



## Adolescent health brief

## Condom Use at First Vaginal Intercourse Among Adolescents and Young Adults in the United States, 2002–2017

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Article history: Received October 17, 2019; Accepted March 18, 2020

Keywords: Condom use; Contraceptive use; Adolescents; Young adults; Intercourse; NSFG

## A B S T R A C T

**Purpose:** The purpose of this study was to describe trends in vaginal intercourse (VI) and condom use during first VI from 2002 to 2017 among never-married 15- to 24-year-olds in the United States.**Methods:** Data come from the National Survey of Family Growth. We used logistic regression and Stata's *margins* package to estimate the percentage reporting VI and condom use at first VI and to conduct statistical comparisons across time.**Results:** VI was stable for 20- to 24-year-old men, but their condom use increased after 2002. For 15- to 19-year-old men, VI declined after 2011–2015 but condom use increased (83%). Among women, the overall percentage reporting VI and partner's condom use was stable, despite a significant increase in condom use among 15- to 19-year-olds between 2006–2010 and 2011–2015 (69%–75%).**Conclusions:** Condom use at first intercourse increased among young men, but a similar pattern was not observed for young women. Understanding why is crucial to the formulation of strategies to increase condom uptake.

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IMPLICATIONS AND  
CONTRIBUTION

Using national data on adolescents and young adults in the United States, this study found that, among men but not women, condom use at first vaginal intercourse increased since 2002. Research is needed to identify the reasons behind this change.

Sexually transmitted diseases (STDs) remain a significant public health problem in the United States, one that is disproportionately concentrated among adolescents and young adults (AYAs). Although reducing STD incidence among AYAs has been a public health objective over the past decade [1], diagnoses among 15- to 24-year-olds continue to increase [2]. Strategic initiatives have focused on structural remedies, such as reducing barriers to STD treatment and facilitating HPV vaccine uptake [1], but increased condom use is critical to preventing STD transmission among sexually active AYAs [3,4].

Past reports describe condom use at first and most recent vaginal intercourse (VI) and ever-use by 15- to 19-year-olds [5]

and 15- to 44-year-olds [6] using data from the National Survey of Family Growth (NSFG) through 2011–2015. We use the most recent NSFG release to extend the knowledge base forward to the 2015–2017 period. Although STDs spread through multiple behaviors [4], we describe two aspects of transmission: the percentage of AYAs with VI experience and the percentage using condoms at first VI. Unlike prior work, we focus on the group most at risk of STD infection, 15- to 24-year-olds [2]. Information on changes in their prevalence of VI and condom use is essential for future research on their sexual and reproductive health and for policy makers working to increase condom uptake.

## Methods

We use data from never-married 15- to 24-year-old respondents from the 2002, 2006–2010, 2011–2015, and 2015–2017 NSFG to describe trends in vaginal intercourse and male

**Conflicts of interest:** The authors have no conflicts of interest to disclose.

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**Table 1**

Vaginal intercourse experience and condom use at first vaginal intercourse among never-married females aged 15 to 24 years, NSFG 2002–2017

All females, 15–24	2002	2006–2010	2011–2015	2015–2017
Weighted N (in thousands)	16,748	18,480	18,170	17,858
Unweighted N	2,094	3,968	3,624	1,527
Had first intercourse	60.9 (57.9, 63.9)	60.1 (56.6, 63.6)	62.4 (59.8, 65.0)	61.3 (56.9, 65.4)
Condom use	65.7 (62.5, 68.9)	69.4 (66.5, 72.1)	68.8 (65.7, 71.7)	66.0 (60.8, 70.7)
Condom alone	46.2 (43.0, 49.5)	<b>52.4<sup>a</sup> (49.5, 55.3)</b>	49.2 (46.2, 52.2)	<b>46.4<sup>b</sup> (42.1, 50.8)</b>
Condom + other method <sup>d</sup>	18.6 (16.4, 21.1)	16.6 (14.6, 18.8)	19.4 (17.0, 21.9)	19.3 (15.1, 24.3)
Females, 15–19				
Weighted N (in thousands)	9,598	10,361	9,385	9,392
Unweighted N	1,123	2,255	2,028	915
Had first intercourse	45.5 (41.8, 49.1)	42.6 (39.3, 46.1)	42.4 (38.8, 46.1)	41.6 (35.7, 47.7)
Condom use	67.6 (63.4, 71.5)	68.6 (64.4, 72.4)	<b>74.6<sup>a,b</sup> (70.9, 78.1)</b>	<b>64.0<sup>c</sup> (54.4, 72.5)</b>
Condom alone	48.8 (44.0, 53.6)	51.9 (47.3, 56.4)	53.0 (48.7, 57.3)	45.3 (36.4, 54.6)
Condom + other method <sup>d</sup>	17.8 (14.1, 22.2)	16.4 (13.5, 19.7)	21.1 (17.6, 25.0)	18.6 (13.3, 25.5)
Females, 20–24				
Weighted N (in thousands)	7,151	8,119	8,785	8,466
Unweighted N	971	1,713	1,596	612
Had first intercourse	81.7 (77.5, 85.3)	82.5 (77.5, 86.5)	83.8 (81.1, 86.2)	83.1 (76.4, 88.1)
Condom use	64.4 (59.6, 68.8)	70.0 (66.3, 73.4)	65.6 (61.3, 69.7)	67.1 (61.1, 72.5)
Condom alone	44.3 (39.7, 49.1)	<b>52.8<sup>a</sup> (49.1, 56.4)</b>	<b>47.1<sup>a</sup> (43.2, 51.1)</b>	47.0 (41.6, 52.5)
Condom + other method <sup>d</sup>	19.2 (16.6, 22.2)	16.8 (14.2, 19.7)	18.4 (15.3, 22.0)	19.6 (14.7, 25.7)

Values are weighted percentages (95% CIs). Boldface indicates statistical significance.

CI = confidence interval; NSFG = National Survey of Family Growth.

<sup>a</sup> Significantly different from 2002 ( $p \leq .05$ ).<sup>b</sup> Significantly different from 2006 to 2010 ( $p \leq .05$ ).<sup>c</sup> Significantly different from 2011 to 2015 ( $p \leq .05$ ).<sup>d</sup> Includes condom use in combination with any of the following methods: IUD, injectable, implant, pill, patch, ring, and withdrawal.

condom use at first vaginal intercourse (examined as any condom use [females are reporting on their male partner's condom use], condom use alone, and condom use in conjunction with another method of contraception [Consistent with previous studies [7], other contraceptive methods include intrauterine

device (IUD), injectable, implant, pill, patch, ring, and withdrawal.]; referred to as condom-alone and condom-plus, respectively). Additional information about the NSFG can be found elsewhere [8]. Analyses were conducted using Stata 14.0. To facilitate statistical comparisons of percentages across

**Table 2**

Vaginal intercourse experience and condom use at first vaginal intercourse among never-married males aged 15 to 24 years, NSFG 2002–2017

All males, 15–24	2002	2006–2010	2011–2015	2015–2017
Weighted N (in thousands)	18,365	19,821	19,591	19,237
Unweighted N	1,937	3,924	3,479	1,459
Had first intercourse	63.2 (59.5, 66.8)	59.6 (56.3, 62.9)	<b>63.7<sup>b</sup> (61.4, 66.0)</b>	59.6 (54.8, 64.2)
Condom use	70.2 (67.1, 73.2)	<b>78.8<sup>a</sup> (75.8, 81.6)</b>	<b>76.9<sup>a</sup> (74.6, 79.1)</b>	<b>81.8<sup>a</sup> (77.3, 85.5)</b>
Condom alone	57.3 (53.9, 60.5)	57.3 (54.0, 60.5)	53.5 (50.2, 56.8)	53.2 (48.7, 57.7)
Condom + other method <sup>d</sup>	12.2 (10.1, 14.6)	<b>21.0<sup>a</sup> (18.4, 24.0)</b>	<b>23.0<sup>a</sup> (20.2, 26.0)</b>	<b>28.3<sup>a,c</sup> (23.8, 33.4)</b>
Males, 15–19				
Weighted N (in thousands)	10,139	10,766	9,963	9,886
Unweighted N	1,112	2,371	2,079	884
Had first intercourse	45.7 (41.6, 49.8)	41.8 (38.8, 44.9)	44.2 (41.4, 47.1)	<b>37.6<sup>a,c</sup> (31.9, 43.5)</b>
Condom use	71.1 (66.1, 75.6)	<b>80.0<sup>a</sup> (75.9, 83.5)</b>	77.0 (72.9, 80.6)	<b>83.3<sup>a</sup> (77.1, 88.0)</b>
Condom alone	55.5 (50.7, 60.3)	58.2 (53.8, 62.5)	52.1 (47.3, 56.9)	55.7 (49.2, 62.0)
Condom + other method <sup>d</sup>	14.4 (11.3, 18.0)	<b>21.1<sup>a</sup> (17.5, 25.1)</b>	<b>24.0<sup>a</sup> (20.1, 28.4)</b>	<b>26.9<sup>a</sup> (20.1, 34.9)</b>
Males, 20–24				
Weighted N (in thousands)	8,225	9,054	9,628	9,351
Unweighted N	825	1,553	1,400	575
Had first intercourse	84.8 (80.6, 88.3)	80.9 (74.5, 85.9)	84.0 (81.2, 86.3)	82.9 (77.5, 87.3)
Condom use	69.6 (65.3, 73.6)	<b>78.1<sup>a</sup> (74.0, 81.8)</b>	<b>76.9<sup>a</sup> (74.0, 79.6)</b>	<b>81.0<sup>a</sup> (75.2, 85.8)</b>
Condom alone	58.4 (53.9, 62.8)	56.7 (52.2, 61.2)	54.3 (49.8, 58.7)	52.0 (45.9, 58.0)
Condom + other method <sup>d</sup>	10.7 (8.0, 14.2)	<b>21.0<sup>a</sup> (17.5, 25.0)</b>	<b>22.4<sup>a</sup> (18.9, 26.5)</b>	<b>29.1<sup>a,b</sup> (23.4, 35.5)</b>

Values are weighted percentages (95% CIs). Boldface indicates statistical significance.

CI = confidence interval; NSFG = National Survey of Family Growth.

<sup>a</sup> Significantly different from 2002 ( $p \leq .05$ ).<sup>b</sup> Significantly different from 2006 to 2010 ( $p \leq .05$ ).<sup>c</sup> Significantly different from 2011 to 2015 ( $p \leq .05$ ).<sup>d</sup> Includes condom use in combination with any of the following methods: IUD, injectable, implant, pill, patch, ring, and withdrawal.

surveys, we estimated logistic regression models of each outcome and used the *contrast* command. Results are stratified by age and gender. We adjusted for survey design and sampling error using the *svy* command. Because our analysis was conducted using existing, publicly available, deidentified data, this study was granted exempt status from the lead author's institutional review board.

## Results

From 2002 to 2017, 60%–64% of AYA women and men reported having ever engaged in VI. Among women, VI prevalence remained stable over time and, at each time point, was about twice as high among 20- to 24-year-olds than among 15- to 19-year-olds (82%–84% and 42%–46%). Among men, the percentage of 20- to 24-year-olds reporting VI experience was stable, but the percentage of 15- to 19-year-olds doing so dropped below 40% in 2015–2017 (Table 1).

Fewer men used condoms at first VI in 2002 (70%) than in 2015–2017 (82%). In contrast, women's rates of male condom use changed little overall, despite an increase during the period of 2011–2015 when 75% of 15- to 19-year-olds reported male condom use at first VI. This uptick, which did not occur among 20- to 24-year-old women, was not sustained; the 2015–2017 rate of male condom use was statistically indistinguishable from earlier rates (Table 2).

Reliance on condom-alone was more common than condom-plus at every time point, but trends differed by gender and, among women, by age. Among 15- to 19-year-old women, use of male condom-alone was similar across time periods; among older women, it increased between 2002 and 2006–2010 (44%–53%) before falling to 47% in 2011–2015, where it remained in 2015–2017. Among AYA men, reliance on condom-plus increased between 2002 (12%) and 2006–2010 (21%), and again between 2011–2015 (23%) and 2015–2017 (28%).

## Discussion

We used the NSFG data to examine trends in VI and condom use at first VI among 15- to 24-year-olds, addressing an age group that is disproportionately represented in new STD diagnoses [2] and extending earlier studies forward in time. With respect to VI prevalence, we observed no change between 2002 and 2015–2017 in the percentage of 20- to 24-year-old women and men reporting VI experience. Results for 15- to 19-year-olds indicate change in previously reported trends. An analysis of trends between 1988 and 2011–2015 documented a decrease in the percentage of 15- to 19-year-old women and men reporting first VI, although the decline for men ended in 2006–2010 [5]. Our results with more recent data suggest a plateau in the decrease among young women and a resumption of the decline among young men.

Results also indicate stability in male condom use at first VI among AYA women, although this stability was punctuated by a temporary increase among 15- to 19-year-olds (from 69% to 75%) in 2011–2015. In contrast, the percentage of men reporting condom use at first VI was higher at each time-point than in 2002, exceeding 80% of AYA men in 2015–2017. This finding is consistent with an upward trend in condom use at last

intercourse among 15- to 44-year-old men that stretches back to 2002 [6] and is not surprising, given the positive association between condom use at first VI and later condom use [9]. Of note, however, the uptick in male condom use revealed in this study reflected greater use of condom in conjunction with another contraceptive method.

Results suggest multiple avenues for future investigation. First, given the role that condoms play in protecting against STDs and preventing pregnancy, researchers should examine the reasons for gender differences in reports of condom use at first VI. Although we cannot speak directly to the reasons why a higher percentage of AYA men report condom use during first VI, some of the gender difference we observe could reflect men's greater likelihood of engaging in first VI with a casual partner [10], fewer perceived barriers to condom use among men [11], and men's greater awareness of whether a condom is used during VI. Second, although condom use at first VI predicts subsequent use [9], promoting consistent condom use in the AYA population will require better understanding of factors that encourage their access to condoms, shape their attitudes toward condom use, and reduce their rates of condom failure. Finally, that birth rates for 15- to 19-year-old women continue to fall [12] despite stability in VI prevalence and condom use at first VI suggests increasingly effective reliance on contraception for pregnancy prevention. An evaluation of the policies and programs that motivated this rise in effectiveness could be crucial to the formulation of strategies to increase the uptake of STD-preventing condoms, particularly among women.

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