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Racial/ethnic disparities in contraceptive use: Variation by age and women's reproductive experiences

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Abstract

Objective—Disparities in unintended pregnancy in the United States are related, in part, to black and Hispanic women being overall less likely to use effective contraceptive methods. However,

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the fact that these same groups are more likely to use female sterilization, a highly effective method, suggests there may be variability in disparities in contraceptive use across a woman's life course. We sought to assess the relationship between race/ethnicity and contraceptive use in a nationally representative sample and to approximate a life-course perspective by examining effect modification on these disparities by women's age, parity and history of unintended pregnancy.

Study Design—We conducted an analysis of the 2006–2010 National Survey of Family Growth to determine the association between race/ethnicity and 1) use of any method; 2) use of a highly or moderately effective method among women using contraception; and 3) use of a highly effective method among women using contraception. We then performed analyses to assess interactions between race/ethnicity and age, parity and history of unintended pregnancy (ies).

Results—Our sample included 7,214 women aged 15–44. Compared to whites, blacks were less likely to use any contraceptive method (AOR: 0.65); and blacks and Hispanics were less likely to use a highly or moderately effective method (AORs: 0.49 and 0.57, respectively). Interaction analyses revealed that racial/ethnic disparities in contraceptive use varied by women's age, with younger women having more prominent disparities.

Conclusions—Interventions designed to address disparities in unintended pregnancy should focus on improving contraceptive use among younger women.

Keywords

Contraception; disparities; race/ethnicity

Introduction

Nearly half of all pregnancies in the United States are unintended.¹ There are prominent racial and ethnic disparities in unintended pregnancy rates, with black and Hispanic women having a significantly higher rate of unintended pregnancy than white women.^{1,2}

Unintended pregnancy is directly related to use of contraception as well as to the type of contraceptive method used, with hormonal methods being superior to barrier methods for pregnancy prevention and sterilization, intrauterine devices (IUDs), and implants being the most effective.^{3,4}

Black women have been found to have higher rates of contraceptive non-use than whites in analyses using a variety of datasets,^{5–8} and similarly both blacks and Hispanics have been found to be more likely than white women to use condoms, a lower efficacy method.^{7,9,10} While this suggests that racial/ethnic differences in contraceptive patterns may underlie differences in unintended pregnancies, cross-sectional studies have also found a countervailing trend, in that female sterilization, a highly effective method, is used more commonly as a contraceptive method by black and Hispanic women.^{7,11} As sterilization is used more often by older women⁷ and by those who have completed childbearing, while younger women and women with lower parity are more likely to use condoms or no method at all,⁷ these trends raise the question of whether racial/ethnic disparities in use of contraception vary over women's life course. Understanding how racial/ethnic differences in overall contraceptive use, as well as in the type of method used, vary across age and reproductive experiences may provide insight into factors that shape contraceptive behavior.

In addition, this understanding can help to guide interventions designed to address disparities in contraceptive use and, ultimately, unintended pregnancy through identifying which women are at highest risk.

We used data from the 2006–2010 cycle of the National Survey of Family Growth (NSFG) to analyze patterns of contraceptive use by race/ethnicity with regard to both overall use and the effectiveness of the method used, as well as to assess how the relationship between race/ethnicity and contraceptive use was modified by age and reproductive experiences.

Materials and Methods

Study design

We conducted a secondary analysis of cross-sectional data collected in the 2006–2010 NSFG. The NSFG is conducted by the National Center for Health Statistics, an agency of the US Department of Health and Human Services. The purpose of the survey is to provide nationally representative data on factors affecting men's and women's reproductive health.

Study sample

The NSFG uses a national probability sample designed to represent men and women aged 15–44 in the household population of all 50 states and the District of Columbia. For the 2006–2010 NSFG, face-to-face interviews were conducted between June 2006 and June 2010. Blacks, Hispanics, and individuals aged 15–24 were oversampled; the overall response rate was 77%. A more complete description of the sampling methods for 2006–2010 cycle of the NSFG is described elsewhere.¹²

The study population for the 2006–2010 NSFG included 12,279 women and 10,403 men for a total sample size of 22,692. For this analysis, we included only data from women participants who were at risk for unintended pregnancy. Women were considered at risk for unintended pregnancy if they had had sexual intercourse with a man in the 3 months prior to interview and were not pregnant, trying to get pregnant, or postpartum at the time of interview. We excluded women who reported that they or their partners were infertile as well as women who were using contraception in the 3 months prior to the interview but were not sexually active during that period.

Study variables

We sought to examine the relationship between race/ethnicity and current use of any contraceptive method (defined as use in the month of the interview) as well as type of method (categorized by clinical effectiveness). The effectiveness of contraceptive methods were categorized based on the World Health Organization recommendations.¹³ Accordingly, we considered barrier methods (i.e., condoms, diaphragms/sponges, spermicides) to be “less effective” and hormonal methods (pills, patch, ring, and injectables) to be “moderately effective.” Intrauterine devices (IUDs), implants, and male or female sterilization were considered to be “highly effective.” For the main analysis, withdrawal and natural family planning methods were considered as “no method”, due to our desire to focus on the use or non-use of modern contraceptive methods. Women who reported using emergency

contraception alone (n=8) were also classified as not using a method, as this form of pregnancy prevention is not designed for on-going use. If a woman reported more than one type of method in the month of interview, we used the most effective method for our analysis. We examined several contraceptive use outcomes, including: 1) use of any method; 2) use of a highly or moderately effective method among women using contraception; and 3) use of a highly effective method among women using contraception.

The key independent variable of interest was self-reported race/ethnicity. Insurance status, income, education level, marital status, and religion were included as control variables. Age, parity, and history of unintended pregnancy (either “unwanted” or occurring “too soon”)¹¹ were examined in more detail as potential moderators of the associations between race/ethnicity and contraceptive use.

Statistical Analysis

We examined socio-demographic characteristics of the study sample by effectiveness of their reported current contraceptive method (no method, less effective, moderately effective, and highly effective) using chi-square analysis. We then conducted multivariate logistic regression analyses, in which we controlled for all covariates for each of our three outcomes. We tested for interactions between race/ethnicity and each of three potential effect modifiers (age, parity, and history of unintended pregnancy). Given the potential for collinearity between our proposed effect modifiers, for outcomes in which more than one interaction was identified, we examined the relative importance of these interactions by constructing a model in which all significant interactions were included. Those interaction terms with a p value of <0.1 in these combined models were considered to be significant interactions. We then conducted stratified analyses for those variables that demonstrated significant interactions including all other covariates.

As history of abortion is known to be underreported in the NSFG,¹⁴ we did not include this in the primary model, but performed a sensitivity analysis to determine whether inclusion of this variable affected the association of other covariates with the outcomes in the multivariate models. We also performed a second sensitivity analysis in which we included natural family planning methods, withdrawal and emergency contraception as less effective methods.

Statistical analyses for this project were conducted using SAS software (version 9.2, SAS Institute Inc., Cary, NC), utilizing appropriate modifications for the NSFG’s complex sample design. All percentages shown have been weighted to reflect national estimates. This study was approved by the University of Pittsburgh Institutional Review Board.

Results

Sample

Table 1 presents the characteristics of the sample by race/ethnicity. Consistent with the representative sampling, there were no significant differences between race/ethnic groups by age. Across all other sociodemographic characteristics, there were significant racial/ethnic

differences, including Hispanic and black women having lower income and educational achievement and higher incidence of prior unintended pregnancy (ies).

Bivariate Results

In bivariate analyses of contraceptive use (Table 2), 18% of all women reported using no method, 16% used a less effective method, 28% used a moderately effective method, and 37% used a highly effective method. The distribution of contraceptive use varied significantly by race/ethnicity ($p < 0.001$), with both Hispanics and blacks being more likely than white women to report no method use (19% and 24% vs. 16%, respectively). In addition, these same groups were more likely to use a less effective method (18% and 18% vs. 14%), and, therefore, less likely to use a moderately or highly effective method (64% and 58% vs. 70%). Among all women using highly effective methods, 85% relied on sterilization and 15% reported IUD or implant use, and there were no racial/ethnic differences in the distribution of these highly effective methods (data not shown). However, white women were more likely to rely on male sterilization and less likely to rely on female sterilization, when compared to Hispanic and black women ($p < 0.001$). Other demographic variables that were associated with use of contraception included age, income, education, insurance, marital status, religion, parity, as well as history of either unintended pregnancy or having had an abortion.

Multivariate Results

Adjusted analyses are presented in Table 3. With regard to any contraceptive use, blacks were less likely to use a method compared to whites (adjusted odds ratio (AOR) 0.65; 95% CI: 0.51–0.83) while the difference between Hispanics and non-Hispanic whites in use of any method was not statistically significant. Among women using contraception, Hispanics and blacks were less likely than whites to use a highly or moderately effective method vs. a less effective method (AOR 0.57; 95% CI: 0.43–0.76 and AOR 0.49; 95% CI: 0.37–0.65, respectively). In addition, significant disparities between both Hispanics and blacks compared to whites in use of highly effective methods were evident (AOR 0.59; 95% CI: 0.46–0.77 and AOR: 0.63; 95% CI: 0.46–0.84, respectively).

With respect to other variables, older age and having been married were associated with use of a highly effective method, higher parity was associated with use of any method and with more effective methods, and a history of having had one or two unintended pregnancies was significantly associated with use of a highly effective method, although the association with having had 3 or more unintended pregnancies did not reach statistical significance. Educational attainment had inconsistent associations with contraceptive use, while income was not associated with any of the outcomes. Women with public or no insurance were significantly less likely to use a method, as well as being less likely to use a highly or moderately effective method.

In the sensitivity analysis investigating the effect of including abortion in the models shown in Table 3, there were no significant changes to these findings (data not shown). In addition, having had an abortion was not associated with any of the outcomes in multivariate

analyses. Similarly, including natural family planning methods, withdrawal, and emergency contraception as less effective methods did not change the racial/ethnic trends observed.

Interaction Analyses

Interactions between race/ethnicity and age were found for all three outcomes ($p=0.046$, $p=0.003$ and $p<0.001$ for any method vs. no method, high/moderate vs. less effective method, and high vs. moderate/less method, respectively) (data not shown). For parity, interactions were only found for the high/moderate vs. less effective method outcome ($p=0.006$). No substantial interactions between race/ethnicity and history of unintended pregnancy were identified. When both interaction terms (race/age and race/parity) were included in the high/moderate vs. less effective method analysis, only the interaction with age remained significant ($p=0.003$ for race/age interaction and $p=0.11$ for the race/parity interaction).

Table 4 presents stratified data by age for each racial/ethnic group. In assessing disparities in use of any method vs. no method, there were no clear trends by age. With respect to the high/moderate vs. less effective method outcome and the high vs. moderate/less effective outcome, there was notable variation by age, with more prominent disparities among younger women. The one exception was the youngest Hispanics, who were significantly more likely to use a high vs. moderate or less effective method than were non-Hispanic whites of the same age (AOR: 5.03; 95% CI: 1.43–17.7), and were not significantly different from whites in use of a high or moderate vs. less effective method

To better understand differences in use of highly effective methods, we performed stratified analyses by age, race/ethnicity and type of high-efficacy method (male or female sterilization vs. IUD or implant) (Figure 1). The difference between Hispanics, whites and blacks in the 15–19 year old age group was driven by differences in use of IUDs or implants, with Hispanics being most likely to use these methods (11%) followed by whites (1.3%) and blacks (0.7%). Differences in use of highly effective methods in women ages 20–29 were due to differences in sterilization, with whites having the highest proportion using sterilization in this age group. In fact, Hispanics and blacks between the ages of 20 and 29 were slightly more likely to use IUDs or implants than were whites (8% and 7% vs. 6%, respectively). The difference in sterilization in this age group between whites and Hispanics was due to whites being more likely to rely on both male and female sterilization, while for blacks this difference was driven only by a higher percentage of white women relying on male sterilization. Among women in the 40+ age year group, 70% of Hispanic women and 66% of black women relied on sterilization (12% male and 58% female sterilization for Hispanics and 3% male and 63% female sterilization for blacks), while only 62% of whites relied on this method (25% male and 37% female sterilization). Blacks in this age group were less likely to use IUDs or implants than white and Hispanic women (4% for whites, 3% for Hispanics and 1% for blacks).

Comment

This analysis of the 2006–2010 NSFG confirms the existence of substantial racial/ethnic disparities in contraceptive use in the United States, with both Hispanic and black women

being less likely to use effective methods of contraception than white women. In addition, black women at risk for unintended pregnancy are less likely to be using any method of contraception. In assessing variation in disparities across age and reproductive life experiences, we found that these disparities are concentrated in younger women, especially when assessing disparities between blacks and whites.

One particular finding of interest, which has not been previously described, is the presence of racial/ethnic disparities in use of highly effective methods in the multivariable model. These disparities are somewhat surprising given the higher rate of female sterilization among non-white women as compared to white women.¹¹ This finding is largely explained by white women being more likely to rely on male sterilization than the other racial/ethnic groups, as well as the effect of controlling for other demographic characteristics. The concentration of the disparities in use of highly effective methods in the younger age groups, with the exception of Hispanic women aged 15–19, appears to be driven by both differential use of the IUD and implant between blacks and whites ages 15–19 as well as by different timing of sterilization by racial/ethnic group. Surprisingly, we found that white women in the 20–29 year old group were more likely to rely on sterilization than Hispanic and black women. At older ages, Hispanic and black women outpace white women with regard to relying on sterilization, though they remain far less likely to rely on male sterilization throughout their reproductive years.

Possible reasons for disparities in contraceptive use include differences in patient knowledge and higher levels of concerns about the safety of birth control.^{15–18} Disparities in contraceptive use could also result from differential access to medical care,¹⁹ as well as differences in the experience interfacing with the medical system, even when financial and access barriers are removed, as racial/ethnic minorities report more distrust of the health care system than whites.^{20–22} This distrust could be amplified in the context of contraception given a history in which some family planning programs in the United States were associated with coercion of minorities to use highly effective methods.^{23–25,26} In addition, some studies have suggested that minority women may receive lower quality of family planning care,^{27,28} as well as specifically experience pressure to use birth control from medical providers.^{27,29} The experience of being pressured may elicit a contradictory response, as one study found that women's perception of being pressured to choose a specific method was associated with early discontinuation of this method.³⁰ Our findings regarding the concentration of disparities among younger women suggests that life experience may help black and Hispanic women to overcome these barriers to contraceptive use.

The presence of variation in contraceptive disparities by age has implications for interventions designed to decrease disparities in contraceptive use. The sub-groups of blacks and, to a lesser extent, Hispanics at highest risk of non-use of contraception or use of less effective methods are those who are younger. Public health interventions designed to reach these women, who may have had less exposure to the medical system, may benefit from using non-clinical methods of communicating information about contraceptive methods and the risk of unintended pregnancy, including social media and peer-to-peer interventions. The lower utilization of highly effective methods among young black women and Hispanic

women between the age of 20 and 29, coupled with the higher rates of unintended pregnancy observed in these racial/ethnic groups and the finding that women of color may have less awareness about highly effective reversible methods,³¹ suggests the value of ensuring that these women have information about these methods. Recent evidence that racial disparities in contraceptive use are increasing over time further highlights the importance of this work.³² However, any such efforts need to be aware of and sensitive to the historical context regarding coercion of minority women to use highly effective contraception.^{23–25}

In considering our results, it is important to be aware of some differences between how we conducted analyses and other previously reported analyses of the NSFG. First, we classified those who used withdrawal, natural family planning and emergency contraception as not using a method in order to focus our analysis on modern methods that are designed to be used on an on-going basis. However, sensitivity analysis including these methods as less effective methods did not alter our findings. In addition, our methodology differed in how we determined who was at risk for unintended pregnancy, in that we excluded women who were using contraception but were not sexually active in the previous three months. In contrast, all women using contraception, regardless of sexual activity, are often included in the at-risk group in analyses conducted of the NSFG.⁷ Together, these differences account for our finding of a higher rate of non-use of contraception (18% vs. 11%).⁷ An additional consideration is our inclusion of women who relied on sterilization in our analyses. The only other analyses to use multivariate modeling of contraceptive disparities using nationally representative samples excluded these women.^{8,10,33} Including these women provides a more comprehensive assessment of the number of women of risk for unintended pregnancy and their contraceptive use.

Limitations of our analysis include the cross-sectional nature of our data. While we have attempted to approximate a life course perspective on women's contraceptive use, our findings of variations in racial/ethnic disparities in contraceptive use potentially could reflect cohort effects rather than changes over individual women's life courses. As with all analyses of the NSFG, we relied on self-report of contraceptive use rather than objective sources of data such as pharmacy records. Finally, the inclusion of all women in our sample who do not report that they are trying to get pregnant at the time of interview will result in the inclusion of some women who, while perhaps not actively trying to get pregnant, are not necessarily trying to avoid pregnancy (either due to ambivalence or other factors). Given some evidence that there may be racial/ethnic differences in pregnancy intentions and that ambivalence may be associated with use of less effective methods,³⁴ these differences may underlie some of our findings.

In conclusion, these results provide further insight into disparities in contraceptive use, and offer guidance around how to best work to mitigate these disparities and the resulting disparities in unintended pregnancy. Ensuring that young women of color have information about and access to effective methods that can help them achieve their reproductive goals may be the best approach to reduce disparities in women's reproductive outcomes.

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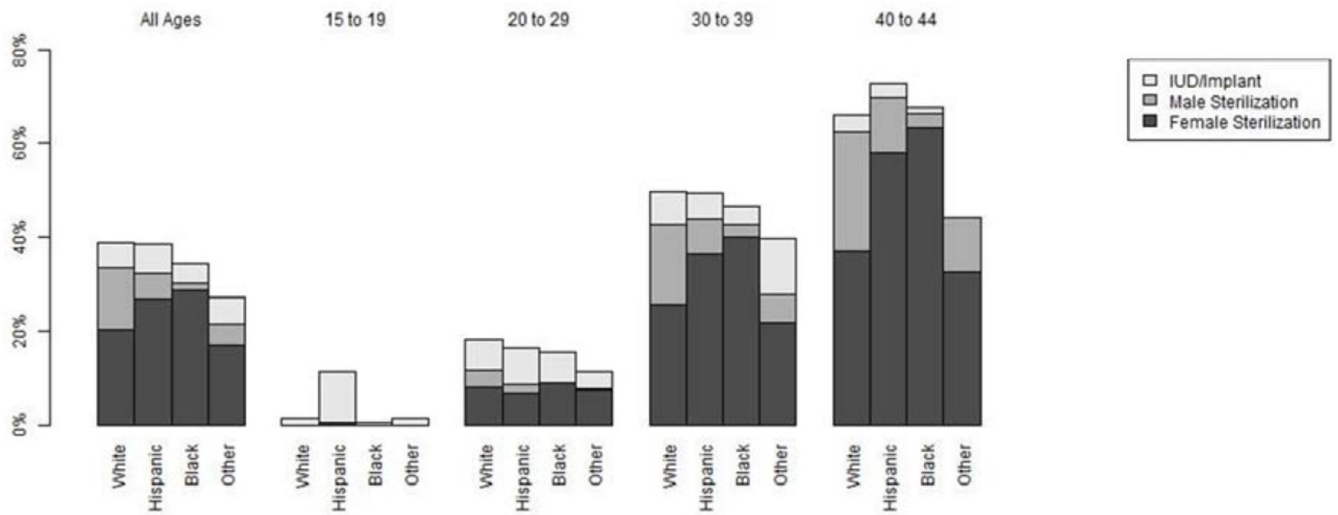


Figure 1. Use of highly effective methods (intrauterine contraception, female sterilization, and male sterilization), by age and race/ethnicity

Table 1

Characteristics of Sample, by Race/Ethnicity

Socio-demographic characteristic	Category	Overall (N=7214)	White (n=3755)	Hispanic (n=1589)	Black (n=1326)	Other (n=544)	p value χ^2
Age							
	15-19	679 (8)	358 (7)	143 (8)	125 (9)	53 (9)	0.1899
	20-29	2841 (35)	1408 (34)	629 (36)	572 (39)	232 (35)	
	30-39	2595 (38)	1342 (38)	621 (40)	450 (34)	182 (36)	
	40-44	1099 (20)	647 (21)	196 (17)	179 (18)	77 (20)	
Income							
	<100 poverty level	1775 (19)	610 (13)	521 (32)	521 (35)	123 (19)	<.0001
	100-299 poverty level	3082 (42)	1527 (40)	765 (49)	556 (43)	234 (44)	
	>299 poverty level	2357 (38)	1618 (47)	303 (19)	249 (22)	187 (37)	
Education							
	HS diploma or less	3447 (44)	1449 (37)	1032 (66)	763 (56)	203 (31)	<.0001
	Some college	3767 (56)	2306 (63)	557 (34)	563 (44)	341 (69)	
	Private	4095 (64)	2573 (73)	654 (41)	561 (48)	307 (60)	<.0001
	Public/None	3119 (36)	1182 (27)	935 (59)	765 (52)	237 (40)	
Marital Status							
	Ever been married	3971 (65)	2312 (69)	906 (63)	469 (46)	284 (60)	<.0001
	Never been married	3243 (35)	1443 (31)	683 (37)	857 (54)	260 (40)	
Religion							
	None	1470 (19)	952 (22)	245 (13)	160 (11)	113 (19)	<.0001
	Catholic	1856 (25)	743 (19)	933 (59)	68 (6)	112 (22)	
	Protestant	3327 (48)	1709 (50)	357 (23)	1057 (79)	204 (36)	
	Other	561 (9)	351 (9)	54 (4)	41 (4)	115 (23)	
Parity							
	0	2466 (32)	1525 (36)	373 (22)	337 (25)	231 (36)	<.0001
	1	1372 (17)	685 (17)	299 (16)	298 (21)	90 (17)	
	2	1765 (27)	940 (28)	383 (23)	331 (27)	111 (23)	
	3+	1611 (24)	605 (19)	534 (40)	360 (28)	112 (24)	
Unintended Pregnancies							
	0	3525 (51)	2139 (56)	674 (42)	420 (32)	292 (52)	<.0001
	1	1814 (26)	908 (25)	449 (28)	333 (25)	124 (26)	
	2	992 (13)	423 (12)	259 (16)	256 (19)	54 (9)	

	Overall (N=7214)	White (n=3755)	Hispanic (n=1589)	Black (n=1326)	Other (n=544)	p value χ^2
Socio-demographic characteristic	N (%)	n (%)	n (%)	n (%)	n (%)	
Category						
3+	883 (11)	285 (7)	207 (14)	317 (23)	74 (13)	
Ever had an Abortion	6074 (85)	3243 (87)	1370 (87)	992 (77)	469 (86)	<.0001
Yes	1140 (15)	512 (13)	219 (13)	334 (23)	75 (14)	

Table 2

Percent of women using each category of contraceptive method*

Socio-demographic characteristic	Category	No method (n=1405)	Less effective method (n=1321)	Moderately effective method (n=2080)	Highly effective method (n=2408)	p value
All women		18	16	28	37	
Race/Ethnicity	White	16	14	31	39	<.0001
	Hispanic	19	18	25	39	
	Black	24	18	24	34	
	Other	26	25	22	27	
Age	15-19	32	21	44	3	<.0001
	20-29	19	22	42	17	
	30-39	17	14	21	48	
	40-44	15	10	10	65	
Income	<100 poverty level	21	15	26	39	<.0001
	100-299 poverty level	19	17	25	39	
	> 299 poverty level	16	16	33	34	
Education	HS diploma or less	21	14	23	43	<.0001
	Some college	16	18	32	33	
Insurance Status	Private	16	16	31	37	<.0001
	Public/None	22	17	23	38	
Marital Status	Ever been married	15	14	21	50	<.0001
	Never been married	24	21	42	14	
Religion	None	21	16	30	33	<.0001
	Catholic	19	18	30	33	
	Protestant	17	14	27	43	
	Other	18	25	26	31	
Parity	0	22	24	49	6	<.0001
	1	26	20	30	24	
	2	13	13	17	57	

Socio-demographic characteristic	Category	No method (n=1405)	Less effective method (n=1321)	Moderately effective method (n=2080)	Highly effective method (n=2408)	p value
	3+	13	7	11	68	
Unintended Pregnancies	0	19	20	37	24	<.0001
	1	18	14	22	46	
	2	16	12	17	55	
	3+	19	10	14	57	
Ever had an Abortion	No	18	16	29	37	0.0325
	Yes	20	16	23	41	

* No method includes all women reporting no pregnancy prevention measures, as well as those using emergency contraception, natural family planning, and withdrawal. Less effective methods include condoms, diaphragms/sponges and spermicides. Moderately effective methods are the pill, patch, ring, and contraceptive injection. Highly effective methods are the IUD, implant, and male and female sterilization.

Table 3

Adjusted associations between socio-demographic variables and contraceptive use

Socio-demographic characteristic	Category	Any method vs no method N=7214		High/Mod vs Less Effective (excluding non-users) N=5809		High vs Mod/Less Effective (excluding non-users) N=5809	
		Adjusted OR	p value	Adjusted OR	p value	Adjusted OR	p value
Race/Ethnicity	White	<i>Ref</i>		<i>Ref</i>		<i>Ref</i>	
	Hispanic	0.94 (0.76, 1.17)	0.6085	0.57 (0.43, 0.76)	0.0001	0.59 (0.46, 0.77)	<0001
	Black	0.65 (0.51, 0.83)	0.0004	0.49 (0.37, 0.65)	<0001	0.63 (0.46, 0.84)	0.0021
	Other	0.59 (0.45, 0.77)	<0001	0.41 (0.28, 0.61)	<0001	0.58 (0.38, 0.88)	0.0106
Age	15-19	<i>Ref</i>		<i>Ref</i>		<i>Ref</i>	
	20-29	1.51 (1.09, 2.10)	0.0123	0.99 (0.72, 1.38)	0.9709	2.26 (1.11, 4.62)	0.0252
	30-39	1.15 (0.79, 1.68)	0.4710	1.19 (0.81, 1.74)	0.3673	5.79 (2.72, 12.3)	<0001
	40-44	1.25 (0.85, 1.84)	0.2624	1.49 (0.94, 2.39)	0.0931	12.0 (5.69, 25.3)	<0001
Income	< 100 poverty level	<i>Ref</i>		<i>Ref</i>		<i>Ref</i>	
	100-299 poverty level	0.95 (0.73, 1.23)	0.6953	0.78 (0.60, 1.01)	0.0604	1.08 (0.81, 1.44)	0.5907
	> 299 poverty level	1.02 (0.76, 1.39)	0.8785	1.00 (0.71, 1.41)	0.9968	1.16 (0.79, 1.69)	0.4439
Education	HS diploma or less	<i>Ref</i>		<i>Ref</i>		<i>Ref</i>	
	At least some college	1.24 (1.02, 1.51)	0.0274	0.79 (0.63, 0.98)	0.0326	0.55 (0.43, 0.71)	<0001
Insurance status	Private	<i>Ref</i>		<i>Ref</i>		<i>Ref</i>	
	Public/None	0.75 (0.61, 0.92)	0.0066	0.76 (0.60, 0.98)	0.0313	1.15 (0.86, 1.55)	0.3384
Marital status	Ever been married	<i>Ref</i>		<i>Ref</i>		<i>Ref</i>	
	Never been married	0.89 (0.73, 1.08)	0.2483	0.97 (0.77, 1.23)	0.8315	0.56 (0.44, 0.73)	<0001
Religion	Catholic	<i>Ref</i>		<i>Ref</i>		<i>Ref</i>	
	None	1.08 (0.82, 1.42)	0.6020	1.22 (0.89, 1.66)	0.2148	1.94 (1.38, 2.74)	0.0001
Parity	Protestant	1.29 (0.99, 1.67)	0.0567	1.35 (1.02, 1.79)	0.0329	1.74 (1.32, 2.28)	<0001
	Other	1.11 (0.76, 1.62)	0.5884	0.65 (0.43, 0.97)	0.0355	0.85 (0.54, 1.32)	0.4668
Parity	0	<i>Ref</i>		<i>Ref</i>		<i>Ref</i>	
	1	0.89 (0.67, 1.18)	0.4063	1.07 (0.79, 1.43)	0.6724	3.15 (2.15, 4.59)	<0001

Socio-demographic characteristic	Category	Any method vs no method N=7214		High/Mod vs Less Effective (excluding non-users) N=5809		High vs Mod/Less Effective (excluding non-users) N=5809	
		Adjusted OR	p value	Adjusted OR	p value	Adjusted OR	p value
	2	2.11 (1.51, 2.95)	<.0001	1.97 (1.40, 2.77)	0.0001	9.62 (6.93, 13.3)	<.0001
	3+	2.37 (1.61, 3.50)	<.0001	4.30 (3.01, 6.14)	<.0001	20.0 (13.2, 30.3)	<.0001
Unintended pregnancies	0	<i>Ref</i>		<i>Ref</i>		<i>Ref</i>	
	1	0.94 (0.74, 1.20)	0.6458	1.31 (1.02, 1.69)	0.0346	1.59 (1.24, 2.04)	0.0002
	2	0.97 (0.69, 1.36)	0.8629	1.17 (0.85, 1.61)	0.3437	1.49 (1.10, 2.01)	0.0107
	3+	0.74 (0.52, 1.04)	0.0853	1.24 (0.77, 1.99)	0.3741	1.37 (0.98, 1.91)	0.0659

Table 4

Adjusted odds of contraceptive use by race/ethnicity, stratified by age*

Race/Ethnicity	Age	Any vs no method N=7214		High/Mod vs Least (excluding non-users) N=5809		High vs Mod/Least (excluding non-users) N=5809	
		Adj OR	P value	Adj OR	P value	Adj OR	P value
Hispanic (Reference=White)	15-19	0.83 (0.46, 1.47)	0.5176	0.70 (0.34, 1.42)	0.3212	5.03 (1.43, 17.7)	0.0117
	20-29	0.93 (0.63, 1.38)	0.7311	0.50 (0.33, 0.75)	0.0008	0.31 (0.20, 0.48)	<.0001
	30-39	0.98 (0.64, 1.51)	0.9366	0.53 (0.34, 0.82)	0.0046	0.64 (0.45, 0.90)	0.0116
	40-44	0.94 (0.46, 1.94)	0.8679	0.79 (0.37, 1.73)	0.5608	0.90 (0.45, 1.78)	0.7552
Black (Reference=White)	15-19	0.98 (0.52, 1.86)	0.9584	0.32 (0.16, 0.62)	0.0008	0.10 (0.01, 1.46)	0.0928
	20-29	0.59 (0.42, 0.83)	0.0025	0.39 (0.27, 0.56)	<.0001	0.38 (0.24, 0.61)	<.0001
	30-39	0.67 (0.40, 1.10)	0.1121	0.78 (0.45, 1.34)	0.3665	0.79 (0.51, 1.22)	0.2861
	40+	0.76 (0.38, 1.49)	0.419	1.06 (0.37, 3.01)	0.9131	0.77 (0.37, 1.59)	0.4776

* Controlling for age, income, education, insurance status, marital status, religion, parity and history of unintended pregnancies.