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Refining assessment of contraceptive use in the past year in relation to risk of unintended pregnancy[★]

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Abstract

Objectives: Healthy People 2020 establishes objectives for reducing the proportion of pregnancies in the United States that are unintended and for improving contraceptive use. This analysis describes ways to more closely align measurement of contraceptive use with periods of risk for unintended pregnancy using the National Survey of Family Growth (NSFG).

Methods: Using the 2011–2015 NSFG we constructed two measures of contraceptive use for women we defined as at risk of an unintended pregnancy: (1) we augmented a measure of recent contraceptive use by recoding non-users according to their method use during their last month of sex in the past 12 months; (2) we augmented use at last sex in the past 12 months by excluding women who were pregnant at last sex. Estimates were compared overall and within 5-year age groups.

Results: The augmented measure of recent contraceptive use found fewer women to be using no contraception than the standard measure (7.3% vs 15.4%; $p < .001$); greater differences were found between the two measures for younger women. When considering contraceptive use at last sex, the augmented measure identified fewer women as using no contraception (15.8% vs 21.0%; $p < .001$) than the standard measure and more women to be using a most effective method (33.3% vs 31.1%; $p = .04$) than the standard measure.

Conclusions: Aligning periods of unintended pregnancy risk with contraceptive use assessment reduced estimates of no contraceptive use; changes in estimates by method type varied by age.

Implications: When assessing contraceptive use for the purpose of unintended pregnancy prevention, researchers may consider the methods described here to further align contraceptive use measurement with periods of unintended pregnancy risk.

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Keywords

Contraception; Pregnancy risk; Age differences

1. Introduction

The National Survey of Family Growth (NSFG), conducted by the National Center for Health Statistics, gathers information on general and reproductive health, including family life, marriage and divorce, sexual behavior, pregnancy, and infertility [1]. The NSFG includes a variety of contraceptive use measures, including method(s) used at last sex and method(s) reported during interview month. The NSFG provides these measures as recoded variables to facilitate analysis. The recode variables for current contraceptive status, which enumerate the contraceptive method (s) reported during the interview month, are commonly used to describe national levels of contraceptive use [2–5], and often serve as a standard for comparing estimates from other surveys [6]. Similarly, the recode variables for the method(s) used at last sex are used widely, in particular for reporting on contraceptive use among adolescents and young adults [7]. Both measures serve as common benchmarks for assessing progress toward achieving public health goals [8–11].

The current contraceptive status recode variables not only measure contraceptive use but incorporate information on sexual activity and status relative to pregnancy and fecundity, and have often been used to identify women at risk for unintended pregnancy [4,10,12–14]. Although there are concerns about this measure [15,16], unintended pregnancy is a commonly constructed measure based on NSFG data and serves as a key Healthy People family planning indicator [10]. Because the current contraceptive status recode variables only includes method use during the interview month, reliance on coitus-dependent methods (e.g., condoms and withdrawal) cannot be captured with this recode for women who last had sex prior to the interview month. This may occur particularly often for adolescents and young adults who are more likely to have sex on a sporadic basis [17,18] and use coitus-dependent methods [2,7]. For these women the need for contraception may be more appropriately measured at the month of most recent sex rather than the interview month. Conversely, recode variables for method use at last sex, by definition, include women who had intercourse within the specified time period (i.e., the last 3 or 12 months). However, these recodes do not include information such as pregnancy status at the time of last intercourse, which is needed if the goal is to determine unintended pregnancy risk at time of last sex. This information would need to be taken from other sections of the survey and incorporated into the method use at last sex variables and a number of analyses on unintended pregnancy risk have done this [4,17].

The objective of this paper is to assess augmenting these two NSFG recode variables with additional survey information to more closely align the measurement of contraceptive use with unintended pregnancy risk. Given known age variation in coital frequency, coitus dependent method use, and birth rates, we also compare the measures by age.

2. Methods

2.1. Data source and contraceptive use classification

The NSFG is a nationally representative survey of women and men ages 15–49 in the U.S. household population. Female interviewers use computer-assisted interviewing techniques to collect data on a variety of topics, including sexual behavior and contraceptive use [1]. We used the 2011–2013 and 2013–2015 female respondent files of women ages 15–44, including 11,300 women (5601 in 2011–2013 and 5699 in 2013–2015, with respective response rates of 73% and 71%).

We used two sets of recode variables, contraceptive status during the interview month, (referred to in analysis as “recent method use,” recode variables CONSTAT1–4), and contraceptive method used at last intercourse in the past 12 months (referred to in analysis as “method used at last sex,” recode variables METH12M1–4), each consisting of four variables to account for reporting of up to four different methods. For each set of recodes, we first generated one estimate of contraceptive use among a population of women we defined as at risk for unintended pregnancy (referred to as our standard estimate); we then generated a second estimate using additional information to further align the timing of contraceptive use measurement with risk for unintended pregnancy (referred to as our augmented estimate). The next section describes how the measures were constructed.

2.2. Recent method use

The current contraceptive status recode variables pull information from throughout the NSFG. Female respondents use a life history calendar to recall monthly sexual activity and up to four contraceptive methods used at any point during each month, going back to January, 3 years before the interview. As described in the specifications for this recode variable, methods reported in the month of interview are priority coded by ranking of effectiveness at preventing pregnancy [12] to define current contraceptive status. The first variable in this set of recodes (CONSTAT1) represents the method used that is most effective method at preventing a pregnancy, unless information obtained elsewhere in the survey indicates that a woman was pregnant or she or her husband or cohabiting partner were infecund for reasons other than surgical sterility, in which case this latter information is given priority [12]. Sterility information for a husband or cohabiting partner is taken from a section of the questionnaire for married and cohabiting women, but women with other types of sexual partners could report on their partner’s sterility as part of the life history calendar, which is included in the construction of the CONSTAT recodes [12]. For women who report multiple methods in the interview month, the remaining methods are then assigned in order of effectiveness in the variables CONSTAT2–4. Finally, for women who report no method use during the interview month (and are not pregnant or infecund based on other survey questions asking about their ability to become pregnant and carry a pregnancy to term), the value for CONSTAT1 is assigned to a “non-user” category, in the following ordering: seeking pregnancy; postpartum (completed pregnancy ending less than or equal to two and a half months before the interview); never had intercourse; had intercourse but not at any point during the 3 months prior to interview; and had intercourse during the three months prior to interview [12].

Using the CONSTAT recode series, we created two measures of recent contraceptive use. For our first estimate - standard measure of recent method use - we defined women in our population as at risk for unintended pregnancy if they had intercourse in the last 12 months (based on the recode NOSEX12) and were not currently pregnant, seeking pregnancy, or postpartum, and if they and their partner were not non-surgically sterile (based on the CONSTAT1 recode). For this estimate, we did not differentiate women based on whether they had intercourse during their interview month. Fig. 1a describes the analytic population ($n = 7498$).

For our second estimate of recent contraceptive use - the augmented estimate - we used the same sub-population of 7498 women from our first estimate (Fig. 1a). However, we incorporated additional information for women who did not use contraception during their interview month ($n = 1349$). Among these women who did not use a method in their interview month, we used the monthly intercourse variables to identify those who also did not have intercourse that month ($n = 947$). For these women we used the life history calendar to “look back” and identify the last month the woman reported having intercourse in the past 12 months and then determine the method(s) used during that month (if any). Among this subpopulation of the 947 women, 758 (80%) had their method re-assigned based on what method they used during the last month they had sex; among women re-assigned, for roughly one-third we used information from the month before the interview month, for two-thirds within 3 months of looking back, and for four-fifths within 6 months. Although we looked back to identify the last month the woman had intercourse for women who did not use a method and did not have sex in the interview month, we did not look back to align sexual activity and method use for women who used a method in the interview month but did not have sex ($n = 880$). Most of these women (99%) were relying on contraceptive sterilization, long-acting reversible contraception, or hormonal contraceptives rather than coital dependent methods.

2.3. Method use at last sex in the last 12 months

In the NSFG, contraceptive use is also assessed by asking women who reported at least one male partner in the last 12 months which contraceptive method(s) (if any) they used at last intercourse. This differs from the current contraceptive use or the “recent method” (CONSTAT recode) because it is method use at the time of last sexual intercourse not at any time during a specific month regardless of sexual activity. For the third contraceptive use estimate we present - standard method use at last sex - we used the recode series of method use at last sex (METH12M1–4), selecting the method most effective for preventing pregnancy the women mentioned. The sample size was 8682 women (Fig. 1b).

While the METH12M1–4 recode variables precisely align the timing of contraceptive use with sexual activity, they do not incorporate information from other parts of the interview related to unintended pregnancy risk (e.g., pregnancy status). For the augmented method use at last sex, we used information from women’s pregnancy history to compare the month of last sex to the most recent pregnancy start and end dates; women who were pregnant in the month they last had sex ($n = 637$) were then excluded from our population at risk for

unintended pregnancy. Our final sample for this augmented estimate included 8045 (Fig. 1b).

2.4. Statistical analysis

For all four measures of contraceptive use, we classified methods used into four effectiveness categories: most effective methods (sterilization [male or female], intrauterine device [IUD], or implant); moderately effective methods (injectables, pills, patches, or ring); less effective methods (condoms, withdrawal, or other methods including diaphragm); and no method [19]. We then calculated the percentage and standard error (SE) for each effectiveness category and selected specific methods, overall and by 5-year age groups. We used the sampling weight for the 2011–2015 data and the stratum and cluster variables in SAS *SURVEY-FREQ* to produce percentages and standard errors. We conducted two-tailed independent samples *t*-tests (without adjustments for multiple comparisons) to compare the percentages for each standard estimate versus the corresponding augmented estimate, as well as the augmented estimates against each other. We calculated *p*-values based on these *t*-tests to check for statistically significant differences. We specified the degrees of freedom as the number of sample clusters minus strata in our calculation of *p*-values [20].

3. Results

3.1. Recent method use - standard versus augmented measure

Using our standard measure of recent method use, we estimated 15.4% of the 41.8 million women ages 15–44 at risk for an unintended pregnancy in the US during 2011–2015 (approximately 6.4 million women) did not use a method of contraception during the month of interview (Table 1). The augmented measure that uses additional information to align contraceptive use and sexual activity for women who did not have sexual intercourse in the interview month, nearly halved this estimate to 7.3% (approximately 3.1 million women) ($p < .001$). By contrast, our estimate of less effective method use increased from 21.4% using the standard measure to 28.3% using the augmented measure ($p < .001$); a similar pattern of increase was observed for specific methods within this effectiveness category, including condom use (13.5% vs. 18.7%, $p < .001$) and withdrawal (6.6% vs. 8.1%, $p = .02$).

Differences between the standard and augmented recent method measures varied across age groups and were most pronounced for women ages 15–19 (Table 2). Using our standard measure of recent method use, we estimated 29.3% of the 3.4 million women ages 15–19 at risk for an unintended pregnancy did not use a method of contraception (just under 1 million teens); with the augmented measure, this percentage decreased to 5.8% (approximately 200,000 teens; $p < .001$; Table 2). By contrast, estimates for condom use increased from 18.1% using the standard measure to 35.6% using the augmented measure ($p < .001$).

For all other age groups, differences between the standard and augmented measures were smaller (Table 2). For no method use, the percentage point decrease from the standard to the augmented measure ranged from approximately 11 (16.7% vs. 6.0%, $p < .001$) for women ages 20–24 to approximately four for women ages 40–44 (13.8% vs. 9.6%, $p = .03$). By contrast, the percentage point increase in the use of condoms ranged from approximately

seven in women ages 20–24 (16.6% vs. 23.6%, $p = .005$) to approximately two (8.2% vs. 10.0%, not significantly different) in women ages 40–44.

3.2. Method use at last sex - standard versus augmented measure

Using our standard measure of method use at last sex, we estimated 21.0% of women ages 15–44 at risk for unintended pregnancy did not use a method; the augmented measure reduced this estimate to 15.8% ($p < .001$; Table 1). By contrast, estimates of most effective method use increased from 31.1% using the standard measure to 33.3% using the augmented measure that excluded women who were pregnant ($p = .04$).

Differences between standard and augmented estimates of method use at last sex again varied across age groups (Table 2). For no method use, the percentage point decrease from the standard to the augmented measure ranged from a high of approximately eight percentage points for women ages 25–29 (24.4% vs. 16.0%, $p < .001$) and 30–34 (25.5% vs. 17.4%, $p < .001$), to a low of less than one percentage point for women ages 40–44 (17.7% vs. 17.1%, not significantly different). The difference in no method use for women ages 15–19 was approximately four percentage points (12.6% vs. 8.4%, $p = .04$). The difference in no method use for women ages 20–24 was approximately five percentage points (19.1% vs. 13.7%, $p = .002$). There was no statistically significant difference between the standard and augmented estimates of no method use for women ages 35–39. There were no statistically significant differences between the standard and augmented estimates of method use at last sex for other methods or method groupings.

3.3. Augmented measures - comparison of augmented recent method use versus augmented method use at last sex

Estimates of all women ages 15–44 at risk for unintended pregnancy not using any method were significantly lower using the augmented measure of recent method use (7.3%) as compared to the augmented measure of method use at last sex (15.8%; $p < .001$) (Table 1). In addition, estimates of women using the most effective methods were higher using our augmented measure of recent method use (37.5%) as compared to our augmented measure of method use at last sex (33.3%; $p < .001$). Similarly, estimates of women using sterilization were higher using our augmented measure of recent method use (26.2%) as compared to our augmented measure of method use at last sex (23.1%; $p = .01$).

Among teens ages 15–19, estimates of no method use did not differ significantly for the two augmented measures, but in all older age groups estimates were lower using the augmented measure of recent method use versus method use at last sex, with an approximately seven to 11 ($p < .001$) percentage point difference (Table 2). For most effective method use, our estimates were similar for the two augmented measures among women in younger age groups (15–29 years), but there was an increase of approximately six to eight percentage points from our augmented measure of method use at last sex to our augmented measure of recent use among women in older age groups (30–44 years; $p < .05$).

4. Discussion

This analysis describes the use of additional NSFG survey information to more closely align the measurement of contraceptive use in the recodes CONSTAT1–4 and METH12M1–4 with periods of unintended pregnancy risk. We used selected survey information and attempted to adjust for key potential sources of misalignment. Estimates of no recent contraceptive method use decreased by about half when augmented with contraceptive use information from the last month of sexual activity in the past 12 months compared with use in the interview month. The augmented measure more specifically accounts for women who have sex sporadically and use coitus-dependent methods, who may not necessarily be at higher risk for unintended pregnancy. Estimates of no contraceptive method use at last sex within the past 12 months decreased by nearly one-quarter when augmented with information about pregnancy at the time of last sex. For recent method use, the largest decrease in no method use between the standard and augmented measures occurred among teens aged 15–19 years, whereas for method use at last sex, the largest difference occurred among women aged 25–34 years.

The reasons for the different degree of change across age groups in estimates of nonuse with the augmented as compared to the standard measures likely differ for recent method use and method use at last sex. For recent method use, the decrease in no method use was offset by an increase in use of condoms and withdrawal, two coital dependent methods most commonly used by adolescents aged 15–19 who are also more likely than women in older age groups to have sex on a periodic basis [17,18]. Adolescents may also prefer condoms over other methods because they can protect against sexually transmitted infection transmission [7]. This adjustment considers use in the month of most recent sex as opposed to the interview month. By contrast, for method use at last sex, the biggest change between the standard measure, which does not account for pregnancy status, to the augmented measure, which excludes women who were pregnant at last sex, was for women aged 25–34 years, who also have higher birth rates than women in any other age group [21].

For the two augmented measures comparison, the estimated percentage of women using no method was lower for recent method use as compared with method use at last sex in the past 12 months. The lower estimate with the recent use measure can, at least in part, be explained by the fact that women are classified as contraceptive users if they use a method at any point during the month. In addition, for estimates of most effective method use, which include contraceptive sterilization, estimates of use were higher with the recent method use as compared to method use at last sex. This finding may reflect the higher use of contraceptive sterilization among older women [2] which they may not report when specifically asked about what method they used at last sex but is pulled from elsewhere in the interview for the CONSTAT recode.

Some limitations to the two augmented measures could be minimized had we undertaken a more exhaustive adjustment using all information available in the survey. For example, the augmented measure of method use at last sex could have used additional interview information to exclude women who were infecund or had a married partner who was infecund at last intercourse. In addition, we could have excluded women from the

augmented measure of recent method use whose last method use was taken from an earlier month during which they were pregnant. Nonetheless, the augmented measures presented in this analysis were selected to make simple adjustments that could potentially make the greatest improvements in the alignment of the contraceptive use with periods of risk for unintended pregnancy risk). This analysis presents differences by age groups given known age variation in coital frequency, coitus dependent method use, and birth rates, but does not present differences by other demographic variables, such as education and marital status. We also acknowledge that there are concerns about the limitations of the commonly used binary indicator “unintended pregnancy” [15,16] since it is not able to reflect factors underlying contraceptive use such as differences in access to contraception and health care or nuances in pregnancy wantedness such as mistimed compared with unwanted [22]. However, estimating the prevalence of contraceptive use related to risk of unintended pregnancy is still undertaken by many analysts.

Finally, while this paper describes ways to augment the standard NSFG recodes to estimate contraceptive use that more specifically capture women at risk of an unintended pregnancy, these adjustments are not appropriate for all uses of these recoded variables. Researchers wanting to describe a broad picture of current contraceptive use patterns among the full U.S. population [23–25], or assess current method use for non-contraceptive reasons [19], would not benefit from these adjustments. Nonetheless, when assessing contraceptive use for the purpose of pregnancy prevention, this paper highlights simple enhancements that researchers may consider to further align contraceptive use measurement with periods of pregnancy risk.

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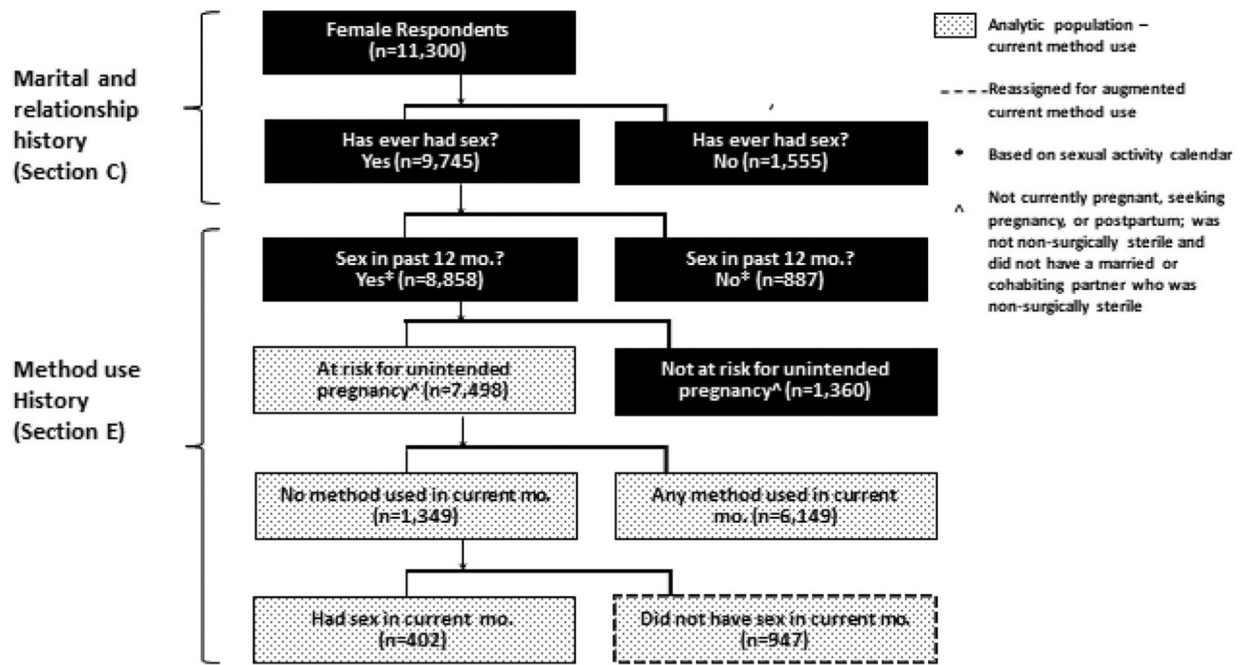


Fig. 1a. Flow chart of analytic sample of standard and augmented measures of recent contraceptive method use, National Survey of Family Growth, 2011–2015.

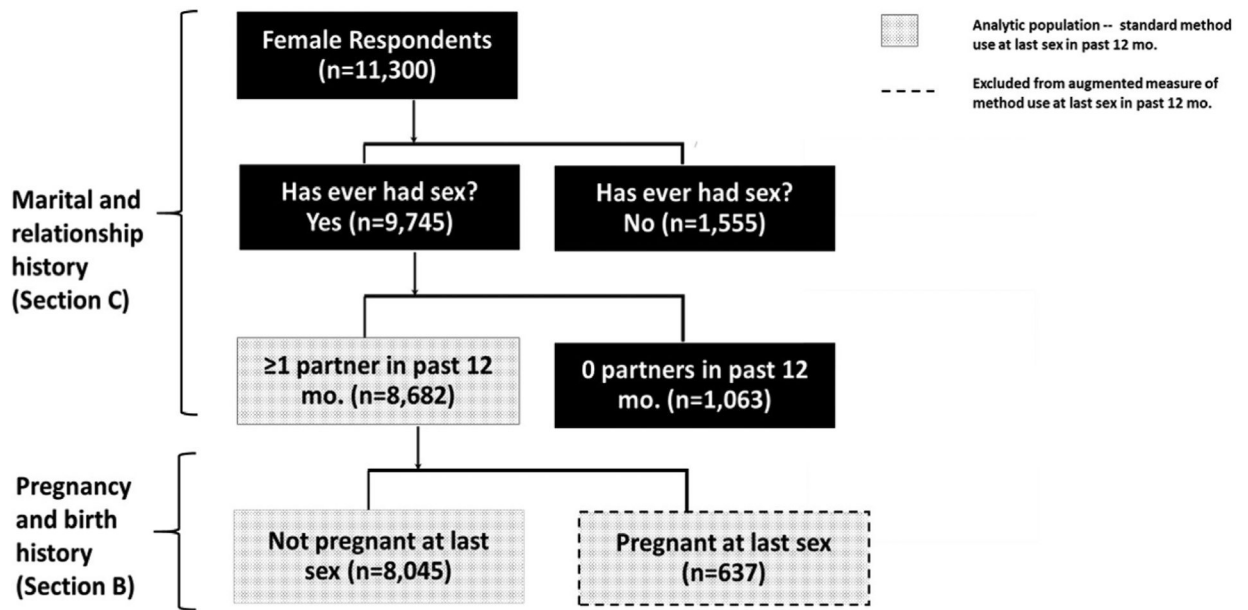


Fig. 1b. Flow chart of analytic sample of standard and augmented measures of contraceptive method use at last sex in the last 12 months, National Survey of Family Growth, 2011–2015.

Measures of contraceptive method use among all women ages 15–44 at risk of unintended pregnancy, National Survey of Family Growth 2011–2015.

Table 1

Contraception effectiveness	Standard measure ¹			Augmented measure ¹			Standard measure ³			Augmented measure ⁴			p-value ⁵			p-value ⁶				
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE		
Most effective	37.2	0.82	37.5	0.82	31.1	0.74	33.3	0.78	33.3	0.78	33.3	0.78	0.04	0.78	0.04	0.78	0.04	0.78	<.001	
Sterilization (male or female)	26.0	0.90	26.2	0.90	21.6	0.79	23.1	0.82	23.1	0.82	23.1	0.82	.19	0.82	.19	0.82	.19	0.82	.01	
IUD or implant	11.2	0.61	11.3	0.60	9.5	0.50	10.2	0.55	10.2	0.55	10.2	0.55	.35	0.55	.35	0.55	.35	0.55	.18	
Moderately effective	26.0	0.83	26.9	0.85	23.0	0.76	24.6	0.81	24.6	0.81	24.6	0.81	.15	0.81	.15	0.81	.15	0.81	.05	
Injectables	3.3	0.24	3.4	0.24	2.9	0.20	3.1	0.22	3.1	0.22	3.1	0.22	.50	0.22	.50	0.22	.50	0.22	.36	
Patches and rings	2.3	0.29	2.4	0.29	2.0	0.25	2.1	0.27	2.1	0.27	2.1	0.27	.79	0.27	.79	0.27	.79	0.27	.45	
Pills	20.4	0.83	21.0	0.82	18.1	0.74	19.4	0.79	19.4	0.79	19.4	0.79	.23	0.79	.23	0.79	.23	0.79	.16	
Less effective	21.4	0.71	28.3	0.78	25.0	0.71	26.3	0.75	26.3	0.75	26.3	0.75	.21	0.75	.21	0.75	.21	0.75	.07	
Condom	13.5	0.61	18.7	0.68	16.0	0.59	16.9	0.62	16.9	0.62	16.9	0.62	.30	0.62	.30	0.62	.30	0.62	.05	
Withdrawal	6.6	0.41	8.1	0.47	7.8	0.46	8.2	0.48	8.2	0.48	8.2	0.48	.55	0.48	.55	0.48	.55	0.48	.88	
Other methods ⁷	1.2	0.21	1.5	0.22	1.1	0.17	1.2	0.18	1.2	0.18	1.2	0.18	.69	0.18	.69	0.18	.69	0.18	.29	
No method	15.4	0.50	7.3	0.41	21.0	0.64	15.8	0.59	15.8	0.59	15.8	0.59	<.001	0.64	<.001	0.59	<.001	0.59	<.001	
N	7498		7498		8682		8682		8682		8045		8045		8045		8045		8045	

Bold p-values represent significant differences at $p < .05$.

¹ At risk of unintended pregnancy defined as had vaginal intercourse in the last 12 months based on monthly non-intercourse series (recode NOSEX12); are not currently pregnant, seeking pregnancy or recently had a pregnancy end; and neither they nor their partners are infecund.

² Comparison of two recent contraceptive method use measures using two tailed t-tests.

³ At risk of unintended pregnancy defined as had one or more partners in the last year (recode PARTS1YR).

⁴ At risk of unintended pregnancy defined as had one or more partners in the last year (recode PARTS1YR); not pregnant at the time of last sex, women whose last sex was in the month of conception or end month of pregnancy are excluded.

⁵ Comparison of two method use at last sex in the last 12 months measures using two tailed t-tests.

⁶ Comparison of augmented recent contraceptive use measure and augmented method use at last sex measure using two tailed t-tests.

⁷ Includes: diaphragm, foam, sponge, suppository or insert; jelly or cream; periodic abstinence; emergency contraception, and a small number of women who reported other unspecified methods.

Measures of contraceptive method use among all women ages 15–44 at risk of unintended pregnancy by age group, National Survey of Family Growth, 2011–2015.

Table 2

Age group and contraception effectiveness	Standard measure ¹			Augmented measure ¹			p-value ²			Standard measure ³			Augmented measure ⁴			p-value ⁵		
	Recent contraceptive use						Contraceptive use at last sex											
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
15–19																		
Most effective	5.1	1.10	5.1	1.10	1.00	1.00	3.8	0.97	4.1	1.04	8.3	.51						
Sterilization (male or female)	-	-	-	-	-	-	-	-	-	-	-	-						
IUD or implant	5.1	1.10	5.1	1.10	1.00	1.00	3.8	0.97	4.1	1.04	8.3	.51						
Moderately effective	42.9	2.52	45.1	2.43	.53	.53	40.0	2.31	42.6	2.38	44	.46						
Injectables	8.9	1.38	9.2	1.38	.88	.88	7.5	1.16	7.8	1.21	8.6	.45						
Patches and rings	1.9	1.20	2.0	1.20	.95	.95	1.7	1.09	1.8	1.17	1.95	.91						
Pills	32.1	2.63	33.9	2.54	.62	.62	30.9	2.30	33.0	2.39	53	.80						
Less effective	22.7	2.22	44.0	2.53	<.001	<.001	43.5	2.37	44.9	2.49	.69	.80						
Condom	18.1	2.11	35.6	2.55	<.001	<.001	35.0	2.38	36.3	2.52	.71	.85						
Withdrawal	4.2	0.90	7.6	1.62	.07	.07	8.4	1.51	8.5	1.60	96	.69						
Other methods ⁷	*	*	*	*	*	*	*	*	*	*	*	*						
No method	29.3	2.30	5.8	1.14	<.001	<.001	12.6	1.60	8.4	1.29	.04	.13						
20–24																		
Most effective	16.0	1.36	16.1	1.37	.96	.96	13.7	1.23	14.5	1.33	.66	.40						
Sterilization (male or female)	2.0	0.46	2.0	0.46	1.00	1.00	1.7	0.41	1.5	0.40	.73	.41						
IUD or implant	14.1	1.25	14.1	1.26	1.00	1.00	12.0	1.16	12.9	1.27	.60	.50						
Moderately effective	42.9	1.99	44.9	2.10	.49	.49	38.2	1.95	41.4	2.00	.25	.23						
Injectables	5.5	0.70	5.9	0.72	.69	.69	4.9	0.64	5.3	0.70	.67	.55						
Patches and rings	3.6	0.80	3.9	0.80	.79	.79	3.2	0.71	3.5	0.77	.78	.72						
Pills	33.8	2.16	35.1	2.20	.67	.67	30.1	2.03	32.6	2.12	.40	.42						
Less effective	24.4	1.69	33.0	2.06	.002	.002	28.9	1.88	30.4	2.00	.59	.37						
Condom	16.6	1.60	23.6	1.86	.005	.005	20.1	1.68	21.4	1.79	.60	.40						
Withdrawal	6.7	0.88	7.8	0.95	.40	.40	8.4	1.11	8.6	1.14	.90	.59						
Other methods ⁷	1.1	0.45	1.6	0.56	.49	.49	0.5	0.18	0.5	0.18	1.00	.06						

Age group and contraception effectiveness	Standard measure ¹		Augmented measure ¹		p-value ²		Standard measure ³		Augmented measure ⁴		p-value ⁵		p-value ⁶
	Recent contraceptive use						Contraceptive use at last sex						
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE	
No method	16.7	1.30	6.0	0.81	<.001	19.1	1.18	13.7	1.20	.002	<.001		
25–29													
Most effective	25.9	1.60	26.4	1.58	.82	21.2	1.35	23.6	1.46	.23	.20		
Sterilization (male or female)	10.7	1.02	11.0	1.01	.84	8.9	0.93	9.9	1.03	.47	.45		
IUD or implant	15.3	1.42	15.3	1.42	1.00	12.3	1.18	13.7	1.30	.43	.41		
Moderately effective	33.1	1.66	34.0	1.69	.71	28.6	1.57	31.9	1.64	.15	.38		
Injectables	4.2	0.74	4.3	0.74	.92	3.6	0.64	4.0	0.70	.67	.77		
Patches and rings	3.4	0.75	3.4	0.75	1.00	3.0	0.65	3.3	0.71	.75	.92		
Pills	25.6	1.70	26.3	1.69	.77	22.0	1.48	24.6	1.62	.24	.47		
Less effective	27.1	1.76	32.4	1.75	.04	25.9	1.46	28.5	1.66	.24	.11		
Condom	17.1	1.54	20.8	1.63	.10	15.6	1.35	17.2	1.54	.44	.11		
Withdrawal	8.5	1.05	9.9	1.08	.36	8.9	1.02	9.8	1.11	.55	.95		
Other methods ⁷	1.5	0.48	1.6	0.49	.88	1.3	0.42	1.5	0.46	.75	.88		
No method	13.9	0.91	7.2	0.87	<.001	24.4	1.42	16.0	1.25	<.001	<.001		
30–34													
Most effective	43.6	1.87	43.8	1.87	.94	34.4	1.59	38.3	1.65	.09	.03		
Sterilization (male or female)	30.1	2.03	30.1	2.03	1.00	23.2	1.63	25.8	1.80	.29	.12		
IUD or implant	13.6	1.41	13.7	1.42	.96	11.2	1.17	12.5	1.25	.45	.53		
Moderately effective	21.0	1.43	21.4	1.44	.84	17.4	1.28	19.3	1.37	.31	.29		
Injectables	2.6	0.46	2.6	0.46	1.00	2.2	0.37	2.4	0.41	.72	.75		
Patches and rings	2.1	0.55	2.2	0.55	.90	1.6	0.43	1.8	0.47	.75	.58		
Pills	16.3	1.33	16.6	1.35	.88	13.6	1.14	15.1	1.25	.38	.42		
Less effective	21.4	1.48	27.2	1.68	.01	22.7	1.41	25.0	1.56	.28	.34		
Condom	13.4	1.11	17.5	1.23	.02	14.1	1.02	15.4	1.12	.39	.21		
Withdrawal	6.7	0.80	8.3	0.95	.20	7.7	0.81	8.5	0.90	.51	.88		
Other methods ⁷	1.3	0.46	1.3	0.46	1.00	1.0	0.36	1.1	0.41	.86	.75		
No method	14.0	1.10	7.6	0.91	<.001	25.5	1.72	17.4	1.40	<.001	<.001		
35–39													
Most effective	52.5	2.08	52.9	2.10	.89	42.7	1.94	44.8	1.96	.45	.006		

Age group and contraception effectiveness	Standard measure ¹		Augmented measure ¹		Standard measure ³		Augmented measure ⁴		Standard measure ⁵		Augmented measure ⁶	
	Recent contraceptive use		Contraceptive use at last sex		Contraceptive use at last sex		Contraceptive use at last sex		Contraceptive use at last sex		Contraceptive use at last sex	
	%	SE	%	SE	%	SE	%	SE	%	SE	%	SE
Sterilization (male or female)	41.8	2.17	42.1	2.19	.92	1.98	33.6	1.98	32.2	2.00	.62	.001
IUD or implant	10.7	1.38	10.8	1.38	.96	1.18	9.2	1.18	9.6	1.25	.82	.52
Moderately effective	16.0	1.88	16.2	1.87	.94	1.55	14.7	1.55	15.3	1.62	.79	.72
Injectables	1.2	0.31	1.2	0.31	.98	0.27	1.0	0.27	1.1	0.28	.80	.81
Patches and rings	2.3	0.75	2.3	0.75	1.00	0.65	2.0	0.65	2.1	0.69	.92	.85
Pills	12.5	1.70	12.6	1.70	.97	1.42	11.7	1.42	12.1	1.48	.85	.83
Less effective	19.1	1.89	24.4	2.01	.06	1.61	21.4	1.61	21.3	1.68	.83	.34
Condom	10.4	1.33	14.5	1.55	.05	1.26	12.2	1.26	12.5	1.27	.87	.32
Withdrawal	7.7	1.25	8.8	1.27	.54	1.09	8.1	1.09	8.3	1.17	.90	.77
Other methods ⁷	1.0	0.29	1.1	0.31	.81	0.27	1.1	0.27	1.1	0.28	1.00	1.00
No method	12.4	1.16	6.6	0.75	< .001	1.57	21.1	1.57	18.0	1.46	.15	< .001
40–44												
Most effective	61.2	1.89	61.6	1.90	.88	2.07	54.2	2.07	54.6	2.05	.89	.01
Sterilization (male or female)	55.7	2.03	56.0	2.06	.92	2.16	49.2	2.16	49.6	2.14	.90	.03
IUD or implant	5.4	0.88	5.6	0.87	.87	0.78	5.0	0.78	5.0	0.79	1.00	.61
Moderately effective	10.4	1.49	10.7	1.50	.89	1.31	9.6	1.31	9.7	1.33	.96	.62
Injectables	0.8	0.26	0.8	0.26	1.00	0.25	0.9	0.25	0.9	0.25	1.00	.78
Patches and rings	*		0.4	0.21		0.19	0.4	0.19	0.4	0.19	1.00	1.00
Pills	9.2	1.44	9.5	1.46	.88	1.26	8.4	1.26	8.4	1.28	1.00	.57
Less effective	14.6	1.36	18.0	1.54	.10	1.47	18.4	1.47	18.6	1.49	.92	.78
Condom	8.2	1.06	10.0	1.17	.26	1.18	10.6	1.18	10.7	1.19	.95	.68
Withdrawal	4.6	0.88	5.8	0.93	.35	0.91	6.0	0.91	6.0	0.91	1.00	.88
Other methods ⁷	1.7	0.54	2.2	0.64	.55	0.53	1.9	0.53	1.9	0.54	1.00	.72
No method	13.8	1.43	9.6	1.25	.03	1.62	17.7	1.62	17.1	1.60	.79	< .001
<i>n</i>	7498		7498			8682		8682		8045		

Bold *p*-values represent significant differences at *p* < .05.

- Quantity zero.

* Does not meet standards for reliability or precision due to small cell sizes.

- ¹ At risk of unintended pregnancy defined as had vaginal intercourse in the last 12 months based on monthly non-intercourse series (recode NOSEX12); are not currently pregnant, seeking pregnancy or recently had a pregnancy end; and neither they nor their partners are infecund.
- ² Comparison of two recent contraceptive method use measures using two tailed *t*-tests
- ³ At risk of unintended pregnancy defined as had one or more partners in the last year (recode PARTS1YR).
- ⁴ At risk of unintended pregnancy defined as had one or more partners in the last year (recode PARTS1YR); not pregnant at the time of last sex, women whose last sex was in the month of conception or end month of pregnancy are excluded.
- ⁵ Comparison of two method use at last sex in the last 12 months measures using two tailed *t*-tests.
- ⁶ Comparison of augmented recent contraceptive use measure and augmented method use at last sex measure using two tailed *t*-tests.
- ⁷ Includes: diaphragm, foam, sponge, suppository or insert; jelly or cream; periodic abstinence; emergency contraception, and a small number of women who reported other unspecified methods.