Racial and Ethnic Variation in Unmarried Young Adults' Motivation to Avoid Pregnancy

CONTEXT: Racial and ethnic differences in unintended fertility are well documented, but mechanisms underlying these differences are poorly understood. To identify the factors that may contribute to such disparities, differences in distal characteristics theoretically linked to unintended fertility—such as the motivation to avoid a pregnancy—need to be identified.

METHODS: Data on sexual and reproductive attitudes and behavior among a sample of 1,573 unmarried men and women aged 18–29 came from the 2009 National Survey of Reproductive and Contraceptive Knowledge. Ordinal logistic regression analysis was conducted to examine two measures of motivation: one cognitive (perceived importance of avoiding pregnancy) and one affective (predicted feelings about experiencing an unplanned pregnancy).

RESULTS: Seventy-seven percent of young adults reported that avoiding pregnancy is very important, and 34% would be very upset if they were to experience an unplanned pregnancy. In multivariate analyses, the cognitive measure of motivation was not associated with race and ethnicity. The affective measure, however, was: Foreign-born Hispanics would be less upset than whites, and blacks would be more upset than whites, if they were to experience an unplanned pregnancy (coefficients, –1.7 and 0.5, respectively).

CONCLUSIONS: Differences in motivation to avoid pregnancy—particularly in predicted emotional responses to an unplanned pregnancy—should be further investigated as a potential factor in Hispanics' relatively high rates of unintended births. Future research should also examine connections between motivation to avoid pregnancy and reproductive behavior.

Perspectives on Sexual and Reproductive Health, 2013, 45(1):41-51, doi: 10.1363/4504113

Because unintended births are associated with negative health and developmental outcomes for mothers, children and families, unintended fertility has long been considered a public health issue in the United States.¹⁻⁴ Unintended births are common across all U.S. population subgroups, but rates are higher among black and Hispanic women than among white women.^{5,6} Although these differences are long-standing, research has made little progress in discerning their underlying reasons. Racial and ethnic differences in fertility persist even after socioeconomic characteristics and relationship status are accounted for.^{7–10} Furthermore, there is little evidence that differential access to contraception explains racial and ethnic fertility disparities.^{11,12}

An important first step to identifying the factors that may contribute to racial and ethnic disparities in unintended fertility is to identify any differences in distal characteristics that are theoretically linked to unintended fertility. One such characteristic is the underlying motivation to avoid a pregnancy. If individuals are highly motivated to avoid a pregnancy—that is, they perceive the social, relational, educational, occupational and economic costs of a pregnancy at a particular time to be high relative to the benefits—they will likely undertake steps to avoid a pregnancy. However, if costs are not considered high relative to benefits, motivation will be lower, and this will be reflected in the degree to which individuals attempt to avoid pregnancy. If blacks and Hispanics are less motivated than whites to avoid pregnancy, their sexual and contraceptive behaviors may lead to an increased risk of unintended fertility.

Previous research has distinguished between two dimensions of fertility motivation: affective and cognitive.^{13–15} Affective aspects of motivation are related to family and community context, whereas cognitive dimensions are correlated with education and life goals.¹⁵ Although they are correlated, the two dimensions are distinct and have different determinants. They likely have both independent and joint associations with sexual and contraceptive behavior.

In this article, we examine racial and ethnic variation in two measures of motivation to avoid childbearing: one cognitive and one affective. Our analyses control for socioeconomic opportunities, sexual and fertility experiences, and social environment in nested models using a unique data set of unmarried adults aged 18–29. Although men have traditionally been excluded in fertility research,¹⁶ we include them, because research has identified salient variation in men's fertility intentions and behavior,^{17–21} and has established their importance in couple-level intentions and contraceptive use.^{22–24}

By Sarah R. Hayford and Karen Benjamin Guzzo

Sarah R. Hayford is assistant professor, T. Denny Sanford School of Social and Family Dynamics, Arizona State University, Tempe. Karen Benjamin Guzzo is assistant professor, Department of Sociology, Bowling Green State University, Bowling Green, OH.

MOTIVATION TO AVOID PREGNANCY Socioeconomic Opportunities

Rational choice models of fertility decision making often focus on the "opportunity costs" of childbearing-that is, the value (financial or otherwise) of activities that would be forgone by having children. According to this framework, the greater the value placed on activities other than bearing and raising children (such as employment, school enrollment and higher levels of education), the greater the opportunity costs of fertility.25,26 Although this framework is generally applied to women's decisions about childbearing, in theory, it should also hold for men;²⁷ empirical research confirms that early unmarried parenthood is associated with negative outcomes (in terms of earnings, employment and education) for men as well as women.28-30 We hypothesize that opportunity costs of fertility will be positively associated with motivation to avoid childbearing for both men and women.

In the United States, Hispanics—particularly foreignborn Hispanics—and blacks are socioeconomically disadvantaged relative to whites: They are less likely to be enrolled in school, have lower educational attainment and are more likely to be unemployed.³¹ Thus, this framework implies that differences in education and employment experiences explain some portion of racial and ethnic differences in motivation to avoid pregnancy.

Sexual and Fertility Experiences

The life-course perspective posits that early life experiences affect subsequent decisions and outcomes.³² Thus, this perspective suggests that the conditions of sexual debut, early sexual experiences and early fertility are associated with subsequent sexual attitudes and behaviors, although the causal mechanisms are not clear. For instance, early sexual debut has been linked to later sexual risk behaviors, such as having multiple partners and using contraceptives inconsistently.^{33–35} Furthermore, women who have an early unintended birth are more likely than others to have a subsequent one, even after accounting for socioeconomic characteristics and relationship status.³⁶

We hypothesize that previous sexual and fertility behaviors are associated with current motivation to prevent pregnancy. This association may be linked to other, unmeasured factors: For example, previous risky sexual behaviors may reflect initial, and persistent, low motivation to avoid a pregnancy. There may also be causal associations between early and later behaviors: For example, early sexual debut may alter beliefs about sexual behavior or attitudes toward childbearing.37 Blacks and Hispanics have sex at an earlier age than whites and report greater prevalence of sexual risk-taking behaviors.38 Rates of adolescent, nonmarital and unintended fertility are also higher among black and Hispanic young adults than among whites.^{5,6} We therefore hypothesize that earlier age at first sex and higher rates of parenthood are negatively associated with motivation to avoid pregnancy, and that

this association may account for lower motivation among disadvantaged racial and ethnic minorities.

Social Environment and Fertility Attitudes

We hypothesize that individuals' attitudes about fertility and contraception, as well as those of their friends and family, are associated with motivation to avoid pregnancy. Women with a strong desire for children at some point in their life are more likely than ambivalent women to develop positive feelings about having an unplanned pregnancy under less-than-ideal circumstances.¹⁵ In addition, having friends who had children during adolescence is associated with increased likelihood of an adolescent pregnancy.39 Low-income women (who are disproportionately minority) report that their peer network strongly influences their sexual and childbearing behaviors.40 Furthermore, evidence suggests that blacks and Hispanics rely heavily on their social networks for sexual and reproductive norms and information.⁴¹ Thus, we hypothesize that racial and ethnic variation in the experiences and attitudes of peers and family members is associated with racial and ethnic differences in motivation.

Religiosity may also be associated with fertility motivation, although the direction of the association is difficult to predict. Americans who attach great importance to religion in their everyday lives desire more children than those who report lower importance, but they also are more likely to espouse "traditional" family values, such as those condemning childbearing outside of marriage.42 Findings regarding religiosity and risk factors for unintended fertility are mixed as well: Religiosity is associated with contraceptive behavior among teenage women, but not adults.43 (Specific denominational affiliation is less strongly associated with sexual and contraceptive behavior than religious attendance.42,44) We hypothesize that frequency of religious attendance is associated with motivation to avoid pregnancy, although the direction of the association is unclear. The more frequent religious attendance of black and Hispanic young adults relative to whites45,46 may thus be related to variation in motivation to avoid pregnancy.

METHODS Data and Sample

Data for this analysis came from the 2009 National Survey of Reproductive and Contraceptive Knowledge (the "Fog Zone" survey), conducted by the National Campaign to Prevent Teen and Unintended Pregnancy, in collaboration with the Guttmacher Institute. This data set contains unique measures of attitudes toward fertility and contraception, as well as core social and demographic information.

The survey methodology has been described previously.⁴⁷ Briefly, the telephone survey was conducted in both English and Spanish on a sample of landlines reached by random-digit-dialing, a targeted sample of listed landlines and a random sample of cell phones; the landline samples were designed to oversample black and Hispanic respondents. Cooperation rates (the proportions of eligible households for which an interview was completed) were 40% for the random landline sample, 39% for the targeted landline sample and 36% for the cell phone sample; these rates are comparable with those in other, contemporary telephone surveys. Response rates (the numbers of completed interviews as proportions of both eligible households and households of unknown eligibility) were 21%, 22% and 19%, respectively; because the characteristics of targeted respondents who refused were not known, response rates by individual characteristics could not be calculated. Once weighted to account for survey design, the data were nationally representative of unmarried young adults aged 18–29 in 2009.

Overall, the sample included 897 females and 903 males. To focus on precursors of unintended pregnancy, we excluded respondents who were currently pregnant or had a pregnant partner (41), were trying to get pregnant or get a partner pregnant (46), or were sterilized (19). We included in all analyses those who had never had sex and those not currently in a sexual union. These individuals may have been avoiding sexual activity deliberately to avoid pregnancy; we include them in analyses and control for sexual experience and current relationship status to explicitly model associations between these characteristics and motivation. We tested the sensitivity of our results to this sample definition by running multivariate analyses for three analytic samples: all individuals, those who had ever had sex and those who were currently sexually active. The sign and significance level of the coefficients for race and ethnicity were the same in all samples.

Measures

We examined motivation to avoid pregnancy using two measures. A cognitive measure was based on the question "Thinking about your life right now, how important is it for you to avoid becoming pregnant (getting someone pregnant)?" Responses were measured on a scale of 1 ("very important") to 4 ("not important"). An affective measure was based on the question "How would you feel today if you found out you were pregnant (your partner were pregnant)?" Responses were measured on a scale of 1 ("very upset") to 4 ("very pleased").

All models included a categorical variable for race and ethnicity (white, black, U.S.-born Hispanic, foreign-born Hispanic and other), as well as controls for age and gender. We differentiated between Hispanics born inside and outside the United States because the two groups differ substantially in fertility attitudes and behavior.⁴⁸ We were not able to distinguish between respondents who moved to the United States as children and those who immigrated as adults, or to separate Hispanics by country of origin. We categorized age as 18–19, 20–24 or 25–29. This division is standard in the fertility literature^{5,7} and loosely represents the stages of the late adolescent and young adult life course.

We included two measures of economic opportunity. Educational attainment was measured as a categorical variable; respondents were classified as having no high school degree, a high school degree (diploma or GED), some postsecondary education (including associate's degree and vocational training), or a bachelor's degree or higher. Because our sample was of young people, some respondents may not have completed their education; therefore, we included a measure of whether respondents were currently in school, working and not in school, or neither working nor in school.*

Our measures of sexual and fertility experiences included whether the respondent had ever had sex, the respondent's age at first sex, whether the respondent was in a current sexual relationship and whether the respondent had ever had children. We created a single categorical variable to capture both onset of first sex and age at first sex; the categories were first sex before age 15, first sex between ages 15 and 17, first sex at age 18 or older, and never had sex. Age categories were created on the basis of the distribution of timing of first sex in the sample and previous research on associations between age at first sex and subsequent sexual behavior.3,34 In addition, relationship status was a dichotomous measure of whether the respondent had a boyfriend or girlfriend with whom she or he was currently having sex. Also, we included a dichotomous measure of whether the respondent had ever had a child; measures of parity were not available in the data.

We included several measures of social environment and fertility attitudes. Respondents were categorized by how frequently they attend religious services: never, occasionally (combining the responses "less than once per month" and "1–3 times per month"), or once a week or more. Finally, fertility attitudes were measured by respondents' level of agreement with the following four survey items about pregnancy and contraception: "in my family it is not acceptable to have a child out-of-wedlock," "every pregnancy is a blessing," "many of my friends have had unplanned pregnancies" and "most of my friends think using birth control is important." For each statement, we compared respondents who strongly or somewhat agreed with those who strongly or somewhat disagreed.

Analyses

For our analytic sample, we excluded 86 individuals with an invalid response to a motivation question (i.e., those who refused to answer or gave a reply outside of the response options, such as "don't know" or "wouldn't care"), as well as 41 individuals with missing values on independent variables. The final sample comprised 1,573 respondents—820 whites, 291 blacks, 237 U.S.-born

^{*}In exploratory analysis, we tested models that included "working and in school" as a separate category. Results showed no difference in fertility motivation between respondents who were in school and not working and those who were both working and enrolled. We therefore combined the two categories in final models.

TABLE 1. Percentage distribution of U.S. young adults, by selected characteristics, according to race and ethnicity, National
Survey of Reproductive and Contraceptive Knowledge, 2009

Characteristic	All (N=1,573)	White (N=820)	Black (N=291)	U.Sborn Hispanic (N=237)	Foreign-born Hispanic (N=106)	Other (N=119)
DEMOGRAPHIC						
Age*						
18–19	26.6	26.8	24.1	36.0±	23.8	19 9±
20–24	41 7	40.4	40.4	46 7±	23.0	56.4±
25–29	317	32.8	35.5	17 3±	42.9	23.7±
	51.7	52.0	55.5	17.57	72.9	25.7 +
Gender†						
Male	53.2	53.9	43.4±	56.7	647	53.9
Female	46.8	46.1	56.7±	43.3	35.3	46.1
	10.0	10.1	56.7	13.5	55.5	10.1
ECONOMIC OPPORTUNITY						
School/employment status***						
In school	44.0	45.0	41.0±	50.4	18.4±	56.5 ‡
Working	43.4	44.8	38.3‡	36.0	70.7‡	27.2‡
Neither	12.6	10.2	20.7‡	13.6	10.9‡	16.3‡
Educational attainment***						
<high degree<="" school="" td=""><td>16.3</td><td>12.8</td><td>17.9‡</td><td>18.9‡</td><td>50.7‡</td><td>7.0</td></high>	16.3	12.8	17.9‡	18.9‡	50.7‡	7.0
High school degree/GED	28.2	25.4	36.8‡	37.4‡	28.7‡	21.1
Some postsecondary	37.7	40.7	33.1‡	35.0‡	14.6‡	46.6
≥bachelor's degree	17.8	21.1	12.2‡	8.7‡	6.0‡	25.3
SEXUAL/FERTILITY EXPERIENCES Age at first sex***						
<15	16.2	11.1	29.1‡	25.7‡	22.7 ±	12.8‡
15–17	42.8	43.7	43.7‡	48.9‡	40.8‡	26.2‡
≥18	26.4	30.0	16.9‡	11.9‡	30.1‡	33.3‡
Never had sex	14.6	15.2	10.3‡	13.6‡	6.5‡	27.7‡
Currently in a sexual relationship						
Yes	54.0	52.6	63.9‡	51.7	50.6	50.3
No	46.0	47.4	36.1‡	48.3	49.5	49.7
Ever had a child***						
Yes	19.9	14.7	39.7‡	26.1‡	24.4‡	9.4
No	80.1	85.3	60.3‡	73.9‡	75.7‡	90.6
SOCIAL ENVIRONMENT/FERTILITY ATTITUDES Religious attendance*						
Never	34.4	36.3	27.2‡	38.3‡	30.6	32.4‡
Occasionally	40.0	42.6	38.3‡	31.9‡	38.4	33.9‡
≥once a week	25.6	21.1	34.5‡	29.7‡	31.0	33.8‡
Fertility attitudes Nonmarital childbirth is not acceptable in my family						
Agree	43.2	45.0	34.2‡	40.7	44.1	49.7
Disagree	56.8	55.0	65.8‡	59.3	56.0	50.3
Friends have had unplanned pregnancies***		2.5.0				
Agree	62.5	57.9	80.7±	80.4±	52.1	48.1
Disagree	37.5	42.1	19.3±	19.6±	47.9	51.9
Friends think using birth control is important+	57.05					2
Agree	85.3	87.0	80.1±	79.1±	86.3	89.0
Disagree	14.7	13.0	19.9±	20.9±	13.8	11.0
Every pregnancy is a blessing***		. 5.0		_0.21		
Agree	75.0	67.9	90.4±	85.0±	95.2±	70.9
Disagree	25.0	32.1	9.6±	15.0±	4.8±	291
	23.0	52.1	2.0T	13.07	1.0T	27.1
Total	100.0	100.0	100.0	100.0	100.0	100.0

*Overall distributions differ at p<.05.***Overall distributions differ at p<.001. +Overall distributions differ at p<.10. +Significantly different from whites at p<.10. Note: Percentages may not add to 100.0 because of rounding.

In exploratory analyses, we estimated models that included racegender interactions and models that analyzed men and women separately. Race-gender interactions were not statistically significant and did not improve model fit for either measure of motivation. In genderspecific models, coefficients for race and ethnicity, and changes in these coefficients as additional variables were added to unconditional models, were largely similar for men and women. Detailed results from genderspecific models are available on request. Hispanics, 106 foreign-born Hispanics and 119 respondents of other races and ethnicities. (Because the "other" group was heterogeneous and small, differences between that group and others were generally not statistically significant, and thus we limit discussion of them.)

We conducted descriptive analyses to compare the distributions of independent and dependent variables across

FABLE 2. Percentage distribution of young adults, by response to survey items assessing motivation to avoid pregnanc	су,
according to race and ethnicity	

Item	All	White	Black	U.Sborn Hispanic	Foreign-born Hispanic	Other
ALL RESPONDENTS	(N=1,573)	(N=820)	(N=291)	(N=237)	(N=106)	(N=119)
Importance of avoiding pregnancy*						
Very important	77.0	77.9	75.7	74.5†	68.4†	83.3
Somewhat important	10.6	10.7	11.5	9.4†	15.3†	4.8
A little important	6.1	7.2	4.7	4.2†	3.2†	4.8
Not important	6.4	4.2	8.1	11.8†	13.2†	7.1
Predicted feeling about unintended pregna	ncy***					
Very upset	33.8	36.3	35.7	31.0†	8.6†	34.9
A little upset	29.7	31.6	31.4	24.1†	10.6†	35.8
A little pleased	19.7	19.5	19.1	19.8†	22.4†	19.4
Very pleased	16.9	12.6	13.9	25.1†	58.4†	9.9
RESPONDENTS WHO CONSIDER IT						
VERY IMPORTANT TO AVOID PREGNANCY	(N=1,224)	(N=650)	(N=224)	(N=179)	(N=74)	(N=97)
Predicted feeling about unintended pregna	ncy***					
Very upset	40.6	43.7	42.5	33.8†	12.2†	41.8
A little upset	32.2	34.0	35.6	26.8†	15.0†	31.4
A little pleased	16.6	15.1	16.7	19.9†	21.0†	20.8
Very pleased	10.6	7.2	5.1	19.5†	51.7†	6.1
Total	100.0	100.0	100.0	100.0	100.0	100.0

*Overall distributions differ at p<.05. ***Overall distributions differ at p<.001. †Significantly different from whites at p<.10. Note: Percentages may not add to 100.0 because of rounding.

racial and ethnic groups. Chi-square tests were used to assess whether the overall association between race and ethnicity and each covariate differed significantly from independence, and whether the distribution of independent and dependent variables differed between whites and each of the other racial and ethnic groups. Tests incorporated weights and design variables.

Next, we conducted two sets of multivariate analyses: one for our cognitive measure of motivation and one for our affective measure. Because the questions were scaled, both analyses used ordinal logistic regression. Models used SAS SURVEY procedures to incorporate weights and design variables. For each analysis, we present five models. The first, or baseline model, includes race and ethnicity, as well as basic demographic variables. Each of the next three models adds one set of variables to the baseline: Model 2 adds measures of economic opportunity, model 3 adds measures of sexual and fertility experience, and model 4 adds measures of social environment and fertility attitudes. Finally, model 5 includes all independent variables. In all models, the main focus is the coefficients for race and ethnicity. Changes in these coefficients as selected measures are added to the baseline model suggest that baseline associations between race and ethnicity are at least partly explained by other independent variables.

RESULTS Descriptive Findings

The age and gender composition of the sample varied significantly across racial and ethnic groups (Table 1): Compared with whites, U.S.-born Hispanics were younger and members of other racial or ethnic groups were older. Measures of economic opportunity also differed by race

and ethnicity. The proportion of young adults who were in school was highest among respondents who were not white, black or Hispanic (57%); foreign-born Hispanics had the highest proportion of respondents working (71%), whereas blacks had the highest proportion neither in school nor working (21%). Greater proportions of blacks and Hispanics than of whites had not graduated from high school (18–51% vs. 13%) or had received only their high school degree (29–37% vs. 25%).

Of the sexual and fertility experience measures, age at first sex and childbirth history varied by race and ethnicity. Greater proportions of black and Hispanic young adults than of whites had had sex before age 15 (23–29% vs. 11%) and had had a child (24–40% vs. 15%). A greater proportion of blacks than of whites reported currently being in a sexual relationship (64% vs. 53%), although the overall distributions by current relationship status did not differ significantly.

In addition, religious service attendance differed by race and ethnicity: Whites were less likely than blacks and U.S.-born Hispanics to go to church once a week or more (21% vs. 35% and 30%, respectively). Finally, racial and ethnic differences in fertility attitudes varied according to measure. For example, the vast majority of respondents in each group (79–89%) agreed that their friends think birth control is important, and racial and ethnic differences were only marginally significant. On the other hand, significantly greater proportions of blacks and Hispanics than of whites agreed that every pregnancy is a blessing (85–95% vs. 68%).

Seventy-seven percent of young adults reported that it was very important for them to avoid pregnancy at that time (Table 2). Overall, racial and ethnic differences in

TABLE 3. Coefficients (and standard errors) from ordinal logistic regression analyses examining associations between selected characteristics and young adults' perception that avoiding a pregnancy is important

Characteristic	Model 1	Model 2	Model 3	Model 4	Model 5
DEMOGRAPHIC					
Race/ethnicity					
White	ref	ref	ref	ref	ref
Black	-0.17 (0.23)	-0.07 (0.24)	0.02 (0.26)	0.08 (0.24)	0.22 (0.26)
U.Sborn Hispanic	-0.31 (0.27)	-0.28 (0.27)	-0.18 (0.27)	-0.12 (0.28)	-0.08 (0.28)
Foreign-born Hispanic	-0.48 (0.29)	-0.51 (0.32)	-0.41 (0.29)	-0.39 (0.30)	-0.42 (0.32)
Other	0.28 (0.34)	0.25 (0.35)	0.28 (0.34)	0.27 (0.34)	0.33 (0.36)
Age					
18–19	0.22 (0.22)	0.10 (0.23)	0.31 (0.22)	0.31 (0.22)	0.25 (0.24)
20–24	ref	ref	ref	ref	ref
25–29	-0.20 (0.21)	-0.17 (0.22)	-0.19 (0.21)	-0.13 (0.21)	-0.16 (0.23)
Gender					
Male	ref	ref	ref	ref	ref
Female	0.32 (0.18)	0.28 (0.19)	0.27 (0.18)	0.38 (0.18)*	0.22 (0.20)
ECONOMIC OPPORTUNITY					
School/employment status					
In school	na	0.65 (0.21)**	na	na	0.59 (0.21)**
Working	na	ref	na	na	ref
Neither	na	-0.40 (0.27)	na	na	-0.37 (0.28)
Educational attainment					
<high degree<="" school="" td=""><td>na</td><td>0.53 (0.30)</td><td>na</td><td>na</td><td>0.55 (0.30)</td></high>	na	0.53 (0.30)	na	na	0.55 (0.30)
High school degree/GED	na	ref	na	na	ref
Some postsecondary	na	-0.24 (0.23)	na	na	-0.25 (0.24)
≥bachelor's degree	na	0.75 (0.33)*	na	na	0.66 (0.33)*
SEXUAL/FERTILITY EXPERIENCES					
Age at first sex					
<15	na	na	-0.64 (0.24)**	na	-0.68 (0.25)**
15–17	na	na	ref	na	ref
≥18	na	na	0.22 (0.23)	na	0.07 (0.22)
Never had sex	na	na	0.07 (0.30)	na	0.04 (0.31)
Currently in a sexual relationship					
Yes	na	na	-0.02 (0.20)	na	0.05 (0.20)
No	na	na	ref	na	ref
Ever had a child					
Yes	na	na	-0.13 (0.26)	na	0.13 (0.28)
No	na	na	ref	na	ref
Religious attendance					
Never	na	na	na	-0.05 (0.22)	0.08 (0.22)
Occasionally	na	na	na	ref	ref
≥once a week	na	na	na	-0.23 (0.22)	-0.19 (0.22)
Fertility attitudes					
Nonmarital childbirth is not acceptable in my	family				
Agree	na	na	na	0.32 (0.18)	0.21 (0.19)
Disagree	na	na	na	ref	ref
Friends have had unplanned pregnancies					
Agree	na	na	na	-0.30 (0.19)	-0.11 (0.20)
Disagree	na	na	na	ref	ref
Friends think using birth control is important					
Agree	na	na	na	0.48 (0.22)*	0.44 (0.22)*
Disagree	na	na	na	ref	ref
Every pregnancy is a blessing					
Agree	na	na	na	-0.40 (0.23)	-0.33 (0.23)
Disagree	na	na	na	ref	ref
Intercept 1	1.16 (0.16)***	0.89(0.23)***	1.19 (0.23)***	1.07 (0.35)**	0.78 (0.40)
Intercept 2	1.91 (0.18)***	1.67 (0.24)***	1.95 (0.25)***	1.84 (0.35)***	1.57 (0.41)***
Intercept 3	2.65 (0.20)***	2.42 (0.25)***	2.70 (0.26)***	2.59 (0.39)***	2.34 (0.44)***
–2 log likelihood	2,419.0	2,355.6	2,393.9	2,386.5	2,318.7

*p<.05.**p<.01.***p<.001.Notes: Models incorporate weights and survey design effects.na=not applicable.ref=reference group.

the cognitive measure of motivation were significant; in particular, the distributions of responses among U.S.-born and foreign-born Hispanics differed from that among whites. Seventy-eight percent of whites and 83% of members of other racial and ethnic groups said that it was very important to avoid pregnancy, compared with 68–76% of blacks and Hispanics; foreign-born Hispanics were the least likely to report that avoiding pregnancy was very important (68%) and the most likely to report that it was not important (13%).

Differences by race and ethnicity in the affective measure of motivation were similar in direction to, but showed more variation than, those for the cognitive measure. Overall, 34% of young adults predicted that they would be very upset by an unexpected pregnancy right now, and an additional 30% that they would be somewhat upset. Whites, blacks and members of other racial and ethnic groups had the highest proportions saying that they would be very upset (35–36%); only 9% of foreign-born Hispanics said that they would be very upset, and 58% said that they would be very pleased.

Racial and ethnic variations in feelings about pregnancy persisted even when the analysis was restricted to young adults who reported that it was very important to avoid pregnancy. Among these respondents, Hispanics, especially foreign-born, would be the least upset and the most pleased if they experienced an unplanned pregnancy; these distributions were significantly different from those for whites.

Multivariate Findings

No associations by race and ethnicity were found in any of the ordinal logistic regression models examining the cognitive measure of motivation (Table 3). Control variables were associated with the perceived importance of avoiding pregnancy largely as expected. In model 2, respondents who were currently enrolled in school (compared with those currently working) and respondents who had earned at least a bachelor's degree (compared with those who had only graduated from high school) had a greater likelihood of perceiving pregnancy avoidance as important (coefficients, 0.7 and 0.8, respectively). In model 3, respondents who first had sex before age 15 perceived lower importance of avoiding pregnancy than those whose sexual debut occurred at age 15-17 (-0.6). And in model 4, only one fertility attitude was significant: Believing that friends think that birth control is important was positively associated with believing that it is important to avoid pregnancy (0.5). All of these associations remained significant in the full model, and in general, the coefficients were only minimally attenuated.

In the analyses of the affective measure of motivation (Table 4, page 48), racial and ethnic differences in the baseline model were significant only for Hispanics: U.S.-born and especially foreign-born Hispanics would be less upset than whites if they were to experience an unplanned pregnancy (coefficients, -0.6 and -2.2, respectively). Both associations remained strong and significant when measures of economic opportunity were added in model 2 (-0.6 and -1.9) and when measures of sexual and fertility experience were added in model 3 (-0.5 and -2.1). However, in model 4, which included measures of social environment and fertility attitudes, the association for U.S.-born Hispanics was reduced by about half and lost significance, although the association for foreign-born Hispanics was mostly unchanged (-2.0). In the full model, the difference between white and U.S.-born Hispanic respondents was nonsignificant, whereas the difference between whites and foreign-born Hispanics remained large and significant (-1.7).*

Interestingly, while differences between Hispanics and whites in the affective measure were reduced by adding control variables, the difference between whites and blacks increased with additional controls. In the baseline model, the coefficient representing differences between black and white respondents was nonsignificant and negative (-0.1). When measures of fertility attitudes were added in model 4, the coefficient was relatively large and positive (0.3), although nonsignificant. In the full model, however, the association reached statistical significance, and the coefficient increased in the positive direction (0.5), indicating that black young adults would be more upset by an unplanned pregnancy than whites with similar fertility attitudes in their social and family networks.

The associations between control variables and the affective measure of motivation were mostly in the same direction as, but larger than, those with the cognitive measure. In the full model, respondents aged 18-19, those currently enrolled in school and those who had earned at least a bachelor's degree had an elevated likelihood of being upset about an unplanned pregnancy (coefficients, 0.5-1.0). In addition, young people who had never had sex would be more upset by an unplanned pregnancy than those who were 15-17 when they first had sex (0.5). Having friends who think that contraceptive use is important was positively associated with being upset about an unplanned pregnancy (0.4), whereas having friends who had had an unplanned pregnancy and believing that every pregnancy is a blessing were negatively associated with the outcome (-0.4 and -1.1, respectively).

Overall, gender differences in motivation to avoid pregnancy were small. Unmarried men and women aged 18–29 did not differ in their perception of the importance of avoiding pregnancy (Table 3). Women's predicted negative feelings if a pregnancy occurred unexpectedly were greater than men's (coefficient, 1.2—Table 4), perhaps because they would be more affected by the physical demands of pregnancy, or because they felt they would have more responsibility for caring for a child. In separate analyses by gender, racial and ethnic differences in the importance of avoiding pregnancy and feelings about a potential pregnancy were largely similar for men and

^{*}Differences between U.S.-born Hispanics and foreign-born Hispanics were also statistically significant in all models (not shown).

TABLE 4. Coefficients (and standard errors) from ordinal logistic regression analyses examining associations between selected characteristics and young adults' prediction that they would feel upset about experiencing a pregnancy

Characteristic	Model 1	Model 2	Model 3	Model 4	Model 5
DEMOGRAPHIC					
Race/ethnicity					
White	ref	ref	ref	ref	ref
Black	-0.14 (0.19)	0.01 (0.20)	0.08 (0.20)	0.32 (0.20)	0.45 (0.22)*
U.Sborn Hispanic	-0.63 (0.23)**	-0.57 (0.22)*	-0.49 (0.23)*	-0.28 (0.23)	-0.24 (0.24)
Foreign-born Hispanic	-2.15 (0.28)***	-1.89 (0.29)***	-2.07 (0.29)***	-2.01 (0.29)***	-1.69 (0.31)***
Other	0.01 (0.21)	-0.10 (0.20)	-0.07 (0.21)	0.00 (0.22)	-0.08 (0.21)
Age					
18–19	0.30 (0.16)	0.37 (0.18)*	0.29 (0.16)	0.46 (0.16)**	0.50 (0.18)**
20–24	ref	ref	ref	ref	ref
25–29	-0.53 (0.18)**	-0.54 (0.18)**	-0.44 (0.18)*	-0.45 (0.17)*	-0.45 (0.19)*
Gender					
Male	ref	ref	ref	ref	ref
Female	1.00 (0.15)***	0.97 (0.15)***	1.05 (0.15)***	1.26 (0.15)***	1.15 (0.15)***
ECONOMIC OPPORTUNITY					
School/employment status					
In school	na	0.70 (0.17)***	na	na	0.51 (0.17)**
Working	na	ref	na	na	ref
Neither	na	0.08 (0.28)	na	na	0.10 (0.28)
Educational attainment					
< high school degree	na	0 14 (0 24)	na	na	0.08(0.24)
High school degree/GED	na	ref	na	na	ref
Some postsecondary	na	0.25 (0.19)	na	na	0.24 (0.19)
≥bachelor's degree	na	1.23 (0.25)***	na	na	1.00 (0.25)***
Age at first sex					
	na	na	-0.30(0.20)	na	-0.30(0.21)
15-17	na	na	ref	na	ref
>18	na	na	0.23 (0.18)	na	-0.01 (0.18)
Never had sex	na	na	0.56 (0.22)*	na	0.54 (0.24)*
Currently in a sexual relationshin					
Yes	na	na	-0.16(0.15)	na	-0.10(0.15)
No	na	na	ref	na	ref
Ever had a child					
Voc	na	na	_0.40 (0.21)	na	0.10(0.23)
No	na	na	-0.40 (0.21)	na	0.10 (0.25) ref
	na	i di		na	
SOCIAL ENVIRONMENT/FERTILITY ATTITUDES					
Newor	22	22	22	0.09 (0.17)	0.04 (0.17)
	na	na	na	-0.08 (0.17)	0.04 (0.17)
>once a week	na	na	na	-0.17 (0.18)	-0.27 (0.18)
				(
Fertility attitudes	mily				
Agroo		22	22	0.24 (0.14)*	0.20 (0.14)
Disagree	na	na	na	0.34 (0.14) rof	0.20 (0.14)
Friends have had upplanned pregnancies	Па	na	na	iei	iei
Agree	na	na	na	-0.67 (0.15)***	-0.43 (0.15)**
Disagree	na	na	na	ref	ref
Friends think using birth control is important	-				-
Agree	na	na	na	0.42 (0.19)*	0.44 (0.19)*
Disagree	na	na	na	ref	ref
Every pregnancy is a blessing					
Agree	na	na	na	-1.21 (0.17)***	-1.14 (0.17)***
Disagree	na	na	na	ref	ref
Intercept 1	-0.94 (0.14)***	-1.69(0.21)***	-0.99(0.18)***	-0.42 (0.30)	-1.16(0.37)**
Intercept 2	0.45 (0.14)***	-0.22 (0.19)	0.44 (0.18)*	1.11 (0.29)***	0.44 (0.35)
Intercept 3	1.65 (0.15)***	1.05 (0.21)***	1.66 (0.19)***	2.40 (0.29)***	1.78 (0.36)***
-2 log likelihood	3,913.5	3,795.1	3,854.5	3,721.6	3,632.1

*p<.05.**p<.01.***p<.001.*Notes*: Models incorporate weights and survey design effects.na=not applicable.ref=reference group.

women (not shown). In most models, differences between Hispanics and whites were larger for men than for women; however, in pooled models with race-gender interactions, gender variation in racial and ethnic differences was nonsignificant. Some associations with independent variables differed by gender. The relationship between educational attainment and motivation was stronger for women, whereas the association between school enrollment and motivation was stronger for men. For men, family attitudes about nonmarital fertility were more predictive of motivation than were friends' attitudes about birth control; for women, the opposite was true. For the most part, however, associations were in the same direction and were similar in magnitude.

DISCUSSION

Unintended births result from sexual activity without effective contraceptive use and from unintended pregnancies' being carried to term. Thus, at the most basic level, racial and ethnic differences in rates of unintended births must be caused by differences in sex, contraception or abortion. The distal factors that shape these behaviors are complex and not well understood; root causes might include racial and ethnic variation in access to contraception and abortion, reproductive health knowledge⁴⁹ or norms about sexual behavior.

In this study, we found little racial and ethnic variation in our cognitive measure of motivation. Analyses of our affective measure showed that Hispanics would be significantly less upset than whites, although only differences between foreign-born Hispanics and whites were robust to controls. These results suggest that lower motivation to avoid pregnancy deserves further attention as a potential factor in high rates of unintended childbearing among Hispanics, particularly those born outside of the United States.

Some studies have suggested that differences between black and white women in rates of early nonmarital childbearing are attributable to differences in attitudes toward childbearing between these groups.^{50,51} We found only one statistically significant black-white difference in motivation to avoid pregnancy, and that finding suggested stronger motivation to avoid pregnancy among black young adults. Further research should focus on other potential factors, including access to and knowledge of contraception. In addition, other dimensions of motivation, such as partner-specific feelings, may differ significantly between black and white young adults. However, our findings do not support motivation as a target for efforts to reduce black-white differences in unintended fertility.

We found more variation in the affective dimension of motivation than in the cognitive one. This may be attributable to our sample's focus on unmarried young adults. Despite rising nonmarital fertility, most Americans still report that it is preferable to be married before having children.^{52,53} Thus, unmarried young adults are at a stage in the life course when purposely entering parenthood

is less socially acceptable. Educational attainment and school enrollment were associated with both measures of motivation. In addition, feelings about a potential pregnancy were associated with friends' and family's attitudes toward and experiences with pregnancy and birth control. The causal direction of these relationships requires exploration. Perhaps young adults whose friends believe that birth control is important fear that an unintended pregnancy would bring condemnation and, therefore, predict feeling more upset about unplanned pregnancy; alternatively, individuals who are strongly motivated to avoid pregnancy may seek out friends with similar attitudes. In any case, these results suggest that peer groups are a salient site of interactions regarding pregnancy and birth control, and may be a fruitful target for interventions.

Our findings are consistent with previous research suggesting that affective dimensions of motivation are closely linked to family and community context.¹⁵ Similarly, our results showing different distributions and correlates of the two dimensions of motivation are consistent with a growing body of research demonstrating widespread ambivalence toward pregnancy.^{17,54,55}

Limitations

The age and gender compositions of the Fog Zone sample vary across race and ethnicity, and in some cases differ substantially from population distributions.* This variation suggests that cooperation or response rates may vary by age and gender within racial and ethnic groups; however, it is not possible to calculate response rates by demographic characteristics to examine this possibility. Differential response rates by race, ethnicity and gender could bias comparisons; because the level and direction of response bias is unknown, it is impossible to determine the direction of potential bias in the reults. Our analyses controlled for gender, and results from separate analyses by gender were largely similar for men and women. These facts somewhat mitigate concerns about the impact of differential response rates by race-gender category. Still, as with all survey data, some caution is warranted in interpreting results.

Sample size and lack of detailed information on immigration history prevented us from further exploring differences between foreign-born Hispanic young adults and whites, which were the largest and most consistent differences we found among racial and ethnic groups. These differences have many possible explanations. Collecting data from foreign-born Hispanics may have posed challenges that resulted in differential sample bias for this group. Substantively, the immigration process affects economic

^{*}Gender differences are not limited to the analytic sample, but exist in the full sample as well. We compared data from the Fog Zone sample with population data from the 2005–2009 American Community Survey public use microdata sample and found that the Fog Zone sample is disproportionately female among blacks and disproportionately male among Hispanics (source: unpublished tabulations of data from the 2005–2009 American Community Survey).

resources and social networks, and respondents who came to the United States as young adults may have distinctive attitudes and values stemming from having been raised in another country.

We believe that young adults who are more motivated to avoid childbearing are more likely than others to take steps to prevent pregnancy. However, the cross-sectional nature of the data means we cannot establish a causal link between attitudes toward pregnancy and subsequent behaviors (e.g., sexual activity, contraceptive use, pregnancy termination). Furthermore, although the two dimensions of motivation measured here are important components of overall attitudes toward fertility,13-15 other important dimensions of motivation-such as desire to be a parent with one's current partner⁵⁶—were not included. Existing research has not demonstrated which dimensions are most strongly associated with behavior. In addition, only a single item was available to measure each dimension of motivation analyzed. So, for example, our measure of the cognitive dimension may conflate individual goals for childbearing with social norms about the timing and marital context of first births.

Conclusions

Our research suggests that differences in the affective aspect of motivation distinguish whites from foreign-born Hispanics and from blacks, but not from other groups; however, only the differences between whites and foreignborn Hispanics are in the same direction as differences in unintended birth rates. To assess whether these differences contribute to racial and ethnic differences in rates of unintended births, future research must determine whether motivation is associated with behavior—for instance, whether young adults' likelihood of using contraceptives is related to how upset they would be about an unplanned pregnancy. If so, then policies and interventions to reduce both overall levels of unintended fertility and disparities by race and ethnicity will need to be tailored to specific groups.

But perhaps the strongest implication of our findings is that the higher levels of unintended fertility among blacks and Hispanics relative to whites are not likely driven by a single cause. An unintended birth is an outcome stemming from a long series of decisions and behaviors, of which motivation to avoid pregnancy is but one.

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Acknowledgments

A previous version of this paper was presented at the 2011 annual meeting of the American Sociological Association. The authors thank the Social Dynamics Writing Group at Arizona State University for helpful feedback on earlier drafts. Expert research assistance was provided by Sam Hyun Yoo, with support from a seed grant from the Center for Population Dynamics, Arizona State University.

Author contact: sarah.hayford@asu.edu