

Does Contraceptive Use in the United States Meet Global Goals?

CONTEXT: *The United Nations Sustainable Development Goals (SDGs) seek to achieve health equity, and they apply to all countries. SDG contraceptive use estimates for the United States are needed to contextualize U.S. performance in relation to that of other countries.*

METHODS: *Data from the 2011–2013 and 2013–2015 waves of the National Survey of Family Growth were used to calculate three SDG indicators of contraceptive use for U.S. women aged 15–44: contraceptive prevalence, unmet need for family planning and demand for family planning satisfied by modern methods. These measures were calculated separately for married or cohabiting women and for unmarried, sexually active women; differences by sociodemographic characteristics were assessed using t tests from logistic regression analysis. Estimates for married women were compared with 2010–2015 estimates from 94 other countries, most of which were low- or middle-income.*

RESULTS: *For married or cohabiting women, U.S. estimates for contraceptive prevalence, unmet need and demand satisfied by modern methods were 74%, 9% and 80%, respectively; for unmarried, sexually active women, they were 85%, 11% and 82%, respectively. Estimates varied by sociodemographic characteristics, particularly among married or cohabiting women. Five countries performed better than the United States on contraceptive prevalence, 12 on unmet need and four on both measures; seven performed better on demand satisfied by modern methods.*

CONCLUSIONS: *There is a need to continue efforts to expand access to contraceptive care in the United States, and to monitor the SDG indicators so that improvement can be tracked over time.*

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The United States and the United Nations General Assembly have consistently included universal access to family planning services as part of their goals for improving population health and achieving health equity. In the United States, family planning is one of the 42 topics for which the Healthy People 2020 initiative set 10-year objectives with the goal of improving health for all Americans.¹ Global objectives are embodied within the 17 Sustainable Development Goals (SDGs) of the 2030 agenda adopted by world leaders at the 2015 UN Sustainable Development Summit.² The SDGs, built on the UN Millennium Development Goals, seek to eradicate poverty and achieve health equity, and apply to all countries, regardless of development level.³ While both Healthy People and the SDGs include indicators to track progress in access to family planning services, these indicators are not well aligned. In particular, the primary SDG contraceptive use indicator and one of its component measures, unmet need for family planning, have not yet been estimated for U.S. women by applying an internationally used algorithm to nationally representative survey data.

The Healthy People initiative includes 16 objectives under the topic of family planning, with the overarching goal of improving pregnancy planning and spacing, and preventing unintended pregnancy. These objectives include increasing the proportion of pregnancies that are intended,

the proportion of publicly funded clinics that offer the full range of contraceptive methods and contraceptive use among those at risk of unintended pregnancy; reducing the teenage pregnancy rate and the proportion of pregnancies that occur within short interpregnancy intervals; and several structural and process measures related to parent-child communication, reproductive health education and state Medicaid reimbursement practices. In 2015, a new Healthy People 2020 family planning objective was added that aims to increase the proportion of women using a contraceptive method that is categorized, on the basis of published contraceptive failure rates,^{4,5} as most effective (male or female sterilization, IUD or implant) or moderately effective (injectable, pill, patch, ring or diaphragm).

The SDGs include a related indicator of contraceptive use within the goal to “ensure healthy lives and promote well-being for all at all ages.” Target 3.7 aims to “ensure universal access to sexual and reproductive health-care services, including family planning,” and a specific indicator (3.7.1) measures the proportion of women of reproductive age who have their need for family planning satisfied with modern methods (those listed above, as well as male and female condoms, the cervical cap, spermicides, the sponge, lactational amenorrhea and emergency contraception).⁶ Two components of this indicator are the proportion of women using contraceptives (contraceptive prevalence)

and the proportion who have an unmet need for family planning (i.e., are at risk of unintended pregnancy and not using a contraceptive). Values of demand satisfied by modern methods of 75% or more are generally considered high, while values less than 50% are considered low.⁶ While indicator 3.7.1 is the sole indicator on access to contraception within the SDGs, it is related to other SDG targets aimed at achieving universal health coverage and ensuring universal access to sexual and reproductive health and rights.⁶

Several nationally representative household surveys are used to calculate contraceptive prevalence, unmet need and demand satisfied by modern methods, including the Demographic and Health Survey (DHS), which is funded by the U.S. Agency for International Development and has been fielded in 92 countries.⁷ To date, nationally representative data from the United States have not been used to calculate unmet need and demand satisfied by modern methods in a manner consistent with how DHS data are used.

The objective of our analysis was to calculate SDG indicator 3.7.1, the proportion of demand satisfied by modern methods, and two of its component measures, contraceptive prevalence and unmet need for family planning, for U.S. women overall and by subgroups. These measures are commonly calculated among women who are married or in a union; we were also interested in calculating them for unmarried, sexually active women, since this is a growing population in the United States and one in need of family planning services.^{8–11} Additionally, we sought to present the overall U.S. estimates alongside those from other countries with recent data available. Although many of these were less developed countries, such comparisons provide context for our estimates and can inform global discussions of how to successfully implement evidence-based guidance on family planning service delivery; the comparisons thus allow the United States to both contribute to and benefit from lessons learned in other countries. By calculating these measures for the United States, we provide a benchmark for the nation's progress and help identify population subgroups who need improved access to family planning services, hence supporting both national and global goals of achieving health equity.

METHODS

Study Population

We analyzed data on 11,300 female respondents from the 2011–2013 and 2013–2015 National Survey of Family Growth (NSFG) public-use files. The NSFG, which is conducted by the Centers for Disease Control and Prevention's National Center for Health Statistics and funded by multiple federal agencies, is a nationally representative survey of the noninstitutionalized civilian U.S. population aged 15–44; it uses a complex, multistage, probability design to select participants.¹² The survey collects information on sexual relationships, marriage, cohabitation, contraceptive use and pregnancy history through in-person interviews conducted in respondents' homes. Each survey period

data release includes a female respondent file, a pregnancy history file and, as of 2002, a male respondent file. We analyzed data from the female respondent files and the pregnancy history files; the latter contain information on all reported pregnancies that occurred up to the time of interview, including wantedness of the last pregnancy and the current one, if applicable. The female response rate was 73% in 2011–2013 and 71% in 2013–2015; detailed information on fieldwork, questionnaires and analytic guidelines is available elsewhere.¹³ The National Center for Health Statistics research ethics review board approved each data collection effort, and no additional review was required for this analysis.

Measures

•**Respondent characteristics.** Respondent files include information on age, race and ethnicity, income, health insurance coverage and number of live births. Race and ethnicity were self-reported. Income was self-reported and is represented as a percentage of the federal poverty level, calculated using U.S. Department of Health and Human Services poverty guidelines based on family size, state of residence and year of interview.¹⁴ Health insurance coverage was assessed by asking respondents if there was any time in the past 12 months during which they did not have coverage.

•**Marital status.** Demand satisfied by modern methods is traditionally calculated among women who are married or in a union (the latter defined as cohabiting with a male sexual partner).⁶ When data on married or cohabiting women are not available, the indicator may be calculated among unmarried, sexually active women. We calculated the indicator and its component measures for both groups.

Female respondents who were married or cohabiting with a male sexual partner at the time of the interview are referred to as “married” throughout this analysis. We considered unmarried females sexually active if they reported having had vaginal intercourse at least once in the prior month; this definition best aligned with the measure used to define current sexual activity in the DHS (sex within the previous 30 days).

•**Contraceptive prevalence.** We calculated two measures of contraceptive use: overall contraceptive prevalence and prevalence of modern method use. Respondents were asked about contraceptive use during the month of the interview and could list up to four methods. We used the NSFG recoded variables CONSTAT1–CONSTAT4, which include information on contraceptive use that month, history of sterilization operations (for female respondents and male partners), fecundity impairment (from surgical or nonsurgical causes) and current pregnancy status, and whether the respondent was currently seeking to get pregnant or had been pregnant within the previous 6–10 weeks. Contraceptive prevalence was defined as the percentage of women of reproductive age who reported using a method—whether most effective, moderately effective or less effective—intended to prevent pregnancy. (Less effective methods included withdrawal and periodic absti-

nence.^{6,15}) Women who were pregnant or seeking to get pregnant were included in the denominator only.

The prevalence of modern method use was based on reports of use of most effective, moderately effective or less effective methods, excluding withdrawal and periodic abstinence.⁶ The NSFG does not collect data on use of the lactational amenorrhea method, which SDG indicator 3.7.3 considers a modern method.⁶

•**Unmet need.** We calculated unmet need for family planning using the “revised” DHS definition, an algorithm that has been used since 1990.⁷ Unmet need is defined as the percentage of women of reproductive age who want to stop or delay childbearing and who are not using any contraceptive method. To calculate it, we needed to categorize women who were not using contraceptives by pregnancy and postpartum status, wantedness of recent pregnancy, fecundity impairment, wantedness of future children and expected timing of future births.* For detailed information on these steps and the NSFG variables used, see Appendix Figures 1 and 2 (Supporting Information). Statistical code is available upon request.

Unmet need is calculated among all women because it is designed to be a population-level estimate. The numerator consists of women with unmet need for limiting births and women with unmet need for spacing births. The first group comprises women not using a contraceptive who were currently pregnant or postpartum and had not wanted their current pregnancy or last birth at all, as well as women who were presumably fecund and wanted no more children. The second group comprises women not using a contraceptive who were currently pregnant or postpartum and had wanted their current pregnancy or last live birth to occur later than it did, as well as those who were presumably fecund and wanted their next or first child in two or more years, those who wanted a child (or another one) but were undecided about the timing, and those who were undecided if they wanted a child (or another).

Our calculation of unmet need deviated from the DHS algorithm because of differences in information collected in the two surveys. The algorithm categorizes women as infecund if they meet any of six criteria: They report having been married five or more years, having had no children in the past five years and never having used contraceptives; they reply “can’t get pregnant” to a question on wantedness of future children; they respond “menopausal/hysterectomy” to a question on reasons for not using contraceptives; they say that at least six months have elapsed since their last menstrual period and they are not experiencing postpartum amenorrhea (for last births up to 59 months ago); they respond “menopausal/hysterectomy” or “never menstruated” to a question on time since their last period;

or they report that their last period was before their last birth and that their last birth was at least five years ago. The NSFG did not capture the timing of the last menstrual period, so we could not identify women whose last period was six or more months ago, who had postpartum amenorrhea or whose last period had occurred before their last birth more than five years ago. Instead, we defined fecundity impairment on the basis of self-reported physical inability to get pregnant (e.g., menopause, ovulation problems, difficulty getting pregnant) and history of surgical procedures that left a woman sterile.

•**Demand satisfied by modern methods.** For the primary SDG indicator, demand satisfied by modern contraceptive methods, the numerator was women currently using a modern method, and the denominator was the sum of women currently using any method and women with an unmet need for family planning. This means that women who were pregnant or seeking to get pregnant could be included in the denominator depending on wantedness of their most recent pregnancy, but they were not included in the numerator because they were not using a contraceptive.

Analysis

Contraceptive prevalence, unmet need and demand satisfied by modern methods were estimated (with 95% confidence intervals) for women overall and after we stratified by age, race and ethnicity, income, health insurance coverage and number of live births using predictive margins from unadjusted logistic regression. Differences in estimates by respondent characteristics were assessed using t tests ($p < .05$) from these models; for each characteristic, the group with the highest contraceptive prevalence served as the reference category.

We also compared the estimates for married women with those from 94 other countries with recent (2010–2015) survey data (Appendix Table 1, Supporting Information).¹⁶ The majority of the comparison countries were less developed ones.¹⁷ We identified countries whose estimates of contraceptive prevalence and demand satisfied by modern methods were higher than the upper 95% confidence limit of the U.S. estimates, and whose estimates for unmet need were below the lower 95% limit of the U.S. estimate. We could not conduct similar comparisons for unmarried women because these measures have not been published and compiled for these women in other countries.

We conducted two analyses to assess how robust our estimates were to different analytic choices, employing an approach similar to that of previous sensitivity analyses of the revised measure of unmet need for family planning.¹⁸ The first sensitivity analysis reclassified a woman as infecund on the basis of both her self-reported infecundity and her partner’s reported infecundity. We did this because the DHS unmet need measure considered a woman infecund if she reported she “can’t get pregnant,” which she could answer on the basis of both her fecundity status and her partner’s.

*The 2011–2013 NSFG asked respondents when they expect their first or next child to be born. This is slightly different from the DHS question that asks when the respondent wants her next birth. However, we assumed that the two questions likely yielded the same response from most women.

The second sensitivity analysis reclassified 10% of women not using contraceptives who were presumably fecund as infecund, to overcome the limitation of the NSFG's not ascertaining the timing of the last menstrual period and possibly being unable to identify some women who were infecund. We chose to reclassify only 10% of these women because the NSFG includes a fairly rigorous assessment of infecundity status, and having information on timing of last menstrual period would presumably have added only marginally to our identification of infecund women.

All analyses were conducted with SAS 9.4 and SAS-callable SUDAAN 11.0, and accounted for the complex survey design and used the 2011–2015 sample weights of the NSFG.

RESULTS

Of the 11,300 female respondents in the analytic sample, 4,983 (53%) were married, and 2,484 (18%) were unmarried and sexually active; the remainder were unmarried and had not been sexually active in the month prior to the interview (Table 1). Compared with unmarried women, married women were more likely to be older, be white, have higher incomes and have had at least one live birth.

TABLE 1. Percentage distribution of U.S. women aged 15–44, by selected characteristics, according to marital and sexual activity status, National Survey of Family Growth, 2011–2015

Characteristic	Married (N=4,983)	Unmarried, sexually active (N=2,484)	Unmarried, not sexually active (N=3,833)
Age			
15–24	13.2 (0.7)	48.8 (1.5)	57.5 (1.4)
25–34	42.9 (0.9)	30.8 (1.3)	21.3 (1.1)
35–39	21.3 (0.8)	9.4 (0.8)	10.5 (0.9)
40–44	22.6 (0.9)	11.0 (1.0)	10.7 (0.8)
Race/ethnicity			
Hispanic	19.9 (1.4)	17.8 (1.4)	21.7 (1.8)
White	61.9 (1.5)	50.2 (1.9)	47.6 (1.8)
Black	8.0 (0.6)	23.2 (1.7)	18.3 (1.4)
Other†	10.2 (1.1)	8.8 (1.3)	12.4 (1.8)
Income as % of federal poverty level			
<150	31.9 (1.3)	47.8 (1.8)	48.0 (1.4)
150–299	26.5 (0.9)	24.8 (1.3)	24.8 (1.1)
300–399	13.5 (0.8)	10.5 (1.0)	10.5 (0.6)
≥400	28.2 (1.5)	16.9 (1.7)	16.8 (1.0)
Insurance coverage in last year			
Continuous	75.1 (1.2)	73.8 (1.3)	76.3 (1.1)
With gaps	11.5 (0.7)	12.9 (0.8)	11.4 (0.7)
None	13.4 (0.8)	13.3 (1.0)	12.3 (0.8)
No. of live births			
0	25.4 (1.1)	56.9 (1.7)	73.3 (1.2)
1	21.2 (0.7)	16.6 (1.2)	10.0 (0.7)
≥2	53.4 (1.0)	26.5 (1.3)	16.7 (1.0)
Total	100.0	100.0	100.0

†Includes American Indian, Alaska Native, Asian, Native Hawaiian and other Pacific Islander. Notes: The category of married women includes cohabiting individuals. Unmarried women were considered to be sexually active if they had had vaginal intercourse in the month preceding the interview. Percentages may not total 100.0 because of rounding. Figures in parentheses are standard errors.

Married Women

Among married women, 74% were currently using a contraceptive (Table 2). Contraceptive prevalence was lower among 25–34-year-olds than among 40–44-year-olds (70% vs. 78%), among blacks than among whites (68% vs. 75%), and among those who had had a gap in health insurance coverage in the past year than among those with continuous coverage (68% vs. 74%); it was also lower among those who had had no or one live birth than among those with two or more (60–65% vs. 84%).

Nine percent of married women had an unmet need for family planning. A higher unmet need was found among 15–24-year-olds than among 40–44-year-olds (14% vs. 9%), as well as among those with incomes less than 300% of the federal poverty level than among those at or above 400% of this level (10–11% vs. 7%). In addition, women who had had an insurance coverage gap in the last year had higher unmet need than did those with continuous coverage (13% vs. 9%), and those who had had no or one live birth had greater unmet need than did those who had had two or more (11–12% vs. 7%).

Some 80% of married women had their demand for family planning satisfied by modern methods. The demand satisfied by such methods was below 75% for only two subgroups: women aged 15–24 (73%, compared with 83% for 40–44-year-olds) and women who had had one live birth (70%, compared with 84% for those who had had two or more). In addition, women who had had no live births reported a lower level of demand satisfied by modern methods (76%) than did the reference group.

Unmarried Women

Eighty-five percent of unmarried women said they currently used contraceptives (Table 3). Contraceptive prevalence was lower among Hispanics and blacks than among whites (81–82% vs. 87%), among those with incomes less than 150% of the federal poverty level than among those at or above 400% of this level (82% vs. 89%), and among those who had had one live birth than among those reporting two or more (79% vs. 86%).

Eleven percent of unmarried women had an unmet need for family planning. Unmet need did not differ significantly by any of the respondent characteristics examined.

Some 82% of women had their demand satisfied by modern methods, and no subgroup scored below the 75% threshold for this measure.⁶ Women who had had one live birth were less likely than those who had had two or more to have their demand met with a modern method (76% vs. 86%).

Comparisons with Other Countries

Estimates of contraceptive prevalence and unmet need for family planning differ in several notable ways between married women in the United States and elsewhere (Figure 1; and Appendix Table 1, Supporting Information). While the United States had relatively high contraceptive prevalence

and low unmet need, five countries had contraceptive prevalence estimates higher than the upper 95% confidence limit for the United States (Ecuador, Thailand, Iran, Costa Rica and Vietnam), and 12 had unmet need estimates below the lower 95% confidence limit for the United States (Ukraine, Iran, Turkey, Vietnam, Thailand, Algeria, Belarus, Tunisia, Costa Rica, Cuba, Iraq and Russian Federation). Four countries had both higher contraceptive prevalence and lower unmet need than the United States (Thailand, Iran, Costa Rica and Vietnam).

The percentage of demand that was satisfied by modern methods ranged widely among the comparison countries. Seven countries had estimates that exceeded the upper 95% confidence limit for the United States (Thailand, Costa Rica, Cuba, Zimbabwe, Bhutan, Dominican Republic and El Salvador—Figure 2).

Sensitivity Analyses

The first sensitivity analysis, which used both respondent and partner infertility information in classifying women not using contraceptives as infertile, slightly lowered the unmet need estimate among married women because fewer of these women were presumed to be fertile. The revised estimate was 8.7% (95% confidence interval, 7.8–9.7%), as compared with 9.0% (8.1–10.0%) in the original estimate. This, in turn, slightly increased the estimate of the percentage of married women with demand satisfied by modern methods—from 79.8% (78.4–81.1%) to 80.1% (78.7–81.5%)—by decreasing the number of women included in the denominator. Estimates for unmarried women were the same (to one decimal place) as the original estimates because unmarried women were not asked about partner infertility in the NSFG.

The second sensitivity analysis, which reclassified 10% of presumably fertile women who were not using contraceptives or were pregnant or postpartum as infertile, slightly decreased the estimate for unmet need among married and unmarried women—to 8.4% (95% confidence interval, 7.5–9.3%) and 9.9% (8.3–11.9%), respectively. It slightly increased the estimate for demand satisfied by modern methods to 80.4% (79.0–81.7%) among married women and to 82.4% (79.9–84.7%) among unmarried women.

DISCUSSION

Overall, the United States has relatively high contraceptive prevalence, low unmet need for family planning and high demand satisfied by modern methods among both married and unmarried women. However, particularly among married women, some subgroups—younger women, minorities, women with low incomes, women who lack continuous insurance coverage and women who have had fewer than two live births—are especially likely to report poorer outcomes for these measures. Furthermore, 17 countries ranked higher than the United States on at least one of the three measures, including four that had both higher contraceptive prevalence and lower unmet need.

TABLE 2. Estimated contraceptive prevalence, unmet need for family planning and demand satisfied by modern methods among married U.S. women, by selected characteristics

Characteristic	Contraceptive prevalence	Unmet need	Demand satisfied by modern methods
All	73.8 (72.1–75.4)	9.0 (8.1–10.0)	79.8 (78.4–81.1)
Age			
15–24	72.8 (68.3–76.8)	13.8 (11.1–17.0)*	73.2 (68.2–77.7)***
25–34	70.4 (67.6–73.1)**	8.9 (7.5–10.5)	79.1 (76.7–81.3)
35–39	76.8 (73.4–79.9)	6.6 (5.0–8.5)	82.0 (78.2–85.2)
40–44 (ref)	78.0 (74.2–81.5)	8.9 (6.7–11.6)	82.9 (79.5–85.8)
Race/ethnicity			
Hispanic	72.8 (69.7–75.7)	9.8 (8.2–11.7)	79.0 (75.7–81.8)
White (ref)	75.4 (73.2–77.5)	8.5 (7.4–9.8)	80.8 (79.0–82.4)
Black	68.0 (62.1–73.4)*	10.8 (7.6–15.2)	75.9 (69.9–81.0)
Other†	70.4 (64.6–75.6)	9.1 (6.7–12.2)	78.4 (72.2–83.6)
Income as % of federal poverty level			
<150	72.5 (69.3–75.4)	11.0 (9.3–12.9)**	78.5 (75.4–81.3)
150–299	75.1 (71.7–78.2)	9.5 (7.7–11.7)*	79.6 (76.4–82.4)
300–399	74.8 (69.7–79.4)	8.9 (6.3–12.4)	81.7 (76.8–85.8)
≥400 (ref)	73.6 (69.7–77.1)	6.5 (4.9–8.5)	80.6 (77.1–83.7)
Insurance coverage in last year			
Continuous (ref)	74.0 (72.0–75.8)	8.8 (7.8–9.9)	80.3 (78.6–82.0)
With gaps	67.6 (62.9–72.0)**	12.8 (9.7–16.8)*	76.0 (71.2–80.3)
None	78.2 (73.9–82.1)	7.1 (5.2–9.8)	79.9 (75.7–83.4)
No. of live births			
0	64.7 (60.3–68.8)***	10.7 (8.6–13.2)**	75.9 (71.9–79.5)***
1	59.9 (55.7–63.9)***	11.9 (9.6–14.7)***	70.2 (65.6–74.5)***
≥2 (ref)	83.7 (81.5–85.6)	7.1 (6.2–8.2)	84.3 (82.5–86.0)

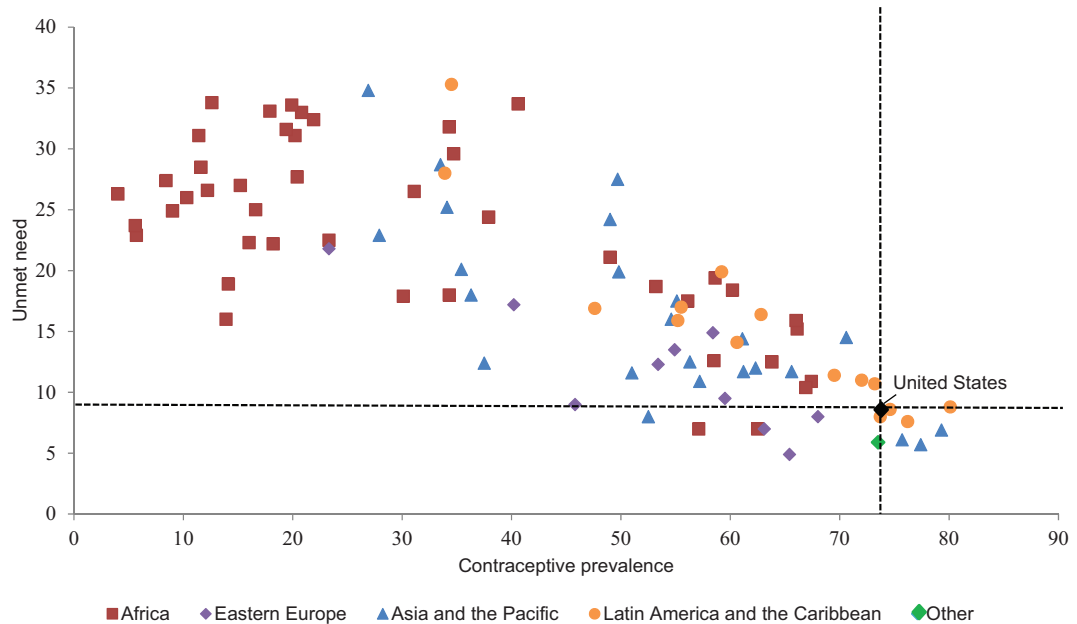
*p<.05. **p<.01. ***p<.001. †Includes American Indian, Alaska Native, Asian, Native Hawaiian and other Pacific Islander. Notes: Data are percentages (and 95% confidence intervals). ref=reference group.

TABLE 3. Estimated contraceptive prevalence, unmet need for family planning and demand satisfied by modern methods among unmarried U.S. women, by selected characteristics

Characteristic	Contraceptive prevalence	Unmet need	Demand satisfied by modern methods
All	84.5 (82.3–86.5)	10.5 (8.8–12.4)	81.9 (79.4–84.2)
Age			
15–24	84.3 (80.9–87.3)	12.2 (9.6–15.4)	81.3 (77.3–84.8)
25–34	85.8 (82.5–88.5)	8.6 (6.6–11.0)	81.3 (77.6–84.6)
35–39	85.8 (80.7–89.8)	7.1 (4.3–11.7)	86.2 (79.4–91.0)
40–44 (ref)	80.5 (70.7–87.6)	11.1 (5.5–21.1)	82.8 (72.2–89.9)
Race/ethnicity			
Hispanic	81.9 (76.2–86.4)*	12.3 (8.6–17.3)	79.7 (73.8–84.5)
White (ref)	87.2 (84.3–89.7)	9.5 (7.4–12.2)	83.7 (80.3–86.7)
Black	80.8 (76.7–84.4)*	11.0 (8.4–14.4)	80.9 (76.5–84.6)
Other†	84.0 (73.8–90.8)	11.0 (5.1–22.4)	78.6 (66.7–87.1)
Income as % of federal poverty level			
<150	81.5 (78.5–84.3)*	12.5 (10.1–15.3)	79.7 (76.3–82.8)
150–299	85.9 (81.7–89.3)	8.5 (5.9–12.0)	82.1 (77.2–86.1)
300–399	88.3 (82.1–92.5)	8.4 (5.0–13.9)	86.4 (79.7–91.1)
≥400 (ref)	88.5 (81.8–92.9)	9.0 (4.9–15.9)	84.9 (77.2–90.3)
Insurance coverage in last year			
Continuous (ref)	85.3 (80.6–85.3)	10.4 (8.4–12.7)	83.1 (79.9–85.9)
With gaps	79.2 (72.5–84.6)	13.5 (9.1–19.5)	75.6 (67.8–82.1)
None	80.7 (75.2–85.2)	8.2 (5.2–12.9)	81.3 (75.5–86.1)
No. of live births			
0	85.7 (82.8–88.3)	10.6 (8.3–13.4)	81.9 (78.4–85.0)
1	78.7 (72.8–83.5)*	12.8 (9.4–17.2)	75.5 (69.7–80.4)**
≥2 (ref)	85.5 (82.1–88.4)	8.8 (6.4–11.9)	85.9 (81.8–89.1)

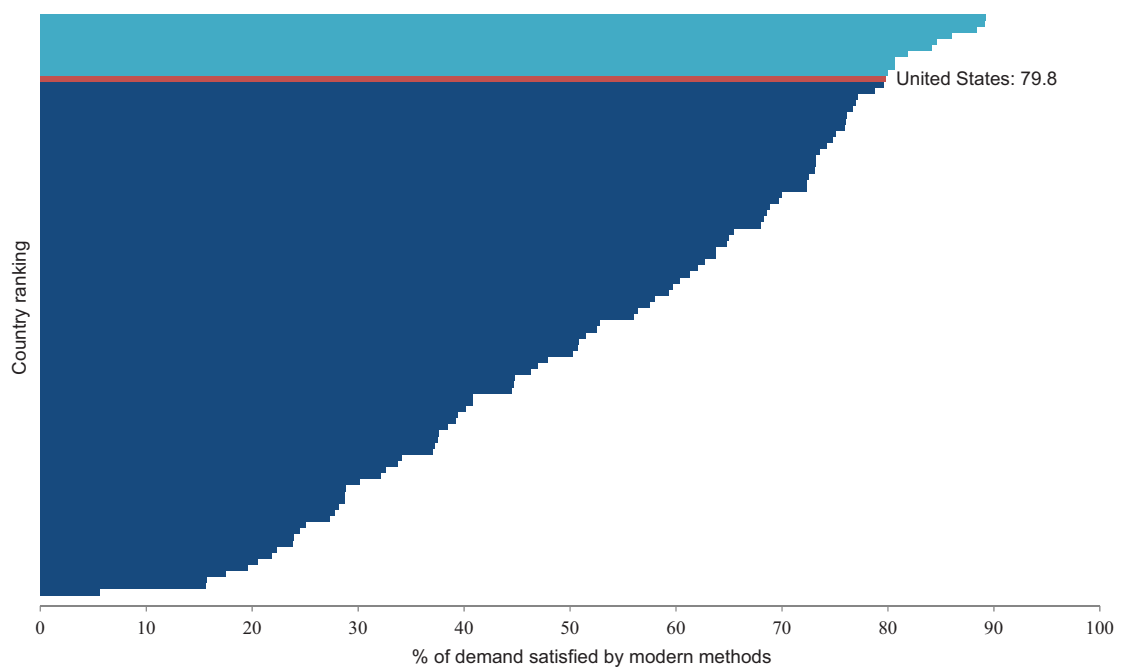
*p<.05. **p<.01. †Includes American Indian, Alaska Native, Asian, Native Hawaiian and other Pacific Islander. Notes: Data are percentages (and 95% confidence intervals). ref=reference group.

FIGURE 1. Contraceptive prevalence and unmet need for family planning among married women in the United States (2011–2015) and in 94 other countries (2010–2015)



Notes: Data are percentages. See Appendix Table 1 (Supporting Information) for estimates by country. Five countries had estimates for contraceptive prevalence higher than the upper 95% confidence limit for the United States: Ecuador (80.1%), Thailand (79.3%), Iran (77.4%), Costa Rica (76.2%) and Vietnam (75.7%). Twelve countries had estimates for unmet need lower than the lower 95% confidence limit for the United States: Ukraine (4.9%), Iran (5.7%), Turkey (5.9%), Vietnam (6.1%), Thailand (6.9%), Algeria (7.0%), Belarus (7.0%), Tunisia (7.0%), Costa Rica (7.6%), Cuba (8.0%), Iraq (8.0%) and Russian Federation (8.0%). Sources: U.S. estimates are based on data from the NSFG. Estimates for other countries are from various surveys and were compiled by the UN Population Division (reference 16).

FIGURE 2. Percentage of demand for family planning satisfied by modern methods among married women in the United States (2011–2015) and in 94 other countries (2010–2015)



Notes: See Appendix Table 1 (Supporting Information) for estimates by country. Seven countries had estimates for demand higher than the upper 95% confidence limit for the United States: Thailand (89.2%), Costa Rica (89.1%), Cuba (88.4%), Zimbabwe (86.0%), Bhutan (84.6%), Dominican Republic (84.1%) and El Salvador (81.9%). Sources: U.S. estimates are based on data from the NSFG. Estimates for other countries are from various surveys and were compiled by the UN Population Division (reference 16).

To our knowledge, one other study has generated estimates of contraceptive prevalence and unmet need for the United States and compared them with those from other countries.¹⁹ Using data collected from nationally representative surveys, Alkema et al. employed a Bayesian hierarchical model combined with country-specific time trends to generate these measures among married women in 194 countries. For the United States, input data on contraceptive prevalence (76%) and unmet need (8%) were obtained from 2006–2010 NSFG calculations. Unmet need was defined by a proxy measure (the percentage of women at risk of an unintended pregnancy not currently using a method of contraception) and was not based on applying the DHS algorithm to the NSFG individual-level data. The model-based estimates for contraceptive prevalence and unmet need for the United States in 2010 were 77% and 6%, respectively. However, a UN update for 2013 yielded model-based estimates of 74% for contraceptive prevalence and 7% for unmet need.²⁰ Our estimates (74% and 9%, respectively) were similar to the input data used by Alkema et al. and both sets of model-based estimates. Furthermore, our estimate for the demand satisfied by modern methods (80%) was similar to the input data compiled by the UN in 2016 (83%),¹⁶ as well as the model-based estimate for 2013 (85%).²⁰ Small differences between our findings and others could reflect that our analysis was based on more recent data than the UN estimates and that we applied the DHS algorithm to the NSFG individual-level data.

Unmet need has historically been calculated only for developing countries, and data are lacking to compare our estimate for the United States with ones for similar developed countries. Being able to do so would have provided better context for our estimate and allowed us to learn from countries with similar resources that may be outperforming the United States in contraceptive provision. The model-based estimates calculated by Alkema et al. showed that the U.S. estimate had overlapping confidence intervals with estimates from western European countries, suggesting no statistical differences.¹⁹ A study by Klijzing estimated unmet need in 10 developed countries in Europe (1991–1997) by applying an algorithm similar to the one we used and found that the majority of countries had unmet need below 10%, which is comparable to what we found for the United States.²¹

Consistent with our findings, Klijzing also found differences among the European women surveyed: Unmet need increased with age and with the number of live births, and was higher among married women than among those in less formal relationships.²¹ However, we found that married women, 15–24-year-olds and those with fewer than two live births had relatively high levels of unmet need. (Klijzing did not assess unmet need by income or insurance coverage, characteristics for which we found differences among married women.) Reasons for discrepancies between our results and Klijzing's include differences in time, geography and survey instrument; the survey he used ascertained only the latest age at which future children

were wanted (and not the earliest), and did not capture wantedness of the most recent pregnancy. Our findings on contraceptive prevalence by age and by race and ethnicity were generally consistent with those from a previous analysis of NSFG data showing that prevalence was lower among women aged 15–24 than among those 25 or older, and lower among Hispanics and blacks than among whites.²²

Both the U.S. and the global family planning communities have developed strategies to improve access to contraception, and sharing lessons learned may benefit all. For example, since 2010, the United States has seen expanded insurance coverage and a new requirement that family planning be covered as an essential preventive health service,²³ efforts to strengthen the quality of family planning care^{24–27} and steps to remove barriers such as the high cost of long-acting reversible contraceptive methods.^{28,29} Leaders in the global community have called for a transformation in the approach to family planning access to include quality services, but also to establish a robust performance measurement and accountability framework to track progress and identify barriers.³⁰ Moreover, there is a growing global discussion about how to successfully implement evidence-based guidance in family planning service delivery.³¹ By more fully engaging in global discussions, the United States could have the opportunity to both contribute to and benefit from lessons learned about how to meet women's and men's need for contraceptive services.

Performance measurement is critical to identifying subpopulations with low contraceptive prevalence and high unmet need, and improving health care delivery. Healthy People 2020 covers many aspects of family planning, including the new objective to increase women's use of contraceptive methods considered most or moderately effective. This focus on method effectiveness may be of interest to the global community in resolving the debate between traditional and modern methods, as the latter are associated with a decreased risk of unintended pregnancy,^{5,32} and nearly 90% of women seeking family planning services consider a method's effectiveness "extremely important."³³ Integrating the SDG indicators of unmet need and demand satisfied by modern methods into the Healthy People family planning objectives may also be worth considering, so that global comparisons can be made regularly, now that we have shown that these measures can be calculated using NSFG data.

Limitations and Strengths

Our study has several limitations. The NSFG included women aged 15–44, while most of the other representative surveys sampled women aged 15–49. Assuming that women aged 45–49 are more likely than younger women to be sterilized, including this broader age range would increase both contraceptive prevalence and demand satisfied by modern methods, and would decrease unmet need. Therefore, we may be overestimating unmet need and underestimating contraceptive prevalence and demand

satisfied by modern methods, but the extent of this potential misclassification is unclear. This discrepancy will be remedied in the future, as the NSFG expanded the age range of respondents to 15–49 beginning in September 2015.

Another limitation was that we were unable to compare our estimates with ones from similarly developed countries. Many of the differences we identified between the United States and other countries were small and may have been due to slight differences in how surveys measured contraceptive use and unmet need. In addition, we did not have international comparative data for unmarried women; such data would be helpful in the future, as premarital, noncohabiting sexual activity has become increasingly prevalent in the United States.^{8–11} Finally, we considered unmarried women sexually active if they reported having had vaginal intercourse at least once in the previous month; we thus did not estimate contraceptive measures for all unmarried women, including teenagers, who have sex less frequently.

One of the strengths of this study was our ability to calculate unmet need in the United States using a newly available variable on the expected timing of future children. We were also able to estimate three commonly used contraceptive measures among unmarried, sexually active women, a growing population in the United States.^{8–11} In addition, the NSFG includes a wide range of sociodemographic characteristics, which allowed us to identify subgroups who may benefit from increased access to the full range of contraceptive methods.

Conclusions

Levels of contraceptive use and unmet need in the United States are comparable to those in several low- and middle-income countries, and they vary among U.S. sociodemographic subgroups. There is a need to continue efforts to expand access to contraceptive care in the United States, and to monitor the SDG indicators so that improvement can be tracked. Ultimately, these efforts will advance the goal of helping women and individuals equitably achieve their desired number and spacing of healthy children through universal access to family planning services.

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