National Needs of Family Planning Among US Men Aged 15 to 44 Years

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Objectives. To estimate national need for family planning services among men in the United States according to background characteristics, access to care, receipt of services, and contraception use.

Methods. We used weighted data from the 2006–2010 National Survey of Family Growth to estimate the percentage of men aged 15 to 44 years (n = 10 395) in need of family planning, based on sexual behavior, fecundity, and not trying to get pregnant with his partner.

Results. Overall, 60% of men were in need of family planning, defined as those who ever had vaginal sex, were fecund, and had fecund partner(s) who were not trying to get pregnant with partner or partner(s) were not currently pregnant. The greatest need was among young and unmarried men. Most men in need of family planning had access to care, but few reported receiving family planning services (< 19%), consistently using condoms (26%), or having partners consistently using contraception (41%).

Conclusions. The need for engaging men aged 15 to 44 years in family planning education and care is substantial and largely unmet despite national public health priorities to include men in reducing unintended pregnancies. (*Am J Public Health.* Published online ahead of print February 18, 2016: e1–e7. doi:10.2105/AJPH.2015.303037)

Unintended pregnancy rates in the United States are high, especially among adolescents and young adults.[1] Pregnancy prevention efforts have typically focused primarily on women, with few programs addressing family planning with men. Although measures of need for pregnancy prevention are described for US women[2,3] this approach has not been conducted for men. One recent study that used this approach found that 40% of US men aged 35 to 39 years are in need of family planning.[4] Although this study provides preliminary insight into male need for family planning, it is limited by a narrow age range and therefore provides a partial estimate of reproductive-aged males' need for family planning. The National Survey of Family Growth (NSFG) is a unique data set for examining family planning needs among a wider age range of men (15–44 years). Strategies to meet men's family planning education and care needs necessitate a better understanding of the prevalence of men in need of family planning and factors associated with this need. Consistent measurement and tracking of men in need of family planning can assist in meeting public health goals such as the *Healthy People 2020* objective to increase family planning service use among men.[5]

In 2013, estimates for women indicated that 56% of reproductive-aged US women were in need of family planning, which is defined as sexually active, fecund, and not pregnant or trying to get pregnant.[3] From 2000 to 2013, need for family planning has increased among both female adolescents (aged < 20 years) and young adults (aged 20–29 years).[3] No similar estimates of levels of need or trends over time exist for men. The measure for women has been used to identify the magnitude of need for publicly funded contraceptive services by state and federal region.[3] It has also been used to highlight the inadequacy of current service provision by publicly funded clinics; only 42% of need for publicly funded contraceptive services was met in 2013.[3] An alternate measure of unmet need for family planning widely used for women—defined as the proportion of women desiring to delay or stop childbearing and not using a contraceptive method—has long been a standard indicator in developing country contexts and has been applied to the United States.[6] No similar national estimates of men's met or unmet need for family planning services in the United States have been examined or proposed.

The limitations of excluding men from measures of need for family planning have been recognized in previous work that applied modified definitions of unmet need to men and to couples in developing countries.[7] Unmet need for family planning among men has not been widely studied in the United States. Previous work has found that among men aged 35 to 39 years in need of family planning, the majority are not using condoms and have a partner who is not using hormonal contraception.[4] Research on need met through family planning service provision for

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men in the United States is lacking. Despite the dearth of research in this area, previous work indicates that men are concerned about preventing pregnancy, talk with their partners about fertility intentions, and are involved in pregnancy prevention.[8–10]

Understanding the correlates of male individuals' need for family planning can provide important guidance for program planning and strategies to improve education and access to health care. Previous work on understanding men in need of family planning has focused mainly on adolescents and young adults.[11,12] Analysis of the National Survey of Adolescent Males demonstrates that even men in their mid-30s are in need, and that need for family planning varies by marital status, partner age, and sexually transmitted infection (STI) risk.[4] Previous research indicates that few men have discussed contraception with a health care provider but almost all are willing to have the conversation in the clinical setting.[13] Recent analysis of 2006–2008 NSFG data indicates that only 12% of men aged 15 to 44 years received birth control services in the previous year,[14] but this estimate includes men who may not be in need of family planning for a variety of reasons ranging from infecundity to actively seeking pregnancy. Until now there have been no national US estimates of the percentage of men aged 15 to 44 years, commonly targeted in reproductive health research, who are in need of family planning. These estimates could help to refine the evaluation of the *Healthy People 2020* objective that recognizes the need to engage men in addressing unintended pregnancies.[5]

The current analysis addresses gaps in our understanding of male individuals' family planning needs and expands previous work to estimate the percentage of US men aged 15 to 44 years in need of family planning overall and by their background characteristics, access to care, receipt of services, and use of contraceptive methods by using the 2006–2010 NSFG, a nationally representative household-based survey.

METHODS

We analyzed data from the male survey of the NSFG 2006–2010. The NSFG employed an area probability sampling framework that oversampled Black, Hispanic, and adolescent respondents and its survey design and sampling procedure are described elsewhere.[15] Data were collected via computer-assisted personal interviewing (CAPI) and for more sensitive information via audio computer-assisted self-interviewing (ACASI). The final analytic sample for this analysis consisted of 10 395 male participants aged 15 to 44 years who had complete data for measures on sexual behavior and excluded 8 participants who responded "don't know" or refused on these measures.

Study Measures

Measures used in this analysis came mainly from data collected in the CAPI; when used, ACASI measures are specified.

Need for family planning. We defined men in need of family planning, informed by previous work in this area with men[4] and measures for women,[3] as those who ever had vaginal sex, were fecund, and who had partner(s) who were fecund, not trying to get pregnant, and not currently pregnant. This measure considers men with multiple sexual partners and the fecundity of all partners when men report having multiple partners.

Sexual behavior. We assessed a sexual behavior status measure by categorizing participants as engaging in vaginal sex in the past year, vaginal sex but not in the past year, sexual behavior with male partners only, and never sexually experienced on the basis of responses to the following questions: "Have you ever had (vaginal) sexual intercourse with a female?" or "Have you ever put your penis in a female's vagina (also known as vaginal intercourse?)"; (measured by ACASI among 16 participants with missing CAPI data), oral or anal sexual behavior with male partners (measured by ACASI), and dates of most recent sexual intercourse with most recent female partners. We coded men categorized as engaging in vaginal sex in the past year or vaginal sex but not in the past year as ever had vaginal sex.

We assessed male participants' fecundity status by participants' response to "Have you ever had a vasectomy or any other operation that makes it impossible for you to father a child?" or "As far as you know, is it physically possible for you to biologically father a child in the future?" and coded as fecund or not.

We assessed partner fecundity status by using similar measures as assessed for male participants and based on responses to participant's wife's or cohabiting female partner's sterilization status and inability to have children and on partner(s)' sterilization status for up to most recent 3 other nonunion partners, and coded as having any fecund partner or not.

We assessed trying to get pregnant by participants' response to "Are you and [partner] currently trying to get pregnant?" and coded as currently trying to get pregnant or not.

We assessed partner's pregnancy status by participants' response to "Is your (wife/partner) pregnant with your child now?" and asked of participants with wives or cohabiting partners and past 3 sexual partners, and coded as partner currently pregnant or not.

Background characteristics. Background characteristics included self-reported age, race/ethnicity, urbanicity, current school status, employment status, poverty level (based on definitions by the US Census Bureau annual poverty threshold[16]), and recent immigrant status based on responses that they were not born in the United States and not living in the United States on April 1, 2000. Other background characteristics included current union status (married, cohabiting, or not in a coresidential union), number of biological children, and high STI risk based on affirmative responses to any of the following: had 3 or more sexual partners in the past year, ever had sex with someone they had just met, sex with men, sex with an injecting drug user(s), exchanged sex for drugs or money, or sex with an HIV-infected partner.

Health care access and receipt of services. Health care access included whether participants had a usual place to go when they were sick or needed advice about health and health insurance (either private or public) in the past year.

We assessed health service receipt in the past year for the following: physical examination, STI test, HIV test (not including blood donation), family planning clinic visit, and advice from a doctor about STIs, HIV, and contraception.

Contraception use. We assessed condom use in the past year by participants' reports on

condom use for each current partner in the past year and averaged across all partners. This average score was then categorized and coded as condom use in the past year all (100%), some (1%–99%), or none (0%) of the time.

We assessed partner contraception use with partner(s) in the past year by participants' reports on partner use of any contraception method (e.g., pill, injection, hormonal implant patch, ring, intrauterine device, coil, loop) for each current partner in the past year and for method use with up to the most recent 3 noncurrent partners at most recent sex in the past year. We created a composite score that coded participants' responses as all partners used a contraceptive method or not.

Data Analysis

We weighted all frequencies and statistical analyses on the basis of the study design and sampling procedure.[15] First, we generated frequencies classifying men in need of family planning or not in need (Table 1). We then conducted frequencies and cross-tabulations to examine participants' background characteristics in general and by need measure by using bivariate Poisson analyses to assess associations (Table 1). We applied Poisson analyses to calculate a relative risk (RR) because odds ratios overestimate RR when the outcome event is common (incidence of ≥ 10%).[17] Given the relatively large sample size, we used stringent criteria ($P < .001$) to determine statistical significance for these analyses.

Next, to explore family planning needs from a developmental perspective, we conducted weighted cross-tabulations to generate the percentage of men in need of family planning within each age group by current union type and sexual behavior status (Table 2). Among men in need of family planning, we generated frequencies of access to care and service receipt (Table 3). Finally, among men in need of family planning engaged in heterosexual behavior in the past year, we generated frequencies of condom use and partner contraceptive method use with all partners in the past year (Table 4). We conducted bivariate Poisson analyses to examine associations between each participant characteristic with 100% versus less than 100% condom use and partner contraception method use with all partners versus no method use or use with less than all partners, respectively. We prepared data with SPSS version 19.0 (IBM, Somers, NY) and analyzed the data with Stata version 12.0 (StataCorp LP, College Station, TX).

RESULTS

Among men aged 15 to 44 years, about 60% were in need of family planning (Table 1). Among men who engaged in heterosexual behavior in the past year, about 69% were in need. The percentage of men in need of family planning varied by age, race/ethnicity, urbanicity, work and school status, current union type, parity, and high STI risk (all $Ps \leq .001$) but not by recent immigrant status or percentage poverty level. Specifically, a higher percentage of men in need of family planning were aged 20 to 29 years than younger or older; non-Hispanic Black and Hispanic than non-Hispanic White or other race/ethnicity; living in urban than nonurban areas; working regardless of school status or not working and not in school than not working and in school; cohabiting and not in a coresidential union versus married; with no or 1 child than 2 or more children; and with high STI risk than no risk.

Examination of men in need of family planning from a developmental perspective demonstrated that among all sexually experienced men, need for family planning declined with increasing age regardless of current union status (Table 2). Across all age groups and sexual behavior categories, a higher percentage of men not in a coresidential union were in need of family planning than married or cohabiting men. Still, the majority of married men aged 20 to 34 years and cohabiting men aged 15 to 39 years were in need of family planning.

Among all men in need of family planning, the majority reported having a usual source of care (70%) and insurance coverage in the past year (72%; Table 3). Almost half had a physical examination in the past year (45%). Regarding service receipt in the past year, 19% reported having an STI test, 15% an HIV test, and 7% a family planning clinic visit, and provider counseling receipt in the past year was reported by 11% for STIs, 11% for HIV, and 10% for contraception.

Among men in need of family planning who engaged in vaginal sex in the past year, about one third each reported condom use none of the time (34%) and some time (36%), respectively, and about one quarter all the time (26%; Table 4). The majority reported contraception use by none of their partners (59%); 41% reported contraception use by all partners.

Among men in need of family planning, consistent condom use varied by men's age, work and school status, union status, and parity but not by other background characteristics. Specifically, condom use all the time was more likely among men aged 15 to 19 years (RR = 2.31; 95% confidence interval [CI] = 1.94, 2.75) and 20 to 24 years (RR = 1.40; 95% CI = 1.15, 1.71), respectively, and less likely among men aged 30 to 34 years (RR = 0.73; 95% CI = 0.58, 0.93) compared with men aged 25 to 29 years; less likely among men working and in school (RR = 0.62; 95% CI = 0.51, 0.76), working and not in school (RR = 0.44; 95% CI = 0.38, 0.52), and not working and not in school (RR = 0.58; 95% CI = 0.46, 0.72), respectively, than those not working and in school; more likely among men not in a coresidential union than married (RR = 3.07; 95% CI = 2.54, 3.72); and less likely among men with 1 child (RR = 0.42; 95% CI = 0.34, 0.52) and 2 or more children (RR = 0.36; 95% CI = 0.29, 0.45) than no children.

Among men in need of family planning, contraceptive use by all partners varied by men's age, race/ethnicity, work and school status, union status, and high STI risk but not by other background characteristics. Specifically, partner contraceptive use was less likely among men aged 15 to 19 years (RR = 0.71; 95% CI = 0.58, 0.87 and RR = 0.71; 95% CI = 0.60, 0.83) and men aged 40 to 44 years (RR = 0.72; 95% CI = 0.56, 0.92 and RR = 0.71; 95% CI = 0.57, 0.90) than men aged 20 to 24 years and 25 to 29 years, respectively; less likely among non-Hispanic Black (RR = 0.55; 95% CI = 0.48, 0.63), Hispanic (RR = 0.74; 95% CI = 0.64, 0.86), and other race/ethnicity men (RR = 0.50; 95% CI = 0.37, 0.66) than non-Hispanic White men; and more likely among Hispanic men (RR = 1.34; 95% CI = 1.13, 1.59) than non-Hispanic Black men; less likely among men not working and not in school (RR = 0.78; 95% CI = 0.66, 0.92) than those

TABLE 1—Characteristics of Participants in Study of US Men Aged 15–44 Years in Need of Family Planning: National Survey of Family Growth, 2006–2010

Background Characteristics	Total Distribution No.[a] (Weighted %)	Men in Need by Background Characteristic (n = 6657)	
		Weighted %	RR (95% CI)[b]
In need of family planning	6657 (60.3)	100.0	. . .
Sexual behavior status			
Vaginal sex in past year	7799 (78.9)	69.1	. . .
Vaginal sex but not in past year	834 (6.5)	89.1	. . .
Never sexually experienced	1629 (13.5)	. . .	. . .
Sexual behavior with male partners only	133 (1.1)	. . .	. . .
Age			
15–19	2375 (17.4)	40.9	0.54 (0.50, 0.59)
20–24	1731 (16.7)	75.8	1 (Ref)
25–29	1806 (17.3)	78.6	1.04 (0.96, 1.12)
30–34	1554 (14.9)	64.0	0.84 (0.77, 0.93)
35–39	1500 (16.8)	55.6	0.73 (0.66, 0.81)
40–44	1429 (17.0)	47.5	0.63 (0.56, 0.70)
Race/ethnicity			
Non-Hispanic Black	1853 (12.5)	67.4	1.16 (1.09, 1.24)
Non-Hispanic White	5442 (62.0)	57.9	1 (Ref)
Hispanic	2408 (19.1)	64.5	1.11 (1.05, 1.19)
Other	692 (6.5)	57.1	0.99 (0.90, 1.09)
Urbanicity			
MSA—central city	4334 (32.9)	65.8	1 (Ref)
MSA—suburban	4559 (47.1)	59.0	0.90 (0.85, 0.95)
Non-MSA	1502 (20.0)	54.3	0.82 (0.76, 0.90)
Work/school status			
Working and in school	1365 (13.0)	60.4	1.43 (1.28, 1.60)
Working and not in school	5910 (62.8)	63.2	1.50 (1.39, 1.62)
Not working and in school	1829 (14.1)	42.2	1 (Ref)
Not working and not in school	1291 (10.1)	66.9	1.59 (1.43, 1.76)
Percentage poverty level			
< 100%	2022 (16.7)	57.2	0.92 (0.83, 1.01)
100%–132%	909 (7.6)	61.8	0.99 (0.89, 1.11)
133%–184%	1135 (10.1)	54.9	0.88 (0.78, 0.99)
185%–249%	1318 (12.7)	62.3	1 (Ref)
≥ 250%	5011 (53.0)	61.6	0.99 (0.91, 1.08)
Current union status			
Married	2824 (37.6)	50.8	1 (Ref)
Cohabiting	1084 (12.2)	68.3	1.35 (1.24, 1.46)
Not in a coresidential union	6487 (50.2)	65.5	1.29 (1.20, 1.39)
Recent immigrant[c]			
No	9809 (94.7)	60.1	1 (Ref)
Yes	586 (5.3)	63.8	1.06 (0.97, 1.16)
Number of children			
0	6426 (55.2)	62.3	1.23 (1.14, 1.33)
1	1528 (15.8)	70.5	1.39 (1.27, 1.52)
≥ 2	2441 (29.0)	50.8	1 (Ref)

Continued

working and not in school; more likely among men cohabiting (RR = 1.52; 95% CI = 1.34, 1.73) and married (RR = 1.39; 95% CI = 1.24, 1.56) than not in a coresidential union; and less likely among men with high STI risk (RR = 0.39; 95% CI = 0.33, 0.47) than no risk.

DISCUSSION

We found that the majority of men aged 15 to 44 years were in need of family planning. Being in need was prevalent among almost every sample subgroup although certain groups have greater need than others. Specifically, men with high STI risk and men not in a coresidential union (when age is controlled) have greater need, which is consistent with previous work.[4] Men in need of family planning were found to have health care access but few received related services including contraception advice or STI or HIV testing or advice. The majority of men in more immediate need were not consistently using condoms themselves, nor were their partners consistently using contraception. Furthermore, the majority of men in need were not counseled on contraception methods. These findings have critical implications for involving men in education and services for family planning in the United States.

Findings from this analysis expand upon previous work in this area that described men aged 35 to 39 years in need of family planning by examining a wider age range of men and providing national estimates.[4] This approach should be used to track men in need of family planning over time along with estimating female need for family planning.[3] Similar approaches that are used for holistic program planning and resource allocation for family planning education and services among women should be expanded to include men.[3] Future work should also explore disparities in care receipt among men in need of family planning by age, race/ethnicity, and other sociodemographic characteristics and understand how best to define met need for men individually and in the context of partnerships. Finally, this approach can provide an appropriate denominator for assessing the reach of programs focused on men's need for family planning.

TABLE 1—*Continued*

High STI risk[d]			
No	8495 (85.0)	56.3	1 (Ref)
Yes	1910 (15.0)	83.1	1.48 (1.41, 1.55)

Note. CI = confidence interval; MSA = metropolitan statistical area; RR = relative risk; STI = sexually transmitted infection. The sample size was n = 10 395.

[a]Unweighted no.

[b]Data represent unadjusted RRs and 95% CIs from separate bivariate Poisson regression models examining the association between participants' background characteristics with being in need of family planning.

[c]Recent immigrant defined as not born in the United States and living in the United States on April 1, 2000.

[d]Defined as having had ≥ 3 sexual partners regardless of partners' gender, sex with someone they had just met, sex with men, sex with an injecting drug user(s), exchanged sex for money or drugs, or sex with an HIV-infected partner.

We found that the majority of sexually active men in need of family planning were not consistently using condoms themselves, nor were their partners consistently using contraception. Furthermore, the majority of these men were not counseled on contraceptive methods. Whereas some programs in other countries have focused on engaging men or couples in family planning,[18–20] few such programs have been documented in the United States. The recent Providing Quality Family Services guidance by the Office of Population Affairs and Centers for Disease Control and Prevention addresses some of these gaps in its recommendation that clinicians engage men in contraceptive counseling and services and encourage men to communicate about contraception with their partners.[21]

Although effective clinical-based interventions exist for women,[22] comparable approaches with men have not been and are not currently being evaluated.[23,24] Many women are interested in family planning services that include their male partner[25]; thus, one strategy is to increase family planning services to couples. Mandating coverage for vasectomy and condoms for males is another approach to engage men in family planning that was missed by the Affordable Care Act.[26] Increased intrauterine device and contraceptive implant coverage under the Affordable Care Act may contribute further to the recent increases in use of these highly effective methods.[27] This can provide another opportunity to engage men in supporting partners to use these methods, especially given that contraceptive use is improved when partners are involved together.[28,29] Future work on specific partner contraceptive type and consistency of method use may provide additional insight into how best to meet men's need for family planning, particularly as use of long-acting methods increases.

The current study describes that, among men at high STI risk, more than 80% were also in need of family planning. These findings are consistent with previous work on men in need of family planning[4] and studies that report overlapping risk of unintended pregnancy and STIs.[30,31] Strategies are needed to improve dual delivery of family planning and STI services as recommended in the Providing Quality Family Services guidance.[21] Although some limited programs have successfully integrated contraceptive services with STI and family planning provision,[32] additional efforts are needed to efficiently reach men who are in need of both.

Study findings point to potential strategies for reaching men in need of family planning in general and targeted approaches for those or their partners who are also in need of contraceptive services. Strategies to consider may include workplace approaches, targeting men not working and not in school in community settings, and innovative approaches to reach men not in coresidential unions (e.g., using social media, dating apps). Related interventions, including those for HIV prevention and care[33] and family planning interventions targeting women,[34] have successfully made use of social media.

This analysis is limited because of the cross-sectional nature of the data. The associations identified here should not be interpreted as causal, but rather as identification of sociodemographic markers for individuals who are more likely to be in need of family

TABLE 2—Weighted Percentage of US Men Aged 15–44 Years in Need of Family Planning by Age Group, Vaginal Sex in Past Year, and Current Union Status: National Survey of Family Growth, 2006–2010

	Vaginal Sex in Past Year by Current Union Status			Vaginal Sex But Not in Past Year, Not in a Coresidential Union, % (No.)[a]
Age Group	Married, % (No.)[a]	Cohabiting, % (No.)[a]	Not in a Coresidential Union, % (No.)[a]	
15–19 y	. . .[b]	83.4 (41/54)	97.9 (890/914)	96.9 (118/121)
20–24 y	69.3 (111/154)	80.2 (175/216)	97.9 (971/989)	99.2 (125/127)
25–29 y	69.0 (337/508)	75.9 (241/316)	95.2 (710/755)	98.8 (121/124)
30–34 y	55.3 (409/710)	66.1 (146/217)	84.9 (402/462)	95.0 (96/101)
35–39 y	47.7 (359/728)	56.4 (83/147)	80.0 (360/426)	87.3 (134/148)
40–44 y	36.8 (266/683)	47.7 (63/128)	78.8 (316/387)	79.6 (145/171)

Note. The sample size was n = 10 395.

[a]Unweighted no.

[b]Not reported because this value does not meet standards of reliability or precision

TABLE 3—Weighted Percentage of Men in Need of Family Planning With Health Care Access and Receipt of Services: National Survey of Family Growth, United States, 2006–2010

Characteristic	No.[a] (Weighted %)
Health care access	
Usual source of care	4466 (69.8)
Health insurance in past year	4622 (71.7)
Receipt of services in past year	
Physical examination	3017 (44.8)
STI test	1434 (19.2)
HIV test[b]	1108 (14.8)
Family planning clinic visit	553 (7.1)
Advice from doctor about STIs	874 (10.8)
Advice from doctor about HIV	861 (10.6)
Advice from doctor about contraception	564 (9.9)

Note. STI = sexually transmitted infection. The sample size was n = 10 395.
[a]Unweighted no.
[b]Does not include blood donation.

planning services. For example, this analysis explored the association between the number of biological children and need; future work should examine the association between all children (including nonbiological children) and role of blended families with need. In addition, there are some limitations relating to the measure of family planning need. Pregnancy intentions have been shown to be multidimensional.[35] The measure of need for family planning does not take into account this multidimensionality, or the ambivalence in pregnancy intentions that is prevalent and associated with nonuse of contraception among women.[36] The measure of partner contraceptive use may also be limited because NSFG does not measure well consistency of use with current and noncurrent partners. Offsetting these limitations is the study's use of a nationally representative sample of men aged 15 to 44 years to examine men in need of family planning.

Reducing unintended pregnancies including adolescent pregnancy is a national priority and involving men in this strategy is a critical step. This study provides baseline estimates of US men aged 15 to 44 years in need of family planning that can be used to monitor the nation's effort to provide needed contraceptive services to this overlooked population. AJPH

TABLE 4—Consistent Condom and Partner Contraception Use in Past Year Among Men in Need of Family Planning Who Engaged in Vaginal Sex in Past Year: National Survey of Family Growth, 2006–2010

Method Use in Past 12 Months	No.[a] (Weighted %)
Condom use with all partners[b]	
None of the time (0%)	1745 (34.2)
Some of the time (1%–99%)	2212 (36.0)
All of the time (100%)	1651 (26.0)
Contraception used by all partners[c]	
No	3626 (58.7)
Yes	2232 (40.9)

Note. The sample size was n = 5883.
[a]Unweighted no.
[b]Missing data = 275 cases (3.9%).
[c]Missing data = 25 cases (0.4%).

CONTRIBUTORS

The corresponding author confirms full access to all aspects of the research and writing process, and takes final responsibility for the article. Each of the authors has participated sufficiently in the work to take responsibility for the content and is willing to provide any relevant data upon request. A. V. Marcell, I. Choiriyyah, F. L. Sonenstein, N. M. Astone, J. H. Pleck, and J. K. Dariotis participated in the concept and design. A. V. Marcell, Gibbs, I. Choiriyyah, F. L. Sonenstein, N. M. Astone, J. H. Pleck, and J. K. Dariotis participated in the analysis and interpretation of data. All authors participated in the drafting or revising of the article, and have approved the article as submitted.

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HUMAN PARTICIPATION PROTECTION

Secondary data analysis was approved by Johns Hopkins University's human participant research board.

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