Do Racial and Ethnic Differences in Contraceptive Attitudes and Knowledge Explain Disparities In Method Use?

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CONTEXT: *Sustained efforts have not attenuated racial and ethnic disparities in unintended pregnancy and effective contraceptive use in the United States. The roles of attitudes toward contraception, pregnancy and fertility remain relatively unexplored.*

METHODS: *Knowledge of contraceptive methods and attitudes about contraception, pregnancy, childbearing and fertility were assessed among 602 unmarried women aged 18–29 at risk for unintended pregnancy who participated in the 2009 National Survey of Reproductive and Contraceptive Knowledge. The contribution of attitudes to racial and ethnic disparities in effective method use was assessed via mediation analysis, using a series of regression models.*

RESULTS: *Blacks and Latinas were more likely than whites to believe that the government encourages contraceptive use to limit minority populations (odds ratio, 2.5 for each). Compared with white women, Latinas held more favorable attitudes toward pregnancy (2.5) and childbearing (coefficient, 0.3) and were more fatalistic about the timing of pregnancy (odds ratio, 2.3); blacks were more fatalistic about life in general (2.0). Only one attitude, skepticism that the government ensures contraceptive safety, was associated with contraceptive use (0.7), but this belief did not differ by race or ethnicity. Although blacks and Latinas used less effective methods than whites (0.3 and 0.4, respectively), attitudes did not explain disparities. Lower contraceptive knowledge partially explained Latinas' use of less effective methods.*

CONCLUSIONS: *Providing basic information about effective methods might help to decrease ethnic disparities in use. Research should examine other variables that might account for these disparities, including health system characteristics and provider behavior.*

Perspectives on Sexual and Reproductive Health, 2012, 44(3):150–158, doi:10.1363/4415012

Unintended and teenage pregnancy rates have been persistently high for decades in the United States, and subgroups of the population, including black women, Latinas and the socioeconomically disadvantaged, are at greatly elevated risk for these outcomes.[1–3] These disparities represent important reproductive health and social issues. Unintended and teenage pregnancy can have significant health consequences for both mother and child, and may affect young women's ability to pursue life opportunities and fulfill educational goals.[4] Additionally, unintended pregnancy contributes to enormous public costs.[5]

Although an array of effective methods is available in the United States, many women do not adopt and use contraceptive methods in a way that adequately protects them from unintended pregnancy. Among at-risk women—women who are sexually active, not pregnant or seeking pregnancy, and able to become pregnant—use of the most effective methods, long-acting reversible contraceptives (IUDs and implants), is low. Only 5% of at-risk women use IUDs.[2] About half of women at risk for unintended pregnancy rely on contraceptives that are characterized by inconsistent use and high discontinuation rates[6]—hormonal contraceptives (31%) or condoms (14%).[2] One-third of at-risk women use male or female sterilization, while about 5% use withdrawal, natural family planning or other methods; 11% use no method at all.[2]

Disparities in unintended pregnancy rates are explained in part by different contraceptive use patterns across racial and ethnic groups. Findings from the 2006–2008 National Survey of Family Growth (NSFG) indicate that 9% of Latinas and white women at risk for unintended pregnancy, but 16% of black women, were not using a contraceptive method.[2] Other studies have also found lower use of contraceptives among black women than among white women.[7,8] Furthermore, according to the NSFG, black women and Latinas were less likely than white women to use hormonal methods (27% and 26%, respectively, compared with 35%);[2] other studies have found similar differences.[6,7,9,10] Studies have documented higher use of long-acting reversible contraceptive methods among Latinas than among white or black women,[6,9,11,12] apparently owing to more frequent use by foreign-born Latinas.[6,11]

The underlying forces contributing to disparities in contraceptive method use remain poorly understood.[13]

Research has indicated that health systems factors and provider attitudes and biases may be important determinants of health disparities. For instance, access to reproductive health care is uneven in the United States, even in settings with publicly funded contraceptive services, and vulnerable groups are disproportionately uninsured.[14] Furthermore, health care providers may counsel and treat patients differently because of their race or ethnicity and perceived education level.[15]

An important piece of information missing to date is whether differences in attitudes toward and knowledge about effective contraceptive methods, pregnancy, childbearing and fertility contribute to disparities in method use. For instance, concerns about the safety of and side effects from effective methods (long-acting reversible contraceptives and hormonals) are widespread and contribute to women's reluctance to use these methods.[16–20] Safety concerns and misconceptions about contraceptives may be particularly prevalent within minority communities that have low access to medical information or in which cultural norms discourage communication about reproductive health.[12,17,21–23] Concerns about methods may also stem from skepticism about the motivations of drug companies that manufacture contraceptives and the diligence of the medical system to ensure patient safety.[18,24,25]

Young women's attitudes toward the prospect of pregnancy and the benefits of childbearing may contribute to disparities in contraceptive use. Pregnancy intentions and attitudes are multifaceted constructs, influenced by sociocultural environment, relationship expectations, and beliefs about gender roles and the advantages of childbearing.[26] Attitudes toward pregnancy can be complex, encompassing a range of emotions that may seem contradictory; even among young women who do not explicitly want to become pregnant, many believe that a pregnancy would make them happy.[27,28] Multiple studies have found more positive attitudes toward the prospect of pregnancy among young black women and Latinas than among their white counterparts.[29–32] These findings are mirrored in qualitative studies in which young women from minority communities report perceiving multiple benefits to childbearing, including providing a purpose in life and someone to love, restoring self-confidence and fostering connection with partners and family.[26,33–35] More positive attitudes toward the prospect of pregnancy have been shown to be associated, at least to some extent, with less effective and consistent contraceptive use and subsequent pregnancy.[8,27] No study to our knowledge has examined whether pregnancy attitudes mediate racial differences in contraceptive method choice.

Fears about subfertility and perceived infertility have also been documented among women from black and disadvantaged communities and cited as reasons for not using contraceptives, particularly among adolescents.[19,24,36,37] Young women who perceive themselves to be subfertile or infertile may use less effective contraceptives than those without such perceptions because they do not recognize the risk associated with unprotected sex. Also, young women who do not perceive themselves to be in control of their futures, or the timing of pregnancy in particular, may use less effective contraceptives than those who feel they have agency in their lives. Fatalistic attitudes, or the belief that outcomes are controlled by external forces, have been shown to be associated with numerous health outcomes and risky behaviors,[38,39] including less use of contraceptives.[8,19] Whether racial and ethnic disparities in fatalism about pregnancy or life in general exist, or contribute to differences in contraceptive method choice, has not been examined.

In this article, we use nationally representative data to examine whether women's contraceptive knowledge and attitudes differ across racial and ethnic groups, and whether any such differences account for racial and ethnic disparities in use of the most effective contraceptive methods. Despite increasing recognition that attitudes are associated with contraceptive choice and reproductive outcomes,[6,19] the influences of these multiple domains, and their possible contributions to racial and ethnic disparities, have not been examined together. Exploring mechanisms hypothesized to explain the relationship between race and ethnicity and contraceptive use is important for developing successful interventions to reduce disparities in reproductive health outcomes.[40] We hypothesized that differences in knowledge and attitudinal factors between black, Latina and white women explain, in part, disparities in use of effective contraceptive methods.

METHODS

Sample

This analysis uses data from the 2009 National Survey of Reproductive and Contraceptive Knowledge, a probability sample survey of 1,800 unmarried women and men aged 18–29. The survey was commissioned by the National Campaign to Prevent Teen and Unplanned Pregnancy and conducted by the Guttmacher Institute; the methodology is described in detail elsewhere.[41] Briefly, young adults were contacted to participate between October 2008 and April 2009. A dual-frame sampling design with three components was used: a random-digit dial sample of landline telephone numbers, a random sample of cell phone numbers and, to increase the probability of contacting an eligible respondent, a targeted sample of listed telephone numbers. The sample was selected so that weighted results are statistically representative of unmarried U.S. men and women aged 18–29, by age, gender, and race or ethnicity. A disproportionately high number of blacks and Latinos were interviewed to allow for subgroup analysis.

Surveys were conducted over the phone in English or Spanish and included questions on basic social and demographic characteristics, sexual activity, pregnancy risk, and knowledge about and use of contraceptive methods. Although some of the questions were the same

as those in other surveys, such as the NSFG, this was the first national survey to include in-depth measures of attitudes toward contraceptive methods, pregnancy and fertility.

Measures

•***Contraceptive use.*** We created a four-level variable, ordered by method effectiveness,[42] to measure reported method used in the last month. Categories were no method, including withdrawal and natural family planning; condoms; hormonal methods (the pill, the vaginal ring, the patch and injectables); and long-acting reversible contraceptives (IUDs and implants). If use of more than one method was reported, respondents were coded as using the most effective method.

•***Attitudes.*** Multiple items in the survey assessed various types of attitudes and knowledge. For each type of attitude and for contraceptive knowledge, relevant items that had an internal consistency coefficient (Cronbach's alpha) of at least 0.70 were combined into standardized scales; items that did not meet this criterion were assessed individually.

Skepticism toward the medical system was measured with four items assessing level of agreement ("strongly agree," "somewhat agree," "somewhat disagree," "strongly disagree") with four statements: "The government makes certain that birth control methods are safe before they come onto the market"; "The government and public health institutions use poor and minority people as guinea pigs to try out new birth control methods"; "The government is trying to limit blacks and other minority populations by encouraging the use of birth control"; and "Drug companies don't care if birth control is safe, they just want people to use it so they can make money."

To assess attitudes toward effective contraceptive methods, the survey asked respondents to rate the likelihood of experiencing several side effects if they took the pill (weight gain, reduced desire for sex, serious health problems, severe mood problems) or used an IUD (infection, difficulty getting pregnant after removal). Response options were "extremely likely," "quite likely," "slightly likely" and "not at all likely"; more favorable attitudes were coded higher.

We examined knowledge of effective contraceptives (long-acting reversible contraceptives and hormonal methods) using 22 questions. Six yes-no questions assessed whether participants had heard of the methods. Eleven true-false statements asked about proper use of and facts about these methods. The statements addressed factors believed to influence adoption of these methods and common misconceptions about them, such as "Women should take a break from the pill every couple of years" and "A young woman can use an IUD, even if she has never had a child." Four questions measured knowledge about the relative effectiveness of methods (pill vs. condom; pill vs. IUD; injectable vs. condom; and pill vs. injectable). A final question asked whether "taking birth control pills for a year or having a baby" posed the greater risk to a woman's health. Responses were coded as correct or incorrect/don't know. Knowledge items were combined into a continuous scale (Cronbach's alpha, 0.76).

Attitudes toward pregnancy were assessed with two questions: how important it is for the respondent to avoid pregnancy right now ("very important," "somewhat important," "a little important," "not at all important") and how she would feel if she became pregnant today ("very upset," "a little upset," "a little pleased," "very pleased").

Six items examining attitudes toward childbearing were included. Respondents indicated their level of agreement ("strongly agree," "somewhat agree," "somewhat disagree," "strongly disagree") with such statements as they would look forward to telling friends that they were pregnant and they worry that they do not have enough money to take care of a baby. Childbearing attitudes questions were treated as a continuous scale (Cronbach's alpha, 0.79).

Two items assessed belief of subfertility. Participants were asked how likely they thought it was that they were infertile and that they would have difficulty getting pregnant when they wanted to ("not at all likely," "slightly likely," "quite likely," "extremely likely").

Two items were used to assess fatalistic attitudes. Fatalism about pregnancy was indicated by respondents' level of agreement ("strongly agree," "somewhat agree," "somewhat disagree," "strongly disagree") with the following statement: "It does not matter whether you use birth control or not; when it is your time to get pregnant, it will happen." Fatalism about life in general was measured using level of agreement with the statement "In life, things just seem to happen to me."

•***Participant characteristics.*** Race and ethnicity was measured with a categorical variable of self-reported racial and ethnic background: non-Latina black, Latina, non-Latina white or other. We included several social and demographic variables in our analyses: age (continuous); education (high school or less, more than high school); has a current sexual partner (yes, no); and has at least one child (yes, no).

Analyses

The analyses included the 602 females who reported being sexually active in the last year, were not sterile, and were not pregnant or trying to become pregnant. In descriptive analyses, we examined participant characteristics, contraceptive method use, and responses to contraceptive knowledge and attitude items. We used chi-square tests to assess overall differences across racial and ethnic groups. We examined the relationships between each attitudinal variable and contraceptive knowledge using ordinal logistic regression.

To assess whether the relationship between race and ethnicity and use of effective contraceptive methods could be partially explained by differences in attitudes, we followed three steps for examining mediation.[43] First, we fitted bivariable regression models to examine whether attitudes differed by race or ethnicity. We used linear regression when modeling childbearing attitudes and contraceptive

knowledge, reporting beta coefficients, which represent differences in mean scores; we used ordinal logistic regression for all other attitudes. Second, we examined the relationship between each attitude and contraceptive method use by fitting ordinal logistic regression models adjusted for race and ethnicity. Only the attitudinal variables found both to differ by race or ethnicity and to be associated with contraceptive use were assessed as potential mediators. Third, we examined whether contraceptive use differed by race or ethnicity by fitting a multivariable ordinal logistic regression model, adjusting for participant characteristics. We added each knowledge or attitudinal variable that was associated with both method use and race or ethnicity to this model and assessed how the estimates for race or ethnicity changed. If a particular attitude contributed significantly to differences in contraceptive use between racial and ethnic groups, we would expect racial and ethnic differences to attenuate when it is included as a control. We calculated the proportion of the effect of race and ethnicity on contraceptive use mediated by each attitude following the method of MacKinnon and Dwyer: Coefficients from logistic regressions were first standardized, and standard errors calculated using a bootstrapping approach, to account for the fixed variance across models in logistic regression.[44] The significance of mediated effects was assessed using the Sobel method.[45]

To test whether our results were sensitive to the coding of the contraceptive method variable, we repeated analyses using alternative coding for the ordinal outcome variable: a four-level variable (long-acting reversible contraceptives or injectable, combined hormonal, condoms, or none); a three-level variable (long-acting reversible contraceptives, hormonal, or condoms or none) and a dichotomous variable (long-acting reversible contraceptives or hormonal vs. condoms or none). Results were unchanged using alternatively coded outcome variables. Data were weighted to account for the survey's oversampling of Latinos and blacks. Stata version 12.0 was used for analyses.

TABLE 1. Percentage distribution of unmarried women at risk for unintended pregnancy, by selected characteristics, according to race or ethnicity, National Survey of Reproductive and Contraceptive Knowledge, 2009

Characteristic	Total (N=602)	Black (N=148)	Latina (N=129)	White (N=290)	Other (N=35)
Age					
18–19	25.6	25.8	34.0	25.0	12.0
20–24	40.5	43.2	36.5	39.0	56.4
25–29	33.9	31.0	29.5	36.0	31.6
Education**					
≤high school	43.5	55.5	59.7	37.8	27.3
>high school	56.5	44.5	40.3	62.2	72.7
Has current sex partner					
No	26.1	24.7	22.3	29.1	8.3
Yes	73.9	75.3	77.7	70.9	91.7
Has ≥1 child***					
No	63.3	39.6	44.1	73.0	82.7
Yes	36.7	60.4	55.9	27.0	17.3
Current method***					
Long-acting reversible†	5.3	4.8	4.6	6.0	1.3
Combined hormonal or injectable	47.8	28.7	29.9	58.5	40.0
Condom	17.4	21.4	27.9	11.8	37.9
No modern method	29.5	45.1	37.6	23.7	20.8
Total	100.0	100.0	100.0	100.0	100.0

**p≤.01. ***p≤.001. †IUDs and implants.

RESULTS

Sample Characteristics and Attitudes

The majority of participants were white (61%); 19% were black, 14% were Latina and the rest belonged to other racial and ethnic groups. The mean age of participants was 22.6 years (standard deviation, 0.2). Twenty-six percent of respondents were aged 18–19, 41% were aged 20–24 and 34% were aged 25–29 (Table 1). More than half of respondents had more than a high school education. Most (74%) had a current sexual partner, and 37% had at least one child.

Thirty percent of participants were not currently using any contraceptive method, including 45% of black women, 38% of Latinas and 24% of white women. Almost half of women (48%) reported current use of the pill or other hormonal methods; white women were almost twice as likely as black women and Latinas to be using these methods (59% vs. 29% and 30%, respectively). Only 5% of women reported current long-acting reversible contraceptive use; the proportion was similar across racial and ethnic groups.

Women expressed a range of attitudes about contraception, childbearing, pregnancy and fertility (Table 2, page 154). Some women were skeptical about the medical system and birth control; 23% strongly or somewhat disagreed that the government makes sure that birth control is safe, and 32% strongly or somewhat agreed that the government tries to limit minority populations by encouraging birth control use. Black and Latina women were more likely than white women to strongly or somewhat agree with the latter statement (42% and 51%, respectively, vs. 25%).

Overall, 42% of women thought that it was extremely or quite likely that they would gain weight from the pill, and 24% thought it was extremely or quite likely that after using an IUD, they would have more difficulty becoming pregnant. Substantial proportions of women did not know that breaks from the pill were not necessary and that women who have not had children can use IUDs (44% and 42%, respectively). Attitudes toward and knowledge of effective contraceptives were similar across racial and ethnic groups.

Most of the sample (79%) felt that avoiding pregnancy was very important, and 72% would be at least a little upset if they found out they were pregnant. These attitudes differed by race and ethnicity: Seventy-one percent of Latinas reported that avoiding pregnancy was very important, compared with 79% of blacks and 80% of whites. Similarly, 50% of Latinas stated that they would be

TABLE 2. Percentage distribution of unmarried women at risk for unintended pregnancy, by selected measures of attitudes or knowledge, according to race or ethnicity

Measure	Total	Black	Latina	White	Other
SKEPTICISM					
Government ensures birth control safety					
Strongly disagree	6.6	12.4	9.8	4.4	2.4
Somewhat disagree	16.8	19.8	15.1	16.6	12.9
Somewhat agree†	37.8	28.2	31.1	43.1	29.3
Strongly agree	38.8	39.6	44.0	35.8	55.2
Government promotes birth control to limit minorities**					
Strongly agree	13.3	23.4	20.5	9.4	5.4
Somewhat agree†	18.2	18.7	30.9	15.4	15.3
Somewhat disagree	21.5	25.6	12.1	21.1	34.4
Strongly disagree	47.0	32.3	36.5	54.1	44.9
ATTITUDES TOWARD EFFECTIVE METHODS					
Pill causes weight gain					
Not at all likely	9.7	12.6	8.3	8.6	14.5
Slightly likely†	48.1	42.8	44.7	51.3	39.4
Quite likely	30.5	33.3	34.4	29.4	25.0
Extremely likely	11.7	11.3	12.6	10.7	21.1
IUD leads to infertility					
Not at all likely	25.8	20.8	20.4	28.9	22.1
Slightly likely†	50.4	47.5	53.9	50.2	52.3
Quite likely	19.4	23.9	16.7	18.3	23.1
Extremely likely	4.4	7.8	8.9	2.5	2.6
KNOWLEDGE OF EFFECTIVE METHODS					
Women should take breaks from pill					
False (correct)	56.4	60.5	49.4	58.6	37.3
True (incorrect)	33.6	34.6	34.8	32.1	42.1
Don't know/have not heard of pill	10.1	4.9	15.8	9.3	20.6
Women without children can use IUD					
True (correct)	58.0	65.5	50.8	57.9	52.4
False (incorrect)	24.2	18.6	23.0	26.1	24.5
Don't know/have not heard of IUD	17.8	15.9	26.2	16.0	23.1
ATTITUDES TOWARD PREGNANCY					
Importance of avoiding pregnancy*					
Not at all important	3.9	4.6	7.7	2.7	4.9
A little important	6.1	1.5	2.1	9.1	0.2
Somewhat important†	11.0	14.7	19.1	8.6	5.4
Very important	79.0	79.3	71.1	79.7	89.6
Feeling if pregnant now*					
Very pleased	12.8	5.0	28.4	12.7	3.3
A little pleased†	15.4	15.1	21.4	14.9	7.2
A little upset	28.8	33.0	22.1	28.8	29.7
Very upset	43.1	47.0	28.2	43.6	59.8
ATTITUDES TOWARD CHILDBEARING					
A baby would hamper work, school, going out					
Strongly/somewhat disagree	18.9	28.4	20.7	17.3	2.2
Neither agree nor disagree/don't know‡	8.5	10.3	11.6	7.7	4.5
Somewhat agree	18.0	10.6	18.8	20.7	12.9
Strongly agree	54.5	50.7	48.9	54.4	80.5
Would look forward to telling friends about a pregnancy*					
Strongly agree	28.6	33.6	44.2	24.6	18.2
Somewhat agree	22.0	14.6	31.2	23.0	14.9
Neither agree nor disagree/don't know‡	16.3	19.4	7.8	17.8	11.6
Strongly/somewhat disagree	33.1	32.5	16.9	34.7	55.4
BELIEF OF SUBFERTILITY					
Likelihood of infertility or difficulty conceiving					
Extremely likely	6.9	11.9	12.4	4.2	7.0
Quite likely	9.1	5.1	12.9	9.0	13.1
Slightly likely†	41.2	38.2	31.7	45.1	33.4
Not at all likely	42.8	44.9	43.0	41.7	46.5
FATALISM					
About pregnancy*					
Strongly agree	20.4	26.4	35.8	14.5	26.3
Somewhat agree†	20.4	17.6	21.9	20.7	23.0
Somewhat disagree	16.0	16.8	6.6	19.3	2.4
Strongly disagree	43.2	39.2	35.7	45.6	48.3
About life in general					
Strongly agree	26.3	37.6	32.0	23.0	11.8
Somewhat agree†	27.2	28.9	23.6	26.8	34.0
Somewhat disagree	23.7	17.3	21.7	24.0	44.0
Strongly disagree	22.9	16.3	22.8	26.2	10.2
Total	100.0	100.0	100.0	100.0	100.0

*p≤.05. **p≤.01. †Includes a small proportion of women who volunteered a response (e.g., "neither," "don't know"). ‡These were volunteered responses. *Notes:* Percentages may not total 100.0 because of rounding. Because of space constraints, descriptive data are not shown for all attitudes assessed; complete results are available on request.

upset or very upset if they found out they were pregnant, compared with 80% of black women and 72% of white women.

Overall, 73% of women strongly or somewhat agreed that having a baby would keep them from working, going to school or going out, and 51% agreed that they would look forward to telling friends that they were pregnant; Latina women were more likely to agree with the latter statement (75%) than were than blacks and whites (48% for each). Fifty-seven percent of respondents believed that they were at least slightly likely to have difficulty conceiving.

Levels of fatalism were relatively high: Overall, 41% of women strongly or somewhat agreed that pregnancy will happen when it is their time, and 54% strongly or somewhat agreed that life just seems to happen to them. Latina women had the highest degree of fatalism about pregnancy—58%, compared with 44% among black women and 35% among white women—but fatalism about life in general did not differ by race or ethnicity.

Only one attitude, fatalism about pregnancy, was associated with knowledge (not shown). The less fatalistic women were about the timing of pregnancy, the greater their knowledge about effective contraceptives (odds ratio, 0.3; 95% confidence interval, 0.2–0.5).

Assessment of Mediation

In regression analyses, several attitudes and beliefs differed by race and ethnicity (Table 3). Black women and Latinas were more likely than white women to believe that the government tries to limit minority populations by encouraging contraceptive use (odds ratio, 2.5 for each). Latinas

were also more likely than whites to agree that minorities and the poor are used as guinea pigs to test contraceptive methods (1.9). However, the groups did not differ in their skepticism about the government's making sure that contraceptive methods are safe. Attitudes toward hormonal and long-acting reversible contraceptives also did not vary by race or ethnicity. Latinas had a lower level of knowledge of effective methods than white women (coefficient, –0.2); black and white women had similar knowledge levels. Latinas had more favorable attitudes toward childbearing (0.3) and felt more favorably about a potential pregnancy than whites (odds ratio, 2.5).* Compared with white women, Latinas were more fatalistic about the timing of pregnancy (2.3), while black women were more fatalistic about life in general (2.0).

Only one attitude that we examined, mistrust that the government makes sure contraceptive methods are safe, was associated with method choice: The greater this skepticism, the less effective was women's current method (odds ratio, 0.7—Table 4). This belief, however, did not differ by race or ethnicity, and was thus dropped from consideration as a mediator. Knowledge of effective contraceptive methods was strongly and positively associated with use of effective methods (3.9).

In bivariate ordinal regression analyses (not shown), black women and Latinas were found to use less effective contraceptive methods than white women (odds ratio, 0.4 for each; 95% confidence intervals, 0.2–0.7 and 0.2–0.8, respectively). These relationships persisted when background characteristics were controlled for (0.3 for each—Table 5, model 1, page 156).

None of the attitudes we considered as potential mediators was associated with both race and ethnicity and effective contraceptive use. Only contraceptive knowledge among Latinas met these criteria and was further assessed as a mediator. Knowledge accounted for a significant portion of the difference in contraceptive method use between Latinas and whites; when it was introduced into the model, the adjusted odds ratio changed from 0.3 to 0.4 (Table 5, model 2). About 27% of the difference in contraceptive methods used by Latinas and white women was accounted for by lower contraceptive knowledge among Latinas.

DISCUSSION

Using a nationally representative sample, we have found that many attitudes regarding effective contraceptive methods, pregnancy, childbearing and fertility differ among black, Latina and white young adult women. However, racial and ethnic differences in contraceptive use were not explained by these attitudinal differences. Only lower contraceptive knowledge among Latinas partly explained why these women reported use of less effective methods than white women.

*In postestimation F tests, Latinas had a lower level of knowledge of effective methods (p<.01) and felt more favorably about a potential pregnancy (p<.001) than black women.

TABLE 3. Odds ratios or linear regression coefficients (and 95% confidence intervals) from regression analyses assessing associations between measures of attitudes or knowledge and race and ethnicity

Measure	Blacks vs. whites	Latinas vs. whites
Skepticism		
Government does not make sure birth control is safe	1.20 (0.62–2.34)	0.90 (0.49–1.67)
Minorities and poor are used as guinea pigs	1.81 (0.94–3.47)	1.94 (1.04–3.61)*
Government promotes birth control to limit minorities	2.45 (1.41–4.26)***	2.52 (1.40–4.52)**
Drug companies just want to make money	1.58 (0.88–2.82)	1.02 (0.56–1.87)
Attitudes toward effective contraception		
Weight gain from pill not likely	0.95 (0.51–1.77)	0.80 (0.46–1.39)
Reduced desire for sex from pill not likely	0.67 (0.34–1.29)	0.83 (0.48–1.45)
Serious health problem from pill not likely	0.63 (0.36–1.11)	0.97 (0.51–1.84)
Severe mood problem from pill not likely	0.95 (0.53–1.69)	0.97 (0.50–1.85)
Infection with IUD not likely	1.00 (0.46–2.13)	0.86 (0.42–1.78)
Infertility with IUD not likely	0.58 (0.32–1.05)	0.67 (0.40–1.13)
Knowledge of effective methods§	0.09 (–0.20–0.02)	–0.24 (–0.3 to –0.14)***,†
Attitudes toward pregnancy		
Low importance of avoiding pregnancy	0.98 (0.46–2.06)	1.51 (0.75–3.02)
Positive feelings if pregnant	0.77 (0.45–1.31)	2.47 (1.31–4.65)**,‡
Attitudes toward childbearing§	0.14 (–0.08–0.37)	0.28 (0.12–0.45)***
Belief of subfertility	1.01 (0.55–1.86)	1.27 (0.66–2.43)
Fatalism		
About pregnancy	1.49 (0.84–2.65)	2.25 (1.21–4.21)*
About life in general	1.99 (1.11–3.58)*	1.36 (0.74–2.50)

*Different from white women at p≤.05. **Different from white women at p≤.01. ***Different from white women at p≤.001. †Different from black women at p≤.05. ‡Different from black women at p≤.001. §Data are regression coefficients, representing differences in mean scores.

TABLE 4. Odds ratios (and 95% confidence intervals) from ordinal logistic regression analyses assessing associations of attitudes or knowledge measures with effectiveness of current contraceptive method

Measure	Odds ratio
Skepticism	
Government does not make sure birth control is safe	0.72 (0.55–0.94)**
Minorities and poor are used as guinea pigs	0.89 (0.71–1.12)
Government promotes birth control to limit minorities	1.02 (0.81–1.27)
Drug companies just want to make money	0.93 (0.75–1.16)
Attitudes toward effective contraception	
Weight gain from pill not likely	1.19 (0.91–1.55)
Reduced desire for sex from pill not likely	1.16 (0.89–1.51)
Serious health problem from pill not likely	1.02 (0.80–1.30)
Severe mood problem from pill not likely	1.22 (0.97–1.53)
Infection with IUD not likely	0.81 (0.61–1.07)
Infertility with IUD not likely	1.01 (0.78–1.32)
Knowledge of effective methods	3.86 (2.08–7.15)***
Attitudes toward pregnancy	
Low importance of avoiding pregnancy	0.84 (0.61–1.15)
Positive feelings if pregnant	0.97 (0.79–1.20)
Attitudes toward childbearing	0.94 (0.66–1.34)
Belief of subfertility	0.96 (0.76–1.22)
Fatalism	
About pregnancy	0.90 (0.76–1.08)
About life in general	1.12 (0.90–1.39)

**p≤.01. ***p≤.001. *Note:* Models control for race and ethnicity.

TABLE 5. Odds ratios (and 95% confidence intervals) from ordinal logistic regression analyses assessing associations between selected characteristics and effectiveness of current contraceptive method

Characteristic	Model 1	Model 2
Race or ethnicity		
Black	0.26 (0.14–0.51)***	0.29 (0.15–0.56)***
Latina	0.34 (0.19–0.62)***	0.42 (0.24–0.77)**
Other	0.45 (0.23–0.86)*	0.80 (0.36–1.74)
White (ref)	1.00	1.00
Age	1.02 (0.94–1.10)	1.01 (0.93–1.09)
>high school	1.92 (1.10–3.36)*	1.62 (0.89–2.93)
Has current sex partner	2.13 (1.27–3.58)**	2.18 (1.29–3.68)**
Has ≥1 child	1.88 (1.05–3.37)*	1.69 (0.92–3.14)
Knowledge of effective methods	na	3.31 (1.73–6.31)***

*p≤.05. **p≤.01. ***p≤.001. *Notes:* The N for both models is 596 because of missing values on the knowledge variable. ref=reference group. na=not applicable.

As expected, black women and Latinas were less likely than white women to use hormonal methods and were more likely to rely on no method or condoms. High rates of contraceptive nonuse among all women, particularly black women and Latinas, are concerning, especially in a sample of young women not trying to become pregnant.

Black women and Latinas were more likely to believe that the government uses birth control as a tool to limit minority populations, and to believe that minorities and the poor are used as guinea pigs to test methods, than white women. Earlier work has documented the prevalence of perceived race-based discrimination in contraceptive provision, and beliefs about the promotion of contraception for eugenic purposes, in black communities.[25,46] Our study is the first to quantitatively assess racial and ethnic differences in these attitudes, and to indicate that Latinas may be as skeptical as black women about the promotion of contraceptives. Research has documented suspicions that the contraceptive implant is a form of population control targeted at minority communities; these beliefs were held primarily by black participants, but were also voiced by Latinas and Asians.[18] In our study, medical system mistrust did not translate into lower use of effective contraceptives.

Concerns about the safety of and side effects from long-acting reversible contraceptives and hormonal methods were equally prevalent among black, Latina and white women, and were not associated with current method use. Although research has documented such concerns in minority communities[23] and across women of different races and ethnicities,[47] most studies are qualitative,[12,17,18,24,48] and few have quantitatively assessed the relative prevalence of concerns among racial and ethnic groups.[22] Our data suggest that differences by race or ethnicity may not be as large as sometimes perceived. Furthermore, although fear of side effects from hormonal methods is an often cited reason for contraceptive nonuse,[16,17,19] it was not associated with method use in this study. Perhaps women hold overarching concerns about contraceptive safety that our individual measures did not capture. This possibility is supported by the finding that the only attitude associated with method choice was disagreement that the government makes sure birth control is safe, a sentiment about the lack of safety of birth control in general. Alternatively, women may be willing to use effective methods despite concerns about side effects.

In this study of women not trying to become pregnant, Latinas expressed more favorable attitudes toward a potential pregnancy and childbearing than white women. Studies have fairly consistently found this pattern, particularly among adolescents; some have also found more favorable attitudes among black women than among whites.[29–32] That pregnancy and childbearing attitudes were unrelated to method used is somewhat surprising, considering that prior studies have documented at least some association between these attitudes and contraceptive use.[8,27,35] Nevertheless, more favorable attitudes about pregnancy and childbearing did not explain the lower use of effective methods by Latinas.

Latinas held more fatalistic attitudes toward the timing of pregnancy, and blacks were more fatalistic toward their lives in general, than white women. By contrast, a study of a clinic population found no racial or ethnic differences in pregnancy fatalism among women seeking pregnancy tests.[19] In addition, in our study, neither fatalism variable was independently associated with method use. This finding also diverges from results of prior research, including one study among a nationally representative sample of adult women that found positive associations between pregnancy fatalism and contraceptive nonuse and inconsistent use.[8,19] Fatalism about pregnancy was the only attitude associated with contraceptive knowledge in our study. Knowledge about effective methods may empower women and endow them with a sense of control over the timing of pregnancy.

With the exception of one other study that found lower knowledge of the pill among Latinas than among non-Latinas,[22] ours is the only study to our knowledge that has quantitatively assessed racial and ethnic differences in knowledge of hormonal and long-acting reversible contraceptive methods.[49] Our finding that knowledge was lower among Latinas than among both black and white women is consistent with findings from the prior quantitative study, as well as from qualitative research highlighting low contraceptive knowledge levels among Latinas.[12,50] Our finding that use of less effective methods by Latinas was explained in part by their lower knowledge suggests that targeted patient and public education regarding these methods among Latinas might hold promise in decreasing ethnic disparities.

We were surprised that only one attitude, skepticism that the government makes sure contraceptives are safe, was associated with method choice. Future research should explore whether the attitudes we examined might play a more important role in method continuation or consistency of use, which were not captured in this study.

Limitations

Certain study design issues limit the interpretation of our findings. The data were from a cross-sectional survey; therefore, we cannot establish temporality between

our variables. Young women's contraceptive method use likely affects their attitudes and knowledge. For instance, if women using a particular method were more likely than others to express concerns over a side effect, our estimates would be attenuated. In addition, some of our measures may not have captured the attitudes and knowledge we aimed to assess. For each attitude, we examined relevant survey items and their potential for treatment as a reliable scale. Only contraceptive knowledge and childbearing attitudes had items that could be treated as a scale; for other attitudes, we assessed survey items individually. Lack of availability of validated measures might have reduced the accuracy of our findings.[49] Additionally, sample size limitations may have hindered our ability to detect associations.

This analysis focused on disparities by race or ethnicity. The underlying biases and discrimination that lead to disparities in health behaviors and outcomes experienced by vulnerable groups are defined by multiple factors, including socioeconomic status, education, and race and ethnicity.[51] We acknowledge the relevance of disparities research, including examination of unintended pregnancy, across all of these classifications; however, our interest was in examining attitudes that are shaped largely by cultural norms and historical discrimination. We controlled for education to reduce confounding by this characteristic.

Conclusion

Our study offers a unique perspective on a range of attitudes toward contraception and pregnancy that have been hypothesized to influence contraceptive method choice and use, but whose roles in explaining disparities in method use have not been examined. Major determinants of health disparities include not only individual beliefs, attitudes and context, but also health system and provider factors.[51] Research should examine other variables that might play a mediating role in racial and ethnic disparities in contraceptive use, including differential access to reproductive health care and supplies, insurance coverage of contraceptives and provider counseling techniques.[13] Efforts to dispel skepticism and to educate young women across racial and ethnic groups about the safety of long-acting reversible contraceptives and hormonal contraceptives might decrease reluctance to use these methods. Providing basic information about effective methods might help to decrease ethnic disparities in use.

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Acknowledgments

Funding for this study was provided by a grant from the National Campaign to Prevent Teen and Unplanned Pregnancy. The authors thank the Campaign and Kelleen Kaye for the opportunity to conduct this analysis and the staff of the Guttmacher Institute for conducting the survey upon which this article was based. The findings from this article were presented at the North American Forum on Family Planning, Oct. 22–24, 2011, Washington, DC.

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