



## Original article

# Exploring Young Adults' Contraceptive Knowledge and Attitudes: Disparities by Race/Ethnicity and Age



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## ABSTRACT

**Background:** Half of pregnancies in the United States are unintended, with the highest proportions occurring among Blacks, Hispanics, and teenagers. Understanding differences in knowledge and attitudes about contraception by race/ethnicity and age can improve efforts to reduce disparities in unintended pregnancy.

**Methods:** This analysis used data from the 897 female respondents in National Survey of Reproductive and Contraceptive Knowledge, a survey exploring young adults' knowledge and attitudes about contraception and pregnancy. Bivariate and multivariate logistic regression analyses were used to assess racial/ethnic and age group differences in knowledge and attitudes about contraceptives.

**Findings:** Hispanics and teenagers (aged 18–19) had lower awareness of available contraceptive methods, and lower knowledge about individual methods compared with White women and young adults (age 20–29). For example, Hispanics (74%) and teenagers (77%) were less likely to have heard of the intrauterine device (IUD) than were White women (90%) and young adults (90%), and were less likely to know that a woman experiencing side effects could switch brands of oral contraceptive pills (72% of Hispanics vs. 86% of White women; 76% of teenagers vs. 90% of young adults). Hispanics born outside the United States had lower knowledge about contraceptives than U.S.-born Hispanics. For example, foreign-born Hispanics were less likely than U.S.-born Hispanics to have heard of the IUD (59% vs. 82%) or the vaginal ring (55% vs. 95%).

**Conclusions:** Lower contraceptive knowledge among teenagers and Hispanics, particularly immigrants, suggests the importance of disseminating family planning information to these women as one means to address disparities in unintended pregnancy.

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Nearly half of the 6.7 million pregnancies in the United States are unintended (Finer & Zolna, 2011), with the highest proportions of unintended pregnancies occurring among racial/ethnic minorities and adolescents (Finer, 2010; Finer & Zolna, 2011). Non-use of contraception, use of less effective methods, and inconsistent use of contraception contribute to high unintended pregnancy and to disparities in unintended pregnancy by race/ethnicity and age (Finer & Zolna, 2011; Jones, Mosher, &

Daniels, 2012; Martinez, Copen, & Abma, 2011). Black and Hispanic women at risk of unintended pregnancy are less likely to use a method compared with White women (Frost, Singh, & Finer, 2007; Krings, Matteson, Allsworth, Mathias, & Peipert, 2008; Raine, Harper, Pauku, & Darney, 2002; Raine, Minnis, & Padian, 2003; Wu, Meldrum, Dozier, Stanwood, & Fiscella, 2008), and are more likely to use less effective barrier methods (Dehlendorf et al., 2011; Frost & Darroch, 2008). Blacks and Hispanics also have relatively higher rates of contraceptive discontinuation, inconsistent use (Kost, Singh, Vaughan, Trussell, & Bankole, 2008; Wu et al., 2008) and method failure (Kost, et al., 2008). There are similar differences by age, with teenagers at risk of unintended pregnancy being less likely to use contraception—and more likely

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to discontinue their method—than older women (Vaughan, Trussell, Kost, Singh, & Jones, 2008).

Knowledge about birth control is one likely factor influencing contraceptive use. Limited research suggests that misinformation and misperceptions regarding method side effects and efficacy are prevalent (Gilliam, Davis, Neustadt, & Levey, 2009; Sangi-Haghpeykar, Ali, Posner, & Poindexter, 2006), as are unwarranted concerns about the impact of contraceptive use on future fertility (Guendelman, Denny, Mauldon, & Chetkovich, 2000) and other negative health outcomes (Gilliam et al., 2009). A qualitative study of Hispanics found that erroneous beliefs contributed to use of less effective methods, as well as to interruption and discontinuation of contraceptives (Gilliam, Warden, Goldstein, & Tapia, 2004). Analyses of the National Survey of Reproductive and Contraceptive Knowledge, a nationally representative survey of men and women of reproductive age, have found that contraceptive knowledge is associated with contraceptive behaviors, including anticipated likelihood of unprotected sex, the effectiveness of methods used, and consistency of use (Frost, Lindberg, & Finer, 2012; Rocca & Harper, 2012).

How racial and ethnic differences in contraceptive knowledge and attitudes contribute to differences in contraceptive use has not been extensively investigated. One analysis of the National Survey of Reproductive and Contraceptive Knowledge data found racial and ethnic differences in attitudes about contraception, pregnancy and fertility, as well as lower knowledge of effective contraceptive methods among Hispanics compared with Whites (Rocca & Harper, 2012). Only contraceptive knowledge, however, partially accounted for use of less effective methods among Hispanics.

This analysis builds on prior research with the National Survey of Reproductive and Contraceptive Knowledge by exploring racial/ethnic disparities in specific areas of contraceptive knowledge. In addition, given the high unintended pregnancy rate and lower contraceptive use among adolescents (Finer, 2010), we also examine disparities in knowledge by age. Both prior analyses of these data used composite knowledge scales and did not examine how specific aspects of knowledge differed by race/ethnicity; neither study assessed disparities by age. In view of the prior finding that Hispanics have the lowest levels of knowledge (Rocca & Harper, 2012), we also investigated whether contraceptive knowledge among Hispanics varied by nativity. Further elucidating differences in contraceptive knowledge and attitudes by race/ethnicity and age will aid development of targeted interventions to improve contraceptive knowledge, with the ultimate goal of decreasing disparities in unintended pregnancies.

## Methods

### *Study Sample/Population*

We examined data from the 2009 National Survey of Reproductive and Contraceptive Knowledge, a nationally representative survey of 1,800 unmarried men and women aged 18 to 29 in the United States. The survey—conducted by the Guttmacher Institute and the National Campaign to Prevent Teen and Unplanned Pregnancy—was the first national survey to capture in-depth information on knowledge and attitudes regarding contraceptives and pregnancy. Detailed descriptions of the sampling methods (Frost et al., 2012) and survey methodology (Kaye, 2009) have been published elsewhere. Briefly, this survey sampled young adults between April 2008 and October 2009 via random digit dialing of landlines, a targeted sample of listed landline numbers, and a random sample of cell phone numbers,

with an approximate response rate of 20% for each sample frame (Kaye, 2009). Blacks and Hispanics were oversampled to allow for subgroup analysis. Surveys were conducted in English and Spanish. For this analysis, we included all female respondents.

## Measures

### *Contraceptive knowledge and attitudes*

A series of items were used to measure contraceptive knowledge and attitudes. We assessed contraceptive method awareness using questions about whether participants had heard of 12 contraceptive methods (yes, no/don't know). Contraceptive knowledge was examined using a series of true/false questions on correct use of, and facts about, six methods: The intrauterine device (IUD), contraceptive implant, injectable contraception (medroxyprogesterone acetate, Depo), oral contraceptive pill (OCP), vaginal ring, and condom. Responses were coded as correct versus incorrect/don't know. For one question on whether an IUD is likely to cause infection, we classified responses of not likely or slightly likely as correct to account for the transient increased risk at the time of insertion (Farley, Rosenberg, Rowe, Chen, & Meirik, 1992). We included three questions assessing knowledge of the relative efficacy of pairs of methods (IUD vs. OCP, Depo vs. OCP, Depo vs. condom, OCP vs. condom): Participants were asked to indicate which method was more effective, or whether both were equally effective. Response options were coded as correct versus incorrect, including “both equally effective” as incorrect (Hatcher et al., 2011). We also examined self-perceived knowledge of individual methods with items asking whether the respondent perceived herself to know nothing, a little, a lot, or everything about individual methods (dichotomized as everything/a lot vs. all others). Another question asked whether the participant perceived herself to have all the information she needed to avoid unplanned pregnancy (dichotomized as strongly agree vs. all others).

Finally, we examined attitudes thought to affect contraceptive use. One set of questions evaluated the importance of specific method characteristics to women (e.g., effectiveness, cost, ease of use). Response options were not at all, slightly, quite, and extremely important; for analyses, the scale was dichotomized as extremely important versus other. A final question assessed whether participants felt it was mainly a woman's responsibility to make decisions about birth control (dichotomized as strongly/somewhat agree vs. strongly/somewhat disagree).

### *Sociodemographic variables*

Our primary independent variables of interest were self-reported race/ethnicity (non-Hispanic White, non-Hispanic Black, Hispanic, other) and age. We initially used three age groups (18–19, 20–24, 25–29); however, because knowledge and attitudes were similar among women 20–24 and 25–29, we present results for two groups (teenagers [ages 18–19] and young adults [ages 20–29]). We also included measures of whether the participant had any children, sexual activity (sex last 12 months, had sex but not in last 12 months, never had sex), nativity (U.S. born, foreign born), and insurance status (private, Medicaid, other). Considering that many participants had not completed their education, we created a categorical education variable combining the highest education completed and whether the participant was still in school: Less than high school and not in school; high school/some college and not in school; less than high school/high school/some college and in school; and college degree. These categories were selected to capture both education and whether the participant was likely on track to obtain more education, while being

parsimonious about the number of categories, considering the relatively small sample size available for analysis.

### Analysis

To examine differences in sociodemographic characteristics between racial/ethnic groups, we used logistic or multinomial logistic regression depending on the coding of the characteristic; White was the reference group. Then, to assess racial/ethnic differences in each contraceptive knowledge and attitude item, we used a series of bivariable and multivariable logistic regression models. To examine knowledge and attitudinal differences among Hispanics by nativity, we repeated regression analyses with separate ethnic categories for U.S.- and foreign-born Hispanics. Similarly, we used logistic regression to investigate differences in knowledge and attitudes by age group. Multivariable models investigating differences by race/ethnicity controlled for sexual activity, education status and age (years). Multivariable models investigating differences by age group controlled for sexual activity, education status, and race/ethnicity. Covariables found to be strongly associated with others in the model (parity) or hypothesized to mediate race/ethnicity and knowledge (insurance status) were not included in multivariable models. We also conducted ordinal logistic regression using the full scale coding of the self-perceived knowledge and attitudinal items; however, because results were unchanged, we presented results with the dichotomous versions of all items. The other race category was included in all analyses, but results are not reported because of the small size and heterogeneous makeup of the group. Survey weights were used to account for the complex sampling approach. Results are reported in the text when significant at  $p < .05$  in both bivariable and multivariable models. We used Stata version 12.1 (College Station, TX) for all analyses.

## Results

### Sample Characteristics

The analytic sample consisted of 897 female respondents: 60% identified as non-Hispanic White, 20% as non-Hispanic

Black, and 24% as Hispanic (Table 1). Ten percent were born outside of the United States, with 35% of Hispanics being foreign born. Respondents were on average 22 years old, and 26% were 18 or 19 years old. Most women were sexually active, with 85% reporting having ever had sex and 79% reporting having been sexually active in the last year.

### Contraceptive Knowledge and Awareness by Race/Ethnicity

Overall, there were substantial deficits in awareness of contraceptive methods, as well as in method-specific knowledge (Table 2). Women were least likely to have heard of female sterilization (73%), the long-acting reversible methods (implant [52%] and IUD [87%]), as well as natural family planning (67%). Hispanics were less likely to be aware of specific methods than Whites, including male sterilization (79% vs. 97%), the IUD (74% vs. 90%), the ring (81% vs. 96%), and the patch (90% vs. 97%). Awareness among Blacks was slightly lower than among Whites, with 88% of Blacks aware of male sterilization, 90% aware of the ring, and 58% aware of natural family planning. Awareness of condoms and OCPs was almost universal among all racial/ethnic groups.

There was low overall knowledge about specific aspects of contraceptive methods. For example, 56% of women knew that nulliparous women can use an IUD, and 22% knew that an IUD does not cause infertility. In addition, 24% of women knew that OCPs protect against certain types of cancer, and 25% knew that a pelvic examination is not required to obtain OCPs. A few differences in knowledge were found by race/ethnicity: 43% of Hispanics versus 65% of Whites knew that women can use tampons with an IUD, and 51% versus 75% knew that IUD/implants can be removed early. In addition, 35% of Blacks and 26% of Hispanics versus 51% of Whites knew that the ring does not need to be inserted by a provider; 81% of Blacks and 72% of Hispanics versus 92% of Whites knew that women can switch OCP brands to alleviate side effects. Conversely, Blacks had higher knowledge compared with Whites in some areas: 61% of Blacks versus 43% of Whites knew an IUD does not move in the body, and 34% versus 21% of Whites correctly knew that a pelvic examination is not required to obtain OCPs.

**Table 1**  
Female Respondent Characteristics by Self-Reported Race/Ethnicity, National Survey of Reproductive and Contraceptive Knowledge (n = 897)

Variable	Total (100%)	Non-Hispanic White <sup>†</sup> (n = 432; 60%)	Non-Hispanic Black (n = 220; 20%)	Hispanic (n = 186; 14%)	Other (n = 59; 6%)
Age (y)					
18–19	26	24	25	34	23
20–24	43	44	43	37	48
25–29	32	32	32	29	29
Has a child	30	23	50***	46***	12
Education status					
<HS, not in school	10	8	13	15	8
HS/GED/some college, not in school	30	29	33	35	16
<HS/HS/GED/some college, in school	41	41	42	40	41
College degree	19	22	12	10	35
Sexual activity					
Sexually active in last 12 months	79	79	80	80	72
Has had sex, but not in last 12 months	6	5	10	4	3
Has never had sex	16	16	10	16	25
Foreign born	10	3	5	35***	32***
Insurance in last 12 months					
Private	62	67	54*	50*	73
Medicaid	22	19	29*	29*	14
Other	16	15	18*	21*	13

Abbreviations: GED, graduate equivalency diploma; HS, high school.

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

<sup>†</sup> Non-Hispanic White is the reference race/ethnicity category.

**Table 2**  
Correct Knowledge of Contraceptive Methods by Race/Ethnicity: Percentages and Adjusted Odds Ratios (aOR; n = 897)

Measure	Total (%)	White (%)	Black (vs. White)		Hispanic (vs. White)	
			(%)	aOR (95% CI) <sup>†</sup>	(%)	aOR (95% CI) <sup>†</sup>
Method awareness (% aware)						
Female sterilization	73	76	72	0.89 (0.49–1.60)	65	0.66 (0.36–1.20)
Male sterilization	91	97	88**	<b>0.26* (0.09–0.76)</b>	79***	<b>0.14*** (0.05–0.37)</b>
Contraceptive implant	52	53	55	1.07 (0.62–1.83)	45	0.70 (0.39–1.23)
IUD	87	90	89	0.90 (0.42–1.93)	74***	<b>0.29*** (0.15–0.60)</b>
Depo/injection	90	93	92	0.70 (0.30–1.67)	87	0.43 (0.16–1.10)
Birth control pills	98	100	100	‡	95**	‡
Vaginal ring	92	96	90*	<b>0.33* (0.13–0.85)</b>	81***	<b>0.18*** (0.07–0.46)</b>
Transdermal patch	95	97	98	1.65 (0.33–8.22)	90*	<b>0.28* (0.10–0.79)</b>
Male condom	99	100	100	‡	99	‡
Female barriers <sup>§</sup>	92	96	93	0.62 (0.19–2.03)	89	0.39 (0.15–1.00)
Natural family planning	67	73	58*	0.58 (0.34–1.01)	52***	<b>0.46** (0.26–0.82)</b>
Emergency contraception	95	98	91	0.20 (0.03–1.15)	90*	0.20 (0.04–1.01)
Method knowledge (% answered correctly)						
IUD						
A young woman can use an IUD even if she has never had a child. (T)	56	60	56	0.94 (0.56–1.56)	47	0.63 (0.36–1.10)
An IUD is not likely/slightly likely to give you an infection. (T)	73	75	68	0.77 (0.42–1.38)	63*	0.62 (0.34–1.12)
An IUD is not likely to cause infertility. (T)	22	24	18	0.69 (0.37–1.30)	19	0.77 (0.42–1.42)
The IUD is more effective than the pill. (T)	48	45	53	1.38 (0.81–2.34)	55	1.46 (0.86–2.48)
All IUDs are banned from use in the United States. (F)	75	79	75	0.81 (0.44–1.52)	66*	0.54 (0.29–1.01)
Women who use IUDs cannot use tampons. (F)	61	65	61	0.89 (0.52–1.53)	43***	<b>0.44** (0.25–0.78)</b>
To obtain an IUD, a woman must undergo an operation. (F)	52	53	51	0.96 (0.57–1.59)	53	1.03 (0.59–1.79)
IUDs can move around in a woman's body. (F)	46	43	61**	<b>2.24** (1.32–3.79)</b>	36	0.82 (0.49–1.37)
IUDs/implants cannot be removed early if a woman changes her mind. (F)	70	75	75	1.04 (0.57–1.88)	51***	<b>0.35*** (0.19–0.65)</b>
Depo/injectable						
Women using Depo must get a shot every 3 months. (T)	80	81	83	1.07 (0.58–1.98)	77	0.74 (0.37–1.46)
Depo is more effective than the pill. (T)	45	42	49	1.28 (0.76–2.15)	55*	1.59 (0.93–2.75)
Depo is more effective than the condom. (T)	61	63	60	0.88 (0.52–1.48)	59	0.83 (0.47–1.45)
If a woman is late for her shot, she is protected for 3 more months. (F)	67	67	67	0.93 (0.52–1.67)	70	1.14 (0.63–2.05)
Negative effects from the shot can last the rest of a woman's life. (F)	46	45	50	1.20 (0.72–2.00)	52	1.35 (0.76–2.41)
Vaginal ring						
Women using the ring must have a provider insert it every month. (F)	43	51	35*	<b>0.53* (0.32–0.89)</b>	26***	<b>0.38*** (0.22–0.66)</b>
Birth control pill						
Women having side effects with one pill can switch to another type. (T)	86	92	81**	<b>0.36** (0.17–0.77)</b>	72***	<b>0.23*** (0.11–0.49)</b>
Pills reduce the chances of getting certain kinds of cancer. (T)	24	25	15*	0.54 (0.29–1.02)	30	1.47 (0.82–2.66)
The pill is more effective than the condom. (T)	53	57	50	0.78 (0.46–1.31)	44	0.60 (0.35–1.03)
Pills are effective even if a woman misses 2–3 days in a row. (F)	82	85	78	0.59 (0.29–1.20)	75*	0.52 (0.26–1.06)
Women should “take a break” from OCPs every couple of years. (F)	53	53	58	1.32 (0.78–2.24)	46	0.79 (0.45–1.37)
If a woman stops taking pills, she cannot get pregnant for >2 months. (F)	76	76	82	1.60 (0.84–3.06)	66	0.64 (0.34–1.18)
To get pills, a woman must have a pelvic examination. (F)	25	21	34*	<b>1.86* (1.05–3.31)</b>	31	1.55 (0.84–2.86)
Condom						
Condoms have an expiration date. (T)	95	95	96	1.38 (0.43–4.42)	92	0.60 (0.27–1.35)
When putting on a condom, it is important to leave room at the tip. (T)	82	84	83	1.00 (0.47–2.14)	79	0.76 (0.39–1.50)
It is OK to use a condom more than once. (F)	98	98	100	‡	98	‡
It is OK to use petroleum jelly/Vaseline with latex condoms. (F)	53	51	56	1.37 (0.80–2.34)	63	<b>1.97* (1.16–3.37)</b>
Wearing two latex condoms will provide extra protection. (F)	74	75	74	1.07 (0.59–1.93)	75	1.10 (0.55–2.21)
Self-perceived knowledge						
Perceives herself to...						
Know a lot or everything about IUDs and their use.	7	8	5	0.56 (0.20–1.55)	6	0.72 (0.24–2.21)
Know a lot or everything about Depo/injectable and their use.	13	11	21*	<b>2.15* (1.03–4.489)</b>	15	1.49 (0.65–3.40)
Know a lot or everything about birth control pills and their use.	53	63	43**	<b>0.44** (0.26–0.73)</b>	32***	<b>0.29*** (0.17–0.50)</b>
Know a lot or everything about condoms and their use.	67	74	67	0.69 (0.39–1.22)	43***	<b>0.25*** (0.14–0.45)</b>
Have all the information needed to avoid an unplanned pregnancy.	69	72	68	0.88 (0.51–1.54)	66	0.82 (0.46–1.45)

(continued on next page)



Table 2 (continued)

Measure	Total (%)	White (%)	Black (vs. White)		Hispanic (vs. White)	
			(%)	aOR (95% CI) <sup>†</sup>	(%)	aOR (95% CI) <sup>†</sup>
Contraceptive attitudes						
It is mainly a woman's responsibility to make decisions about birth control.	61	53	78***	<b>3.24*** (1.92–5.49)</b>	72**	<b>2.13** (1.21–3.73)</b>
It is important to me that a contraceptive....						
Is effective at preventing pregnancy.	88	89	86	0.80 (0.36–1.78)	90	1.01 (0.44–2.33)
Is low cost.	45	46	40	0.80 (0.46–1.40)	55	1.45 (0.82–2.57)
Is easy to use.	74	74	75	1.13 (0.62–2.09)	81	1.58 (0.78–3.19)
Doesn't contain hormones.	37	35	37	1.12 (0.63–2.00)	51*	<b>1.96* (1.07–3.57)</b>
Is acceptable to my partner.	50	51	44	0.73 (0.42–1.26)	57	1.20 (0.68–2.14)
Doesn't interrupt sex.	49	48	53	1.22 (0.71–2.09)	49	1.05 (0.59–1.86)
Prevents HIV/STIs.	79	76	84	1.61 (0.81–3.20)	86	1.85 (0.94–3.65)

Abbreviations: IUD, intrauterine device; OCP, oral contraceptive pills; STI, sexually transmitted infection.

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

<sup>†</sup> Significant differences from bivariable (%) and multivariable (aOR) logistic regression, compared with White, controlling for age, education status, and sexual activity.

<sup>‡</sup> Multivariable model not fitted due to high knowledge.

<sup>§</sup> Female barriers include the female condom, diaphragm, cervical cap, and contraceptive sponge.

In assessing self-perceived knowledge, Black women perceived themselves to know more about Depo, with 21% versus 11% of Whites reporting knowing a lot/everything about Depo. Fewer Blacks (43%) and Hispanics (32%) than Whites (63%) felt that they knew a lot or everything about OCPs. Furthermore, 43% of Hispanic women versus 74% of Whites reported knowing a lot/everything about condoms.

#### Attitudes by Race/Ethnicity

Overall, 88% of women rated efficacy as a very important contraceptive characteristic; 74% rated ease of use as very important, and 79% rated HIV/STI protection as very important. There were no racial/ethnic differences in preferences for efficacy. Few differences were seen in attitudes: A greater proportion of Blacks (78%) and Hispanics (72%) versus Whites (53%) reported that contraceptive decision making was mainly a woman's responsibility. In addition, Hispanics were more likely than White women to report that it was very important that their contraceptive did not contain hormones (51% vs. 35% of Whites).

#### Differences Among Hispanics by Nativity

Foreign-born Hispanics had lower contraceptive knowledge than U.S.-born Hispanics in several areas (data not shown). With respect to method awareness, foreign-born Hispanics were less likely than U.S.-born Hispanics to be aware of the IUD (59% vs. 82%,  $p < .05$ ; adjusted odds ratio [aOR] 0.24 [95% CI, 0.08–0.77]), the ring (55% vs. 95%,  $p < .001$ ; aOR, 0.06 [95% CI, 0.02–0.19]) and female barrier methods (78% vs. 95%,  $p < .05$ ; aOR, 0.11 [95% CI, 0.3–0.49]). Examining specific method knowledge, fewer foreign-born Hispanics knew that nulliparous women can use an IUD (30% vs. 56% of U.S.-born,  $p < .05$ ; aOR, 0.34 [95% CI, 0.11–0.91]), that IUDs are not banned in the United States (50% vs. 74%,  $p < .05$ ; aOR, 0.24 [95% CI, 0.09–0.64]), and that women do not need breaks from OCPs (30% vs. 55%,  $p < .05$ ; aOR, 0.32 [95% CI, 0.11–0.91]). For self-perceived knowledge, foreign-born Hispanics were less likely than U.S.-born Hispanics to feel they knew a lot or everything about Depo (2% vs. 21%,  $p < .05$ ; aOR, 0.08 [95% CI, 0.01–0.62]), OCPs (19% vs. 38%,  $p < .05$ ; aOR, 0.14 [95% CI, 0.04–0.50]), or condoms (21% vs. 54%,  $p < .01$ ; aOR, 0.10 [95% CI, 0.03–0.32]). There were no differences in attitudes by nativity.

#### Differences by Age Group

In analyses of differences between teenagers and young adults, we found lower awareness and knowledge among teenagers for many items (Table 3). In particular, teenagers were less aware of female sterilization (61% vs. 77%), the implant (40% vs. 56%) and IUD (77% vs. 90%). Teenagers were less likely than young adults to know that an operation is not required to obtain an IUD (37% vs. 57%), that negative effects from Depo do not last a lifetime (29% vs. 52%), and that the ring does not need to be inserted by a provider (33% vs. 47%). Lack of knowledge about OCPs was common among teens: Compared with young adults, teenagers were less likely to know that women can switch brands of OCPs to alleviate side effects (76% vs. 90%) and that a woman is not protected against pregnancy for an extended period if she stops taking OCPs (64% vs. 80%). Conversely, teenagers were more likely to know that a pelvic examination is not necessary to begin OCPs (35% vs. 22%).

In self-perceived knowledge, teenagers were less likely than young adults to perceive themselves to know a lot/everything about OCPs (29% vs. 61%) or feel they had all the information necessary to prevent pregnancy (59% vs. 72%). Although teens were more likely to think birth control is mainly women's responsibility in bivariate analysis (71% vs. 58%), the difference was not significant in the multivariable model. There were no other differences in contraceptive attitudes by age.

#### Discussion

Although overall awareness of most contraceptive methods was high, specific areas of disparities in contraceptive knowledge exist among women aged 18 to 29 in the United States. Consistent with prior analyses of these data (Rocca & Harper, 2012), Hispanics had lower awareness of and knowledge about contraceptives than White women, but knowledge was generally similar between Black and White women. Additionally, we found lower knowledge among foreign-born Hispanics and teenagers, compared with U.S.-born Hispanics and young adults, respectively. No racial/ethnic disparities existed in many areas, suggesting the need to consider etiologies other than knowledge for disparities in contraceptive use.

Hispanic women were least likely to be aware of specific contraceptive methods, including male sterilization, the IUD, the patch

**Table 3**

Correct Knowledge of Contraceptive Methods by Age Group: Percentages and Adjusted Odds Ratios (aOR; n = 897)

Measure	Young Adults (Aged 20–29)	Teenagers (Aged 18–19)	aOR (95% CI) <sup>†</sup>
	%	%	
Method awareness (% aware)			
Female sterilization	77	61***	<b>0.50* (0.30–0.85)</b>
Male sterilization	94	83**	0.44 (0.19–1.03)
Contraceptive implant	56	40**	<b>0.59* (0.36–0.97)</b>
IUD	90	77***	<b>0.46* (0.25–0.87)</b>
Depo/injection	92	86	0.77 (0.35–1.72)
Birth control pills	99	97	1.16 (0.47–2.86)
Vaginal ring	92	91	<b>3.24* (1.09–9.60)</b>
Transdermal patch	95	97	1.16 (0.47–2.86)
Male condom	99	99	1.16 (0.47–2.86)
Female barriers <sup>§</sup>	95	88*	0.48 (0.19–1.25)
Natural family planning	72	50***	<b>0.45** (0.28–0.74)</b>
Emergency contraception	95	94	0.97 (0.35–2.70)
Method knowledge (% answered correctly)			
IUD			
A young woman can use an IUD, even if she has never had a child. (T)	60	47*	0.68 (0.42–1.11)
An IUD is not likely/slightly likely to give you an infection. (T)	76	62**	0.63 (0.37–1.08)
An IUD is not likely to cause infertility. (T)	23	18	0.81 (0.45–1.47)
The IUD is more effective than the pill. (T)	48	46	0.94 (0.58–1.54)
All IUDs are banned from use in the United States. (F)	77	68	0.81 (0.48–1.38)
Women who use IUDs cannot use tampons. (F)	62	57	1.04 (0.63–1.71)
To obtain an IUD, a woman must undergo an operation. (F)	57	37***	<b>0.41*** (0.25–0.57)</b>
IUDs can move around in a woman's body. (F)	46	45	1.28 (0.78–2.08)
IUDs/implants cannot be removed early if a woman changes her mind. (F)	74	59**	0.64 (0.38–1.07)
Depo/injectable			
Women using Depo must get a shot every 3 months. (T)	81	74	0.83 (0.46–1.52)
Depo is more effective than the pill. (T)	44	46	0.91 (0.56–1.48)
Depo is more effective than the condom. (T)	61	62	1.23 (0.76–1.99)
If a woman is late getting her shot, she is protected for 3 more months. (F)	68	61	0.81 (0.49–1.35)
Negative effects from the shot can last the rest of a woman's life. (F)	52	29***	<b>0.41*** (0.24–0.69)</b>
Vaginal ring			
Women using the ring must have a provider insert it every month. (F)	47	33*	<b>0.56* (0.34–0.91)</b>
Birth control pill			
Women having side effects with one pill can switch to another type. (T)	90	76***	<b>0.36*** (0.20–0.64)</b>
Pills reduce the chances of getting certain kinds of cancer. (T)	26	16	0.63 (0.34–1.20)
The pill is more effective than the condom. (T)	51	58	1.36 (0.83–2.21)
Pills are effective even if a woman misses 2–3 days in a row. (F)	84	75*	0.57 (0.32–1.02)
Women should “take a break” from OCPs every couple of years. (F)	55	45	0.65 (0.40–1.04)
If a woman stops taking pills, she cannot get pregnant for >2 months. (F)	80	64***	<b>0.56* (0.33–0.94)</b>
To get pills, a woman must have a pelvic examination. (F)	22	35**	<b>1.98* (1.14–3.44)</b>
Condom			
Condoms have an expiration date. (T)	96	91*	0.59 (0.25–1.40)
When putting on a condom, it is important to leave room at the tip. (T)	85	76	0.64 (0.35–1.16)
It is ok to use a condom more than once. (F)	98	98	0.49 (0.11–2.28)
It is ok to use petroleum jelly/Vaseline with latex condoms. (F)	54	52	1.17 (0.71–1.91)
Wearing two latex condoms will provide extra protection. (F)	74	75	1.18 (0.66–2.13)
Self-perceived knowledge			
Perceives herself to...			
Know a lot or everything about IUDs and their use.	8	2	<b>0.17* (0.04–0.83)</b>
Know a lot or everything about Depo/injectable and their use.	14	10	0.64 (0.30–1.38)
Know a lot or everything about birth control pills and their use.	61	29***	<b>0.29*** (0.18–0.49)</b>
Know a lot or everything about condoms and their use.	75	46***	<b>0.38*** (0.23–0.62)</b>
Have all the information needed to avoid an unplanned pregnancy.	72	59*	<b>0.51** (0.31–0.85)</b>
Contraceptive attitudes			
It is mainly a woman's responsibility to make decisions about birth control.	58	71*	1.46 (0.89–2.40)
It is important to me that a contraceptive....			
Is effective at preventing pregnancy.	88	89	1.36 (0.53–3.47)
Is low cost.	45	47	0.93 (0.52–1.66)
Is easy to use.	75	70	0.96 (0.52–1.76)
Doesn't contain hormones.	35	44	1.69 (0.97–2.96)
Is acceptable to my partner.	48	56	1.48 (0.86–2.58)
Doesn't interrupt sex.	51	45	0.93 (0.55–1.58)
Prevents HIV/STIs.	78	81	1.23 (0.61–2.46)

Abbreviations: IUD, intrauterine device; OCP, oral contraceptive pills; STI, sexually transmitted infection.

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .<sup>†</sup> Significant differences from bivariable (%) and multivariable (aOR) logistic regression, compared with White, controlling for race/ethnicity, education status, and sexual activity.<sup>‡</sup> Multivariable model not fitted owing to high knowledge.<sup>§</sup> Female barriers include the female condom, diaphragm, cervical cap, and contraceptive sponge.

and the ring; Blacks were also less likely to be aware of male sterilization and the ring. The identified differences in awareness are, in some cases, consistent with previously observed racial/ethnic differences in method use. For example, Hispanics and Blacks are less likely than Whites to rely on male sterilization (Jones et al., 2012). However, for other methods this was not the case; Hispanics and Whites use the IUD at similar rates (Kavanaugh, Jerman, Hubacher, Kost, & Finer, 2011). In addition, Blacks and Hispanics are far less likely to rely on OCPs (Jones et al., 2012), even though awareness of pills in this study was almost universal. Clearly, although awareness of a specific method is necessary for use of that method, it does not completely explain racial/ethnic differences in method choice. Still, lower awareness of the range of available methods may make it more difficult for Hispanic women to identify and use a method that is optimal for them.

The identified differences in knowledge about the IUD by race/ethnicity may also contribute to differences in method use. National Survey of Family Growth data from 2009 indicate that use is similar among White and Hispanic women, which could suggest that misconceptions about the IUD are not negatively impacting Hispanic women's use of the method (Kavanaugh et al., 2011). However, in National Survey of Family Growth data from 2002, Hispanics were significantly more likely to use the IUD than were White women, with the subsequent closing of this gap between Hispanics and Whites being driven by a greater increase in IUD use among Whites (Finer, Jerman, & Kavanaugh, 2012). This trend may indicate that, although IUDs are becoming more popular overall, misconceptions about the IUD among Hispanics may be hampering rising use.

The findings that foreign-born Hispanics had lower awareness and knowledge of contraceptive methods suggest that this group may be at particularly high risk for underuse of effective contraception. Given that foreign-born Hispanics seemed to have lesser knowledge than U.S.-born Hispanics for some but not all items, acculturation may have varying impacts on different aspects of contraceptive knowledge. Overall, our findings are consistent with studies that have found associations between more effective contraceptive use and higher levels of acculturation (Gilliam, Neustadt, Whitaker, & Kozloski, 2011; Roncancio, Ward, & Berenson, 2012; Warren, Harvey, & Bovbjerg, 2011).

Importantly, there were no identified racial/ethnic differences in knowledge for the majority of questions examined, and Blacks had higher knowledge and more positive attitudes than Whites in a few areas. These findings underline the importance of other barriers that may contribute to disparities in contraceptive use. Social or cultural norms can contribute to inconsistent or non-use of contraception, because women of color report less social support for using contraception (Sangi-Haghpeykar et al., 2006) greater pregnancy ambivalence (Schwarz, Lohr, Gold, & Gerbert, 2007), and incorrectly perceive their risk of becoming pregnant (Biggs & Foster, 2013; Polis & Zabin, 2012). Another obstacle is health care access, given that women without insurance are less likely to use contraception (Culwell & Feinglass, 2007). Because minority women are less likely to have insurance coverage (Todd & Sommers, 2012), barriers to access are likely to disproportionately affect these women. Further, the patient-provider relationship can impact contraceptive use: Patient satisfaction with their provider and their ability to ask questions of their provider is related to more consistent use of contraception (Frost & Darroch, 2008; Frost et al., 2007). Studies suggesting that minority women may receive lower quality of family planning care (Becker & Tsui, 2008; Forrest & Frost, 1996) indicate that this may be a factor contributing to disparities in contraceptive use.

Focusing on attitudinal differences, Blacks and Hispanics were more likely than Whites to believe that birth control is a woman's responsibility. Because women who hold this belief may be less likely to have their partner involved in contraceptive decision making, and given that women may be more likely to use effective contraception if their partner is involved in this decision making (Harvey, Henderson, & Casillas, 2006; Kerns, Westhoff, Morroni, & Murphy, 2003), this difference in attitudes may negatively impact contraceptive use among Blacks and Hispanics. Another attitudinal difference was that Hispanics were more likely to prefer that a method not contain hormones, which corresponds with studies showing misperceptions and misinformation about negative health effects of hormonal contraception in this population (Gilliam et al., 2004; Sangi-Haghpeykar, et al., 2006).

Differences in knowledge about contraceptive methods by age were pronounced, including lesser awareness among teenagers of the most effective reversible methods, the IUD and implant. Use of these methods has been encouraged increasingly among teenagers (Committee on Adolescent Health Care, 2012), yet to date there has been limited adoption (Jones et al., 2012). Our finding suggests that lack of awareness could contribute to low rates of use of these methods among teens. In addition, disparities in knowledge by age about the correct use and safety of contraceptive methods, including OCPs and the IUD, may contribute to lower rates of contraceptive use among adolescents (Jones et al., 2012) and higher rates of discontinuation (Jones et al., 2012; Raine et al., 2011).

Limitations of our analyses include the possibility that we were not able to identify differences owing to a lack of statistical power, based on our relatively small sample size of 897. We were also not able to perform analyses on women in racial/ethnic groups other than White, Black, and Hispanic owing to small sample size limitations. Finally, we did not investigate disparities in knowledge by socioeconomic status, a known predictor of contraceptive use and unintended pregnancy (Finer & Zolna, 2011; Jones, et al., 2012), because educational status, the only available socioeconomic status variable, is difficult to interpret among young women who may still be in the process of pursuing their education. Finally, the data used did not include items on perceived behavioral norms and self-efficacy, which are also relevant to contraceptive use.

#### *Implications for Practice and/or Policy*

Clinicians should be aware that some patients, particularly Hispanic and teenaged patients, may have low knowledge about contraceptive options, and they should be prepared to provide necessary education. Interventions to improve contraceptive counseling and information exchange during health care visits, including use of contraceptive decision aids (Stacey et al., 2011), could enhance young women's ability to make informed decisions about contraception. Educational initiatives designed to reach women outside of school or clinical contexts, such as the on-line birth control support network hosted by the National Campaign to Prevent Teen and Unplanned Pregnancy, can also help to ensure that women's informational needs are met. Public health interventions to address age disparities could include increased exposure to high quality sex education during adolescence. Given the current variation in quantity and quality of sex education provided in schools (Woo, Soon, Thomas, & Kaneshiro, 2011), ensuring a more standardized approach to this education could have an impact on disparities both by age

and race/ethnicity. Clinicians, public health advocates, and policymakers should attend to other potential causes of contraceptive disparities, including barriers in access and differential quality of family planning care.

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