22 percent), Kenya (25 percent), South Africa (25 percent), and Guatemala (25 percent).

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Overall, women who have never had a child or are currently childless are more likely to be divorced or separated, 14 percent for primary sterility and 12 percent for childlessness.

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**Table 12**  
**Divorce and separation by childlessness and sterility status**

Percentage of women who were divorced or separated at the time of the survey, by whether they were childless, primarily sterile, or secondarily sterile, Demographic and Health Surveys 1994-2000

Country	Childless (no living children)			Primarily sterile (ever-married women)			Secondarily sterile <sup>1</sup>		
	No	Yes	Diff.	No	Yes	Diff.	No	Yes	Diff.
<b>Sub-Saharan Africa</b>									
Benin	3.5	16.8	13.3	3.5	15.5	12.0	3.6	3.8	0.2
Burkina Faso	0.7	6.9	6.2	0.8	(3.8)	3.0	1.1	0.8	-0.3
Cameroon	8.5	10.5	2.0	8.0	18.7	10.7	6.6	8.9	2.3
Central African Rep.	13.6	18.8	5.2	13.2	23.3	10.1	10.4	14.2	3.8
Chad	6.3	25.0	18.7	7.1	8.9	1.8	(1.6)	7.2	5.6
Comoros	9.7	19.6	9.9	9.9	16.0	6.1	2.5	11.1	8.6
Côte d'Ivoire	9.6	(29.5)	19.9	9.6	(28.1)	18.5	14.3	10.0	-4.3
Eritrea	10.1	34.2	24.1	9.6	41.3	31.7	0.0	11.4	11.4
Ghana	12.5	22.7	10.2	11.7	29.8	18.1	3.3	14.0	10.7
Guinea	1.7	4.4	2.7	1.6	8.2	6.6	4.3	1.7	-2.6
Kenya	6.7	28.9	22.2	6.9	18.9	12.0	5.1	8.1	3.0
Madagascar	14.2	26.9	12.7	14.0	30.1	16.1	5.7	16.1	10.4
Malawi	10.0	13.0	3.0	9.9	16.4	6.5	6.2	11.1	4.9
Mali	1.1	5.3	4.2	1.2	3.9	2.7	1.6	1.3	-0.3
Mozambique	13.1	28.6	15.5	14.0	12.1	-1.9	16.2	13.9	-2.3
Niger	2.9	11.1	8.2	3.0	13.8	10.8	5.2	3.1	-2.1
Nigeria	2.9	11.1	8.2	2.9	10.8	7.9	2.7	3.2	0.5
S. Africa	13.0	15.3	2.3	12.6	18.4	5.8	11.0	14.4	3.4
Senegal	5.5	14.7	9.2	5.0	24.8	19.8	6.0	5.7	-0.3
Tanzania	10.3	(26.7)	16.4	10.2	21.9	11.7	6.5	11.5	5.0
Togo	7.1	27.4	20.3	7.0	23.0	16.0	7.3	7.7	0.4
Uganda	9.8	24.0	14.2	10.0	22.8	12.8	4.0	11.2	7.2
Zambia	12.6	25.4	12.8	12.3	28.4	16.1	4.6	14.2	9.6
Zimbabwe	8.6	24.6	16.0	8.0	28.3	20.3	3.5	11.2	7.7
Average			11.6			11.5			3.4
<b>North Africa/West Asia</b>									
Egypt	2.6	12.7	10.1	2.3	21.9	19.6	0.1	6.6	6.5
Jordan	1.2	12.3	11.1	1.3	13.2	11.9	0.0	3.7	3.7
Morocco	3.6	22.2	18.6	3.1	29.5	26.4	0.0	7.5	7.5
Turkey	2.3	10.4	8.1	1.9	10.7	8.8	0.0	6.9	6.9
Yemen	2.5	18.3	15.8	2.4	33.9	31.5	0.1	3.7	3.6
Average			12.0			16.7			6.2
<b>Central Asia/South and Southeast Asia</b>									
Bangladesh	2.5	23.7	21.2	2.3	21.9	19.6	0.4	6.0	5.6
Cambodia	4.3	12.3	8.0	3.6	20.8	17.2	0.0	5.4	5.4
India	1.4	18.8	17.4	1.6	9.7	8.1	0.0	4.9	4.9
Indonesia	3.0	11.2	8.2	2.8	8.9	6.1	0.0	4.8	4.8
Kazakhstan	11.3	23.1	11.8	8.3	29.8	21.5	5.7	14.8	9.1
Kyrgyz Republic	6.5	(42.6)	36.1	5.8	26.6	20.8	1.1	10.0	8.9
Nepal	1.8	12.5	10.7	1.5	17.2	15.7	0.0	3.6	3.6
Philippines	3.6	10.1	6.5	3.0	12.6	9.6	0.9	5.2	4.3
Turkmenistan	5.1	23.7	18.6	4.4	24.1	19.7	1.5	7.9	6.4
Uzbekistan	3.7	(33.6)	29.9	3.0	25.1	22.1	0.7	6.9	6.2
Vietnam	3.3	(21.4)	18.1	2.6	16.0	13.4	4.2	0.0	-4.2
Average			15.4			15.4			5.9
<b>Latin America/Caribbean</b>									
Bolivia	8.7	10.5	1.8	7.8	26.2	18.4	3.1	11.5	8.4
Brazil	10.7	15.8	5.1	10.2	17.4	7.2	7.8	15.3	7.5
Colombia	20.2	28.4	8.2	18.4	37.8	19.4	13.1	30.0	16.9
Dominican Republic	19.3	22.6	3.3	17.5	43.1	25.6	15.4	22.5	7.1
Guatemala	8.2	17.5	9.3	7.0	39.2	32.2	3.9	9.7	5.8
Haiti	12.2	15.2	3.0	11.2	27.6	16.4	6.3	13.3	7.0
Nicaragua	21.5	43.4	21.9	20.4	43.5	23.1	13.9	28.5	14.6
Peru	10.4	23.0	12.6	9.0	31.3	22.3	4.2	16.7	12.5
Average			8.2			20.6			10.0
Grand average			11.8			14.3			5.3

Note: Figures in parentheses are based on 25-49 unweighted cases.

<sup>1</sup> Includes infertile women and women who report themselves as infecund.

**Table 13**  
**Primary sterility among never-married women**

Percentage of women age 30 or older who have had sexual relations but have never married, by primary sterility status (never given birth), Demographic and Health Surveys 1994-2000

Country	Primary sterility (never-married women)		Diff.
	No	Yes	
<b>Sub-Saharan Africa</b>			
Benin	0.5	9.2	8.7
Burkina Faso	0.2	(5.2)	5.0
Cameroon	2.4	10.8	8.4
Central African Rep.	3.6	7.1	3.5
Chad	0.1	2.0	1.9
Comoros	0.5	0.0	-0.5
Côte d'Ivoire	3.4	25.8	22.4
Eritrea	0.3	2.3	2.0
Ghana	1.2	2.8	1.6
Guinea	0.4	0.0	-0.4
Kenya	2.6	27.8	25.2
Madagascar	2.7	12.1	9.4
Malawi	0.2	2.8	2.6
Mali	0.4	2.4	2.0
Mozambique	1.4	3.7	2.3
Niger	u	u	u
Nigeria	2.1	2.4	0.3
S. Africa	15.4	40.6	25.2
Senegal	0.8	8.2	7.4
Tanzania	1.9	7.4	5.5
Togo	0.9	9.4	8.5
Uganda	1.2	4.7	3.5
Zambia	1.1	7.4	6.3
Zimbabwe	1.5	10.6	9.1
Average			7.0
<b>North Africa/west Asia</b>			
Egypt	u	u	u
Morocco	u	u	u
Jordan	u	u	u
Turkey	u	u	u
Yemen	u	u	u
<b>Central Asia/South and Southeast Asia</b>			
Bangladesh	u	u	u
Cambodia	0.1	0.3	0.2
India	u	u	u
Indonesia	u	u	u
Kazakhstan	2.6	4.6	2.0
Kyrgyz Republic	u	u	u
Nepal	u	u	u
Philippines	0.1	3.9	3.8
Turkmenistan	u	u	u
Uzbekistan	u	u	u
Vietnam	u	u	u
Average			2.0
<b>Latin America/Caribbean</b>			
Bolivia	2.0	18.1	16.1
Brazil	3.6	6.6	3.0
Colombia	6.2	20.3	14.1
Dominican Republic	1.1	5.8	4.7
Guatemala	0.6	25.3	24.7
Haiti	0.7	3.3	2.6
Nicaragua	0.4	2.2	1.8
Peru	4.1	18.9	14.8
Average			10.2
Grand average			7.3

Note: Figures in parentheses are based on 25-49 unweighted cases.  
u = Unknown (not available)

Rather than remaining divorced or separated, women who were in an infertile union may remarry and thus be in a second or later marriage at the time of the survey. Childless women are 13 percent more likely to have married more than once than women with children (Table 14). Primarily infertile and secondarily infertile women are 7 and 8 percent, respectively, more likely to be in a second or later marriage than are fertile women. By region, sub-Saharan Africa has the greatest difference in percent remarried between childless and nonchildless women (17 percent) and primarily and secondarily infertile women (10 percent each). In contrast, in Latin America and the Caribbean, childless and primarily infertile women are less likely to have had a second or later union than are other women, and the difference for secondarily infertile women is minimal. In nine sub-Saharan countries, the difference is 20 percent or more for women with a second or later union between childless women and women with children. Outside of sub-Saharan Africa, the difference is 20 percent or more only in Morocco, Indonesia, and Uzbekistan. For primary infertility, six countries have a difference of 20 percent or more. For secondary sterility, only three countries have that large a difference: Central African Republic, Madagascar, and Mozambique.

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Instead of divorcing or separating from his wife when the union is infertile, a man may take another wife in those societies where polygyny is allowed.

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Instead of divorcing or separating from his wife when the union is infertile, a man may take another wife in those societies where polygyny is allowed. Questions about polygyny were only included in the surveys in sub-Saharan Africa and in Jordan, Morocco, Nepal, and Yemen. Whether a man takes another wife if his first wife is childless varies substantially among countries; however, he is much more likely to have another wife in Kenya, Jordan, Nepal, and Yemen, with differences by childless status of 20, 19, 19, and 15 percent, respectively (Table 15). In these countries, the percentage of nonchildless wives in polygynous unions is relatively low. In some African countries, polygyny is quite high even among couples with children. For primary infertility, it is more likely that the fertile couple is polygynous than the infertile couple in most countries. This may be because men have divorced or separated from their first wife if she is primarily infertile. For Jordan and Nepal, however, primarily infertile couples are 10 percent more likely to take on another wife than fertile couples.

Because couples and women can experience several competing consequences of childlessness and infertility, it is useful to have a summary indicator of the relationship effects. To this end, we tabulated women by whether or not they were living in a monogamous first union at the time of the survey, thus taking into account never marrying, divorce and separation, remarriage, and polygyny. Table 16 shows the results according to childlessness and infertility status. For some countries, monogamous first union status could not be collected because only ever-married women were interviewed. In countries where the wife's union rank (first wife, second wife, etc.) was not asked, it was assumed that there was no polygyny.

Overall, sexually experienced childless and primarily infertile women are 18 percent less likely to be living in a monogamous first union than sexually experienced women with children. Women who have had a child but are unable to have more were 12 percent less likely to be living in a monogamous first union. A portion of the relationship between secondary sterility and monogamous first unionship may be due to the effects of age; older women are more likely to be secondarily sterile and to have had more exposure to divorce, separation, and polygyny.

**Table 14**  
**Remarriage by childlessness and sterility status**

Percentage of women who have had more than one union, by whether they are childless, primarily sterile, or secondarily sterile, Demographic and Health Surveys, 1994-2000

Country	Childless (no living children)			Primarily sterile (ever-married women)			Secondarily sterile		
	No	Yes	Diff.	No	Yes	Diff.	No	Yes	Diff.
<b>Sub-Saharan Africa</b>									
Benin	31.0	51.0	20.0	31.1	44.5	13.4	23.1	31.3	8.2
Burkina Faso	20.7	38.6	17.9	21.0	(21.2)	0.2	14.6	21.3	6.7
Cameroon	23.6	59.4	35.8	24.6	48.6	24.0	14.5	26.3	11.8
Central African Rep.	37.0	65.9	28.9	38.5	53.0	14.5	17.5	39.0	21.5
Chad	26.7	39.0	12.3	26.9	39.6	12.7	(15.9)	27.3	11.4
Comoros	44.6	60.8	16.2	44.8	58.0	13.2	31.3	46.6	15.3
Côte d'Ivoire	26.6	(23.3)	-3.3	26.9	(16.4)	-10.5	17.1	25.9	8.8
Eritrea	23.8	27.1	3.3	23.5	32.7	9.2	13.2	24.5	11.3
Ghana	37.4	38.9	1.5	38.1	26.7	-11.4	29.5	37.0	7.5
Guinea	22.4	40.9	18.5	22.6	39.5	16.9	20.4	23.3	2.9
Kenya	7.8	21.9	14.1	8.0	10.8	2.8	4.1	9.5	5.4
Madagascar	35.6	63.6	28.0	36.5	48.1	11.6	14.9	38.9	24.0
Malawi	34.8	66.5	31.7	34.8	64.4	29.6	25.5	38.1	12.6
Mali	18.3	43.3	25.0	18.7	35.7	17.0	15.7	19.2	3.5
Mozambique	37.0	49.5	12.5	36.8	58.4	21.6	16.0	38.6	22.6
Niger	37.2	63.7	26.5	37.6	60.6	23.0	u	u	u
Nigeria	14.1	31.7	17.6	14.6	16.6	2.0	4.2	16.1	11.9
S. Africa	10.5	17.7	7.2	10.8	10.6	-0.2	7.6	8.6	1.0
Senegal	u	u	u	u	u	u	u	u	u
Tanzania	32.5	(42.3)	9.8	32.3	42.4	10.1	26.2	33.6	7.4
Togo	31.3	39.5	8.2	31.5	33.5	2.0	27.6	31.3	3.7
Uganda	31.6	55.0	23.4	32.1	45.9	13.8	26.0	33.1	7.1
Zambia	32.5	47.5	15.0	32.5	43.0	10.5	20.2	34.5	14.3
Zimbabwe	16.1	38.5	22.4	16.7	17.9	1.2	11.4	18.1	6.7
Average			17.1			9.9			10.3
<b>North Africa/West Asia</b>									
Egypt	5.0	18.7	13.7	5.2	12.6	7.4	u	u	u
Jordan	4.0	15.5	11.5	4.1	17.7	13.6	u	u	u
Morocco	15.3	39.2	23.9	15.8	27.4	11.6	u	u	u
Turkey	3.9	14.2	10.3	3.8	9.0	5.2	u	u	u
Yemen	13.8	23.3	9.5	13.9	19.1	5.2	u	u	u
Average			14.9			9.5			
<b>Central Asia/South and Southeast Asia</b>									
Bangladesh	8.9	25.7	16.8	8.7	24.0	15.3	u	u	u
Cambodia	10.1	16.3	6.2	10.2	11.2	1.0	6.8	10.8	4.0
India	1.9	7.2	5.3	1.9	4.4	2.5	u	u	u
Indonesia	16.1	37.8	21.7	16.2	24.9	8.7	11.8	19.1	7.3
Kazakhstan	14.5	29.2	14.7	13.5	22.0	8.5	12.0	15.9	3.9
Kyrgyz Republic	13.3	(30.8)	17.5	11.9	37.2	25.3	8.3	15.5	7.2
Nepal	9.2	16.4	7.2	9.1	17.4	8.3	7.3	11.6	4.3
Philippines	7.9	9.6	1.7	8.1	5.9	-2.2	6.4	8.5	2.1
Turkmenistan	7.6	23.7	16.1	6.5	31.4	24.9	4.8	9.6	4.8
Uzbekistan	6.5	(48.2)	41.7	6.1	25.1	19.0	4.9	8.6	3.7
Vietnam	3.4	(1.6)	-1.8	3.4	3.7	0.3	u	u	u
Average			11.9			10.3			4.8
<b>Latin America/Caribbean</b>									
Bolivia	10.9	9.7	-1.2	11.0	8.8	-2.2	10.0	11.0	1.0
Brazil	15.2	16.8	1.6	15.6	11.2	-4.4	12.8	16.3	3.5
Colombia	21.9	14.2	-7.7	22.5	15.0	-7.5	18.6	20.5	1.9
Dominican Republic	40.4	46.9	6.5	41.2	33.6	-7.6	36.8	41.9	5.1
Guatemala	13.4	14.9	1.5	13.7	8.5	-5.2	14.2	13.0	-1.2
Haiti	45.9	53.1	7.2	46.2	45.8	-0.4	36.1	46.8	10.7
Nicaragua	35.8	24.8	-11.0	36.4	23.9	-12.5	35.9	34.4	-1.5
Peru	11.8	7.6	-4.2	12.0	7.4	-4.6	10.3	11.1	0.8
Average			-0.9			-5.6			2.5
Grand average			12.5			7.1			7.6

Note: Figures in parentheses are based on 25-49 unweighted cases.  
u = Unknown (not available)



**Table 15**  
**Polygynous first union by childlessness and primary sterility**

Percentage of women who are in a polygynous first union, by whether they are childless or primarily sterile, Demographic and Health Surveys 1994-2000

Country	Childless (no living children)			Primarily sterile (ever-married women)		
	No	Yes	Diff.	No	Yes	Diff.
<b>Sub-Saharan Africa</b>						
Benin	52.3	61.5	9.2	52.5	55.2	2.7
Burkina Faso	61.6	58.1	-3.5	61.6	(58.9)	-2.7
Cameroon	33.5	37.6	4.1	33.9	31.1	-2.8
Central African Rep.	27.5	25.4	-2.1	27.5	25.4	-2.1
Chad	41.9	34.5	-7.4	41.6	41.4	-0.2
Comoros	26.6	31.4	4.8	27.2	18.0	-9.2
Côte d'Ivoire	37.3	(21.5)	-15.8	36.7	(37.1)	0.4
Eritrea	7.4	10.6	3.2	7.7	5.4	-2.3
Ghana	24.4	22.3	-2.1	24.7	19.0	-5.7
Guinea	60.7	68.4	7.7	61.2	55.6	-5.6
Kenya	16.5	36.3	19.8	16.9	20.0	3.1
Madagascar	2.4	3.2	0.8	2.5	2.4	-0.1
Malawi	18.1	22.6	4.5	18.1	21.6	3.5
Mali	51.2	57.1	5.9	51.4	51.5	0.1
Mozambique	26.0	16.0	-10.0	25.8	16.3	-9.5
Niger	44.0	45.3	1.3	44.0	48.7	4.7
Nigeria	35.9	43.7	7.8	36.3	31.4	-4.9
S. Africa	5.9	5.5	-0.4	5.9	5.3	-0.6
Senegal	52.5	56.8	4.3	53.0	42.0	-11.0
Tanzania	28.3	32.9	4.6	28.2	35.2	7.0
Togo	44.9	40.2	-4.7	45.1	36.4	-8.7
Uganda	29.7	29.4	-0.3	29.6	31.8	2.2
Zambia	18.2	17.9	-0.3	18.5	12.4	-6.1
Zimbabwe	13.2	15.7	2.5	13.5	9.1	-4.4
Average			1.4			-2.2
<b>North Africa/West Asia</b>						
Egypt	u	u	u	u	u	u
Jordan	7.3	26.2	18.9	7.7	17.3	9.6
Morocco	5.1	11.9	6.8	5.4	5.8	0.4
Turkey	u	u	u	u	u	u
Yemen	7.6	23.0	15.4	8.0	6.9	-1.1
Average			13.7			3.0
<b>Central Asia/South and Southeast Asia</b>						
Bangladesh	u	u	u	u	u	u
Cambodia	u	u	u	u	u	u
India	u	u	u	u	u	u
Indonesia	u	u	u	u	u	u
Kazakhstan	u	u	u	u	u	u
Kyrgyz Republic	u	u	u	u	u	u
Nepal	4.8	23.3	18.5	4.9	15.0	10.1
Philippines	u	u	u	u	u	u
Turkmenistan	u	u	u	u	u	u
Uzbekistan	u	u	u	u	u	u
Vietnam	u	u	u	u	u	u
<b>Latin America/Caribbean</b>						
Bolivia	u	u	u	u	u	u
Brazil	u	u	u	u	u	u
Colombia	u	u	u	u	u	u
Dominican Republic	u	u	u	u	u	u
Guatemala	u	u	u	u	u	u
Haiti	u	u	u	u	u	u
Nicaragua	u	u	u	u	u	u
Peru	u	u	u	u	u	u
Grand average			2.9			-1.2

Note: Figures in parentheses are based on 25-49 unweighted cases.  
u = Unknown (not available)

**Table 16**  
**Monogamous first union by childlessness and sterility status**

Percentage of women who are in a monogamous first union, by whether they are childless, primarily sterile, or secondarily sterile, Demographic and Health Surveys 1994-2000

Country	Childless (no living children)			Primarily sterile (sexually experienced)			Secondarily sterile		
	No	Yes	Diff.	No	Yes	Diff.	No	Yes	Diff.
<b>Sub-Saharan Africa</b>									
Benin	29.6	(12.2)	-17.4	29.4	22.0	-7.4	41.1	28.1	-13.0
Burkina Faso	28.7	22.0	-6.7	28.6	(28.0)	-0.6	44.7	27.5	-17.2
Cameroon	38.5	12.4	-26.1	37.9	21.9	-16.0	47.6	35.4	-12.2
Central African Rep.	33.2	12.5	-20.7	32.7	17.5	-15.2	34.9	31.1	-3.8
Chad	36.2	13.9	-22.3	35.6	22.3	-13.3	(47.8)	35.1	-12.7
Comoros	36.0	18.0	-18.0	35.8	22.0	-13.8	48.7	33.4	-15.3
Côte d'Ivoire	35.6	(35.6)	0.0	36.4	22.5	-13.9	48.3	34.3	-14.0
Eritrea	59.1	25.1	-34.0	59.6	20.0	-39.6	78.3	57.1	-21.2
Ghana	37.8	(38.2)	0.4	38.0	35.0	-3.0	47.9	36.4	-11.5
Guinea	28.3	15.4	-12.9	27.9	26.0	-1.9	35.1	27.5	-7.6
Kenya	62.0	19.8	-42.2	61.9	40.6	-21.3	71.9	56.0	-15.9
Madagascar	49.5	24.1	-25.4	49.5	29.5	-20.0	66.5	45.5	-21.0
Malawi	45.5	15.2	-30.3	45.4	19.3	-26.1	57.9	41.0	-16.9
Mali	38.4	21.5	-16.9	38.0	30.2	-7.8	47.9	37.3	-10.6
Mozambique	35.3	19.2	-16.1	34.9	24.5	-10.4	55.3	33.3	-22.0
Niger	u	u	u	u	u	u	u	u	u
Nigeria	50.4	29.5	-20.9	49.6	52.2	2.6	62.2	48.2	-14.0
S. Africa	53.2	50.4	-2.8	55.4	37.0	-18.4	53.2	53.0	-0.2
Senegal	u	u	u	u	u	u	u	u	u
Tanzania	52.8	(41.8)	-11.0	53.7	31.5	-22.2	56.8	51.9	-4.9
Togo	30.6	16.4	-14.2	30.4	26.7	-3.7	34.2	29.6	-4.6
Uganda	34.8	12.6	-22.2	34.5	15.1	-19.4	40.2	33.0	-7.2
Zambia	42.1	23.9	-18.2	42.6	21.2	-21.4	63.2	38.2	-25.0
Zimbabwe	58.0	25.8	-32.2	58.1	40.8	-17.3	70.5	52.1	-18.4
Average			-18.6			-14.1			-13.1
<b>North Africa/West Asia</b>									
Egypt	u	u	u	u	u	u	u	u	u
Morocco	u	u	u	u	u	u	u	u	u
Jordan	u	u	u	u	u	u	u	u	u
Turkey	u	u	u	u	u	u	u	u	u
Yemen	u	u	u	u	u	u	u	u	u
<b>Central Asia/South and Southeast Asia</b>									
Bangladesh	u	u	u	u	u	u	u	u	u
Cambodia	76.6	38.9	-37.7	77.5	41.7	-35.8	91.5	72.4	-19.1
India	u	u	u	u	u	u	u	u	u
Indonesia	77.8	49.4	-28.4	78.0	62.4	-15.6	88.0	71.4	-16.6
Kazakhstan	68.5	48.2	-20.3	72.3	45.7	-26.6	73.8	64.9	-8.9
Kyrgyz Republic	77.8	(28.0)	-49.8	79.9	37.1	-42.8	89.6	71.2	-18.4
Nepal	86.7	60.0	-26.7	86.9	59.5	-27.4	89.6	83.1	-6.5
Philippines	85.4	78.1	-7.3	86.1	74.3	-11.8	91.2	82.0	-9.2
Turkmenistan	81.6	52.1	-29.5	83.2	44.0	-39.2	90.3	75.7	-14.6
Uzbekistan	87.1	(17.7)	-69.4	88.3	43.1	-45.2	94.4	79.6	-14.8
Vietnam	u	u	u	u	u	u	u	u	u
Average			-28.5			-28.5			-13.3
<b>Latin America/Caribbean</b>									
Bolivia	76.5	76.8	0.3	78.1	54.2	-23.9	81.7	73.5	-8.2
Brazil	70.9	69.3	-1.6	71.3	67.0	-4.3	73.7	66.6	-7.1
Colombia	55.6	58.0	2.4	57.9	40.9	-17.0	61.7	47.3	-14.4
Dominican Republic	47.3	37.6	-9.7	48.5	29.1	-19.4	52.9	42.3	-10.6
Guatemala	74.3	62.9	-11.4	75.6	46.0	-29.6	77.2	73.1	-4.1
Haiti	46.8	35.7	-11.1	47.3	34.1	-13.2	55.7	44.7	-11.0
Nicaragua	50.2	38.0	-12.2	51.1	34.6	-16.5	55.4	45.4	-10.0
Peru	72.8	70.4	-2.4	75.0	52.5	-22.5	78.0	67.6	-10.4
Average			-5.7			-18.3			-9.5
Grand average			-17.7			-17.7			-12.4

Note: Figures in parentheses are based on 25-49 unweighted cases.  
u = Unknown (not available)

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Childlessness and infertility have consequences for a woman's chances of being in a stable relationship.

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The likelihood of being in a monogamous first union varies by region. Asia has the largest differences by childlessness and primary infertility (both 29 percent). In Latin America, there is a small difference by childless status (6 percent), but there is a much larger difference by primary infertility (18 percent). In sub-Saharan Africa, the difference for being in a monogamous first union is greater for childless women (19 percent) than for women who are primarily infertility (14 percent).

Seven countries have a difference in monogamous first unionship by childless status of 30 percent or more: Uzbekistan (69 percent), Kyrgyz Republic (50 percent), Kenya (42 percent), Cambodia (38 percent), Eritrea (34 percent), Zimbabwe (32 percent), and Malawi (30 percent). Eleven other countries have differences of 20 to 29 percent. For primary infertility, five countries have differences of 30 percent or more: Uzbekistan (45 percent), Kyrgyz Republic (43 percent), Eritrea (40 percent), Turkmenistan (39 percent), and Cambodia (36 percent). Ten other countries have differences of 20 to 29 percent. For secondary sterility, four countries have differences in being in a monogamous first union that are 20 percent or more: Zambia (25 percent), Mozambique (22 percent), and Eritrea and Madagascar (both 21 percent).

In summary, childlessness and infertility have consequences for a woman's chances of being in a stable relationship, whether through lowering her chances of entering into marriage, raising her chances of being divorced or separated, or increasing the chances that her husband will take another wife.<sup>6</sup>

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<sup>6</sup> There was no information on the possibility that a woman in union who is childless may seek to obtain another husband or partner because her first husband or partner was unable to make her pregnant.

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# 7

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## Coping with Infertility through Adoption

The most important way for couples to cope with infertility is to adopt children. The information contained in the DHS surveys can give an insight into the extent of this process. All family members are listed on the household schedule of the DHS household questionnaire. For persons under 15 years of age, the biological mother and father are identified if they are residing in the household. If not, then the survival status of each of the parents is ascertained. Thus, whether a household has children whose biological parents do not live in the household can be determined. We consider that these children are “adopted,” whether formally or informally. Table 17 shows the percentage of women living in a household with one or more adopted children according to childlessness and infertility status. We cannot definitely determine whether the couple has adopted the child or children if there is more than one couple in the household; however, if childless or infertile couples live in households with adopted children, we assume that they adopted the children. Table 17 indicates that, overall, childless women are 15 percent more likely to live in households with adopted children than are women with their own children. The difference for women with primary infertility is 7 percent. Interestingly, women with secondary infertility are no more likely to live in a household with adopted children than are women who can have more children.

By country, the difference in adoption rates by childlessness is greatest in Turkmenistan (41 percent) and Niger (33 percent). In sub-Saharan Africa, adoption is common even among couples that have no fertility impairment. However, childlessness and infertility increase adoption rates on average by 17 and 11 percent, respectively. In five countries in West Africa, more than half of the couples who are childless live in households with adopted children under age 15: Niger (61 percent), Guinea (59 percent), Benin (56 percent), Togo (56 percent), and Cameroon (53 percent).

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Childless women are 15 percent more likely to live in households with adopted children than are women with their own children.

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**Table 17**  
**Adoption of children by childlessness and sterility status**

Percentage of women living in households with one or more adopted children, by whether the women are childless, primarily sterile, or secondarily sterile, Demographic and Health Surveys 1994-2000

Country	Childless (no living children)			Primarily sterile (ever-married women)			Secondarily sterile		
	No	Yes	Diff.	No	Yes	Diff.	No	Yes	Diff.
<b>Sub-Saharan Africa</b>									
Benin	38.0	56.2	18.2	37.9	61.0	23.1	40.4	38.1	-2.3
Burkina Faso	u	u	u	u	u	u	u	u	u
Cameroon	30.6	53.3	22.7	31.3	44.6	13.3	23.5	33.2	9.7
Central African Rep.	31.0	46.1	15.1	31.8	38.3	6.5	37.7	32.0	-5.7
Chad	22.2	38.5	16.3	22.3	42.5	20.2	(33.0)	22.7	-10.3
Comoros	26.0	51.0	25.0	26.5	42.0	15.5	36.0	25.6	-10.4
Côte d'Ivoire	u	u	u	u	u	u	u	u	u
Eritrea	8.4	24.4	16.0	8.7	15.6	6.9	9.2	9.0	-0.2
Ghana	20.5	43.4	22.9	21.1	21.1	0.0	19.0	21.4	2.4
Guinea	40.0	59.3	19.3	40.2	57.6	17.4	49.7	40.3	-9.4
Kenya	15.5	27.3	11.8	15.7	17.3	1.6	12.6	17.3	4.7
Madagascar	17.7	40.8	23.1	18.2	31.6	13.4	15.9	19.4	3.5
Malawi	18.6	32.9	14.3	18.9	25.1	6.2	15.2	20.2	5.0
Mali	19.5	44.3	24.8	19.9	39.4	19.5	37.0	19.7	-17.3
Mozambique	27.3	39.9	12.6	27.3	43.8	16.5	28.5	27.9	-0.6
Niger	28.4	61.3	32.9	29.2	51.4	22.2	22.8	30.4	7.6
Nigeria	22.9	33.0	10.1	23.2	22.7	-0.5	20.4	23.7	3.3
S. Africa	18.8	31.4	12.6	19.2	18.4	-0.8	17.4	20.6	3.2
Senegal	u	u	u	u	u	u	u	u	u
Tanzania	28.0	(41.8)	13.8	28.2	32.1	3.9	28.9	28.3	-0.6
Togo	35.0	55.5	20.5	34.9	51.0	16.1	37.2	35.2	-2.0
Uganda	30.3	47.2	16.9	30.4	48.5	18.1	37.5	30.2	-7.3
Zambia	29.7	32.7	3.0	29.2	44.4	15.2	30.5	29.7	-0.8
Zimbabwe	20.6	32.4	11.8	20.9	21.9	1.0	17.4	22.5	5.1
Average			17.3			11.2			-1.1
<b>North Africa/West Asia</b>									
Egypt	1.8	7.1	5.3	1.9	4.2	2.3	1.4	2.7	1.3
Jordan	1.8	5.8	4.0	1.8	5.1	3.3	1.6	2.2	0.6
Morocco	10.8	20.5	9.7	10.9	19.5	8.6	10.4	12.0	1.6
Turkey	2.0	2.6	0.6	2.0	2.1	0.1	2.0	2.0	0.0
Yemen	4.7	14.1	9.4	4.9	6.5	1.6	4.6	5.1	0.5
Average			4.9			3.6			0.9
<b>Central Asia/South and Southeast Asia</b>									
Bangladesh	u	u	u	u	u	u	u	u	u
Cambodia	6.8	30.8	24.0	7.3	12.3	5.0	10.2	6.7	-3.5
India	u	u	u	u	u	u	u	u	u
Indonesia	4.5	21.3	16.8	4.9	8.2	3.3	3.5	6.0	2.5
Kazakhstan	3.1	10.0	6.9	3.0	4.8	1.8	2.6	3.7	1.1
Kyrgyz Republic	5.6	(14.3)	8.7	5.9	4.9	-1.0	2.2	7.6	5.4
Nepal	u	u	u	u	u	u	u	u	u
Philippines	u	u	u	u	u	u	u	u	u
Turkmenistan	3.1	43.7	40.6	3.7	9.2	5.5	3.1	4.5	1.4
Uzbekistan	1.2	(9.3)	8.1	1.3	2.1	0.8	0.9	1.7	0.8
Vietnam	u	u	u	u	u	u	u	u	u
Average			19.4			2.9			1.4
<b>Latin America/Caribbean</b>									
Bolivia	6.9	21.3	14.4	6.9	10.4	3.5	7.1	7.0	-0.1
Brazil	8.0	21.6	13.6	8.6	6.3	-2.3	8.0	9.0	1.0
Colombia	9.4	14.9	5.5	9.5	9.0	-0.5	9.6	9.4	-0.2
Dominican Republic	19.2	25.7	6.5	19.5	18.1	-1.4	20.3	18.6	-1.7
Guatemala	8.1	22.4	14.3	8.3	8.1	-0.2	8.7	8.2	-0.5
Haiti	24.3	39.6	15.3	24.3	34.6	10.3	25.8	24.8	-1.0
Nicaragua	15.1	20.9	5.8	15.0	18.5	3.5	14.3	16.1	1.8
Peru	6.9	15.9	9.0	7.0	7.9	0.9	6.7	7.4	0.7
Average			10.6			1.7			0.0
Grand average			14.9			7.3			-0.3

Note: Figures in parentheses are based on 25-49 unweighted cases  
u = Unknown (not available)

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## Conclusions

Five measures of fertility impairment are used in this report: childlessness, primary infertility, self-reported infecundity, secondary infertility, and secondary infecundity.

Childlessness varies from less than 1 percent among married women age 40 to 44 in the Kyrgyz Republic, Uzbekistan, and Vietnam to more than 10 percent in the Central African Republic. These levels are lower than those reported by the World Fertility Survey. In almost all of the countries included in this report, at least 96 percent of married women can expect to have one or more surviving children.

Sexual intercourse begins early for most women. By age 25 to 29, 94 percent of women have had sexual relations at least once. For women age 25 to 49 (standardized), the Philippines has the lowest proportion of women with sexual experience (88 percent). The highest proportions occur in sub-Saharan Africa, where almost all women age 25 to 49 are sexually experienced.

Among sexually experienced women age 25 to 49 (standardized), the proportion who have not had a pregnancy varies from 2 to 18 percent, with slightly higher percentages for women who have not had a birth.

Some women do not want to have any children. Among women with no living children, those whose ideal is to have no children varies from 3 to 6 percent.

Self-reports of infecundity vary substantially by age, decreasing somewhat for ages 15 to 19 and then increasing especially for women over 30. Standardizing for age distributions allows comparison across countries for the broad age group women 25 to 49. Senegalese women are the least likely to report themselves as infecund in this age group (5 percent) while Cambodian women are the most likely (35 percent).

Women who have borne children can be subject to secondary infertility, indicated here by women who have not had a child in the past five years (excluding women who used contraception). Overall, secondary infertility increases sharply with age from 5 percent at age 20 to 24 to 62 percent at age 45 to 49 years. Vietnam (9 percent) and Cambodia (38 percent) are the countries with the lowest and highest age-standardized levels of secondary infecundity for women age 25 to 49.

It is estimated that by the middle of 2002, about 186 million ever-married women age 15 to 49 were infertile, because of primary or secondary infertility, in developing countries, excluding China.

Assessing trends by using comparable data shows that infertility, whether primary or secondary, has declined in most countries. When comparing data on the percentage of women reporting no live births at two points in time roughly 20 years apart, fewer women age 25 to 49 reported no live births in the DHS surveys compared with the WFS surveys for 11 countries that were included in both survey programs, except in Bangladesh. Comparing data from DHS surveys in the same country yields mixed results, but for most countries there has been a decline in the percentage of women reporting no pregnancy or no live birth in the past five years. Among the countries

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most affected by the HIV pandemic, no pattern was seen for increases or declines in infertility. Overall, reductions in infertility were seen for several countries, but important exceptions were also noted.

Infertility has consequences for women's marital status. Women who have never had a child are much more likely to be divorced or separated. In Nicaragua, the Dominican Republic, and Eritrea, more than 40 percent of women who have never had a child are currently separated or divorced. Childless women are also more likely to have married more than once.

In some cultures a woman needs to prove her fecundity in order to marry. Overall, for women age 30 or older who have had sexual relations, those who are primarily sterile are 7 percent more likely to have never married or lived in a consensual union. This percentage rises to 10 percent in Latin America.

In cultures where polygyny is allowed, a man may take another wife if his first wife is childless. Differences in polygyny by childless status of the first wife vary substantially. In four of the countries discussed, women are at least 15 percent more likely to be in a polygynous union if they are childless than if they have a child.

An important way of coping with infertility is adoption. Childless women are 15 percent more likely to live in households with an adopted child than are women with their own children. In five West African countries more than half of childless couples live in households with adopted children.

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