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Racial and Gender Differences in Adolescent Sexual Attitudes and Longitudinal Associations with Coital Debut

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Abstract

Purpose: Delay of sexual debut is an important strategy in reducing the risk of negative adolescent health outcomes. Race and gender are known to be related to sexual behavior and outcomes, but little is known about how these characteristics affect sexual attitudes. This paper examines differences in coital and pregnancy attitudes by gender and race, the influence of attitudes on transition to first coitus for each subgroup, and implications for prevention.

Methods: Data are from Waves I and II of the National Longitudinal Study of Adolescent Health, limited to Non-Hispanic White and African American adolescents (N =6,652). We factor analyzed attitude items, and examined effects of race, gender, and their interaction, controlling for sexual debut at Wave I. We regressed sexual debut longitudinally by attitudes for virgins (N=3,281) separately for each subgroup, controlling for covariates.

Results: Compared to boys, girls perceived less positive benefits from sex and more shame and guilt with sex, but had fewer negative perceptions about pregnancy. Compared to White boys, African American boys perceived less shame and guilt about sex; girls did not differ by race. Higher perceived benefits of sex increased the likelihood of sexual debut among African American girls. Perceived shame and guilt lowered the likelihood for White boys and girls.

Conclusions: Reinforcing protective attitudes through gender and race-specific programs may delay sexual intercourse, but more research is needed. More research is also needed to determine whether there is an optimal coital age after which negative health outcomes are attenuated, and whether this differs by gender and race.

Keywords

sexuality; pregnancy; gender; race/ethnicity; perceptions; attitudes

Delay of sexual debut is an important strategy in reducing the risk of negative adolescent health outcomes. Earlier sexual debut has been associated with sexually transmitted infections [1,2], unplanned pregnancy [3] and depression [4,5]. Adolescents who initiate sex at earlier ages have more sexual partners [3,6] and more unprotected intercourse [7]. This paper examines

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whether and how attitudes influence the transition to first sex, differences by race and gender, and implications for prevention.

Although biological (e.g., pubertal timing), social (e.g., peer norms) and environmental (e.g., parental monitoring) factors influence the transition to first sex [8], individual factors, such as attitudes and beliefs are also important. Studies have concluded that adolescents are more likely to initiate sex if they have permissive or positive attitudes toward sex [9,10] and if they perceive personal and social benefits to having sex [11,12]. There is also evidence that negative attitudes and perceptions about sexual behavior delay sexual initiation more strongly than age, race/ethnicity and parental education [13]. Despite varying contextual circumstances, positive or negative perceptions of sexual intercourse appear to influence the onset or delay of sexual intercourse.

Perceptions and attitudes about pregnancy may also influence adolescent sexual behaviors. Positive or ambivalent perceptions and attitudes toward pregnancy have been associated with an increased risk of getting pregnant [14] and can lead to unprotected sexual intercourse [15, 16]. The experience of pregnancy may actually lead to more positive attitudes toward pregnancy among adolescent girls [17]. In contrast, negative attitudes and perceptions toward pregnancy appear to influence adolescents to be more cautious and take steps to prevent pregnancy [18,19].

Gender is an important factor in understanding attitudes toward sexual intercourse [20]. Overall, males are more likely to initiate sexual intercourse [10,21,22], report more sexual partners [22-24], and have more permissive perceptions about sex than females [13]. While sexual behavior for boys is considered a normative rite of passage [20,25], girls tend to be labeled and stigmatized and are often blamed for sexual encounters that result in sexually transmitted infection or pregnancy [26]. It is likely that both girls and boys internalize subtle and overt messages from friends, family and society which, in turn, shape different attitudes and beliefs about sexual initiation and childbearing.

Race is another important factor in both early initiation of sexual intercourse and adolescent pregnancy, with African American youth higher than Whites on both outcomes [21,27]. Studies have found that that African American youth are more likely to initiate sexual intercourse at younger ages [10,21,23] and have higher rates of unplanned pregnancy [21] than other ethnically diverse youth. African Americans are also much more likely to contract sexually transmitted infections and HIV [27,28].

Studies that examine adolescent attitudes and perceptions related to sex and pregnancy often use cross-sectional data that are not population-based. However, two studies using longitudinal data from the National Longitudinal Study of Adolescent Health (Add Health) have found associations between attitudes about sex and pregnancy and subsequent sexual activity. One study examined the extent to which religiosity, parental attitudes about teen sex, and teen attitudes about sex influenced sexual debut [12]. More positive teen attitudes were associated with a greater probability of sexual debut and the effect of parental attitudes was attenuated by teen attitudes [12]. Another study examining adolescent attitudes about sex found that negative perceptions about having sex, controlling for race, religiosity, and other factors, reduced the odds of transitioning to first sex among adolescents as a whole [29]. These studies, however, did not specifically examine attitudes for gender or racial differences, or interactions of race and gender. Moreover, they excluded non-virgins at Wave I, thereby losing important information on attitudes held by the majority of African American males in the sample.

This study seeks to examine whether perceptions of sex and pregnancy differ by race and gender among adolescents at Wave I in the Add Health Sample. In addition, we longitudinally examine the extent to which positive and negative perceptions of sex and pregnancy influence sexual

initiation among adolescent virgins. Based on extant research, we hypothesize that perception of higher benefits with having sexual intercourse increase the likelihood of transition to first sex. We also hypothesize that greater negative perceptions associated with sexual intercourse and pregnancy decrease the likelihood of transition to first sex. For the purposes of this paper, the term "perception" encompasses attitudes, beliefs, and subjective norms surrounding sex and pregnancy.

Methods

Sample

Data are from the contractual use dataset from Waves I (collected in 1995) and II (1996) of Add Health, a nationally representative sample of 18,924 adolescents in grades 7-12 at Wave 1 [30]. There were13,568 adolescents with data at both waves and valid sample weights at Wave II. Since questions that assessed perceptions of sexual behavior and pregnancy were asked only of adolescents' ages 15 and older (N=9,298); younger participants were excluded from the sample. The final sample was limited to 6,652 Non-Hispanic White and Non-Hispanic African American adolescents. Interviews were conducted using laptop computers and audio computer-assisted self-interviewing (ACASI) technology to collect information on sensitive topics such as sexual activity, substance use, and depression.

Measures

Socio-demographic variables—*Gender* was a self-reported dichotomous variable. *Race* was likewise dichotomous and based on respondent's self-report of being either White or African American/Black. Respondent chronological age in years was determined by subtracting the date of birth from the date of the interview. Family structure was based on household roster information, and was categorized as two biological parents (referent), two parents (one non-biological), single mother, and other. Family structure in the "other" category included living with a father, grand parent(s), other relatives, friends, living alone, or in a foster home or shelter. Highest parental education was based on the adolescent's report of the highest education level attained by either the resident mother or father, with categories of less than high school (referent), high school graduate/GED, some college, college graduate or higher. All variables were measured at Wave I.

Perceived perceptions about sex and pregnancy—Twenty items were used to measure how adolescents would feel about having sex at this time in their lives and their thoughts on pregnancy. The variables were Likert scales ranging from 1=Strongly Agree to 5=Strongly Disagree. Some examples of items included, "If you had sexual intercourse, your friends would respect you more", "If you had sexual intercourse, you would feel guilty," "If you got pregnant (or got someone pregnant), it would be embarrassing for you," and "Getting pregnant (or getting someone pregnant) at this time in your life would be one of the worst things that could happen to you." These variables were measured at Wave I and were factor analyzed to create constructs.

Transition to first sex—Transition to first sex at Wave II was measured using one item that asked, "Have you ever had sexual intercourse? When we say sexual intercourse we mean when a male inserts his penis into a female's vagina." Adolescents who responded "no" to this item at Wave I were included and those who responded "yes" at Wave II were considered to have transitioned to first sex. The item was dichotomous (0= "no," 1= "yes.").

Analysis

First, a varimax rotated exploratory factor analysis of twenty potential items assessing perceived positive and negative perceptions of engaging in sex and pregnancy during

adolescence was conducted. Factor loadings greater than 0.50 and coefficient alphas greater than .65 were considered acceptable [31]. Once we determined which variables made up the constructs, we created a mean score for each, which was entered into the final models.

Linear regression models were used to examine differences in attitudes about sex and pregnancy at Wave I by race and gender, controlling for virginity status. A second model was run that also included a race by gender interaction. Next, logistic regressions were used to examine associations between attitudes and transition to first sex, stratified by race and biological sex and run separately for the four sub-groups. Age, family structure, and parental education were included as covariates. Analyses used a weighted sample and controlled for survey design effects using STATA survey commands.

Results

Factor Analysis Results

The 20 Add Health attitude items loaded onto 3 constructs, with a few exceptions. Three items ("If you got the AIDS virus, you would suffer a great deal," "If you got pregnant or got someone pregnant, you would be forced to grow up too fast" and "It would be a big hassle to completely protect yourself from getting a sexually transmitted disease") were removed from the factor analysis because they did not load acceptably on any factor. Three items (If you got pregnant or got someone pregnant, you might marry the wrong person just to get married; if you got pregnant, or got someone pregnant, you would have to quit school; if you got pregnant or got someone pregnant, you would have to decide or help her decide whether or not to have the baby and that would be stressful and difficult) loaded onto a fourth factor and two items ("What is the chance you would get pregnant or get someone pregnant if you had sex once without any birth control?" and "What is the chance you would get the AIDS virus if you had sex as often as you wanted for a month without using any protection?") loaded onto a fifth factor but both were removed because of low internal consistency ($\alpha = 0.51$ and 0.48, respectively). Removal of these items resulted in a three factor solution (Table 1). The resulting factors were labeled (1) perceptions of benefits of having sex ($\alpha = 0.77$), (2) perceptions of shame and guilt with pregnancy ($\alpha = .77$), and (3) perceptions of shame and guilt with sex ($\alpha = 0.67$). Factor 1 was coded so that an increased score indicated a more risky attitude; the other factors were coded so that an increased score indicated a more protective attitude.

Wave I Descriptive Comparisons

Of all White adolescents in the sample, 54% of boys and 54% of girls were virgins at Wave I (Table 2). Only 28% of African American boys were virgins at Wave I; 45 % of African American girls were virgins. White boys and girls at Wave I were most likely to live in two parent households; African American boys and girls were most likely to live in single parent households. In general, the non-virgins in the sample tended to be older (OR= 1.55, $p < .001$, 95% CI= 1.44, 1.67), African American (OR = 2.20, $p < .001$, 95% CI 1.75-2.76), less likely to come from a biological two parent household (OR = .28, $p < .000$, 95% CI= .23, .34) and less likely to have a parent with a college education (OR = .40, $p < .000$, 95% CI= .31, .51).

Wave I Multivariate Comparisons of Attitudes

Compared to boys, girls had less positive perceptions about the benefits of sex ($\beta = -.62$; 95% CI= −0.66, −0.58, $p<.001$) and girls perceived more shame and guilt with sex than boys ($\beta = .27$; 95% CI= 0.23, 0.31, $p<.001$). African Americans perceived less shame and guilt with sex than Whites ($\beta = -.12$; 95% CI= −0.18, −0.06, $p<.001$); there was no difference in perceived benefits of sex by race.

When examining the interaction term for perceived benefits of having sex, a significant effect between race and gender emerged. African American boys held more positive perceptions than White boys, but White girls held more positive perceptions about the benefits of sex than African American girls (see Figure 1a). White boys perceived more shame and guilt with sex than African American boys, while girls held similar perceptions regardless of race (see Figure 1b).

In terms of pregnancy, African Americans perceived less shame and guilt with pregnancy ($\beta = -.49$; 95% CI= −0.60, −0.39, $p<.001$) than Whites. A significant interaction by race and gender showed that White boys and girls were similar in their high levels of shame and guilt with pregnancy, but African American boys perceived more shame and guilt with pregnancy than African American girls (Figure 1c).

Longitudinal Logistic Regression Analyses

Of the 3,267 virgins at Wave 1, 888 (21.9%) transitioned to first sexual intercourse at Wave II. Table 3 presents results from the logistic regression analysis of adolescents' transition, controlling for age, family structure and parental education. As can be seen, higher perceived benefits of sex predicted sexual initiation for African American girls only (OR=1.75, $p<.01$). Higher perceived shame and guilt with sex decreased the likelihood of sexual initiation among both White boys and girls (OR=0.56, $p<.001$). Pregnancy attitudes did not predict transition to first sex for any of the subgroups.

As seen in the table, demographic covariates influenced outcomes differently by subgroup. Older age increased the odds of transitioning to first sex for White girls. Living in a blended family (one biological and one non-biological parent) increased the odds of transitioning to first sex for White girls and living in a single parent household increased the odds for African American girls. Living in an “other” type of household increased the odds of transitioning to first sex for White boys (OR=2.78, $p<.01$), but even more so for African American boys (OR=7.42, $p<.001$) and girls (OR=7.54, $p<.01$). All higher parental education variables greatly decreased the odds of sexual debut for African American boys; having a parent who was a college graduate or higher decreased the odds for White girls.

Discussion

Although previous research has examined the role that perceptions and attitudes play in influencing adolescent sexual activity, none of these studies have specifically examined how perceptions and attitudes may differ by race and gender. We found that there are important differences among these subgroups that have implications for adolescent behavior and health.

Analyses showed that more than half of White boys and girls were virgins at Wave I, but that less than half of African American girls, and only 28% of African American boys were virgins at Wave I. Because of this disparity, we intentionally included all Wave I youth in our analyses of attitudes, controlling for sexual debut. Since less than a third of African American boys were virgins at Wave I, analyses that examine only virgins transitioning to first sex by Wave II are necessarily biased; virgins would include only a small (and atypical) minority of African American boys. Examining the attitudes and perceptions of all adolescents at Wave I gives additional information essential in developing health promotion strategies.

We found that boys perceived more benefits of having sex compared to girls, regardless of racial background. African American boys perceived greater benefits than White boys, but White girls held more positive perceptions about the benefits of sex than African American girls. Gender differences have been previously reported [20,21], but the racial interactions are new and important to note, particularly since greater perceived benefits of sex was the only

attitudinal predictor of transition to first sex among African American girls. These findings suggest that candid, sensitive discussions about whether the benefits are worth the risk, and exploring how girls think others would feel about them and how they would feel about themselves, can help encourage teenage girls to delay sexual debut.

Regardless of race, girls were much more likely to perceive shame and guilt with sex than boys. White boys perceived more shame and guilt with sex than African American boys. However, it is interesting that shame and guilt protected White boys and girls equally from sexual debut, but it did not protect African American girls (the variable approached significance but did not reach $p \leq .05$), even though their perception of shame and guilt was greater than that of White boys. It is important for prevention practitioners to recognize these differences in perceptions between girls and boys. It is possible that girls' greater perception of shame and guilt with sex can explain differences in the prevalence of depression for girls versus boys. Previous research has found that girls who experiment with sexual intercourse are three times more likely to be depressed one year later, controlling for covariates, than abstaining girls; there was no parallel increase in depression among boys [5].

Shame and guilt appear to act as informal social control mechanisms to delay sexual debut – at least for Whites. We named this factor “shame and guilt” because it represented the following three beliefs: 1) that engaging in sexual intercourse would be upsetting to one's mother, 2) that their partner would lose respect for them, and 3) that the adolescent would feel guilty afterward (see Table 1). We are not recommending that prevention practitioners elicit feelings of shame and guilt; rather, we recommend that they encourage honest discussion about such feelings and validate that waiting to have sex until youth are older is likely the best course to take. We also recommend encouraging parents to clearly convey their expectations about sexual activity and pregnancy; studies suggest that adolescents whose parents communicate expectations about waiting are less likely to have sex [14,32,33].

Although the pregnancy variable was not a significant predictor of sexual debut, the variable showed a race by gender interaction in cross-sectional analyses with African American boys reporting more shame and guilt with pregnancy than African American girls, and White girls and boys reporting similar high levels of shame and guilt. Less than a third of African American boys were included in the sexual debut model, which may account for the lack of significant effects. Nevertheless, cross-sectional findings suggest that this may be an opportunity to promote sexual health for boys, and especially African American boys, through discussion of how they would feel if they were to get a girl pregnant, and how they might prevent pregnancy. The Centers for Disease Control found that African American boys reported greater condom use than other ethnically diverse boys and girls [19,21]. It is possible that differences in attitudes between African American boys and girls (compared to similar attitudes of White boys and girls) influences greater condom use.

Several limitations apply to our findings. First, the sample was limited to adolescents' ages 15 years and older, and can therefore only be generalized to this age group. Related to this, less than a third of African American boys and less than half of African American girls were included in the model predicting sexual debut because the rest were not virgins at Wave 1. This, and the much lower sample size, may have contributed to the lack of significant findings regarding attitudes for African Americans. A possible example is the shame and guilt with sex variable, which was significant for both white boys and girls, and which approached significance for African American girls but did not reach significance at $p \leq .05$ (see Table 3).

Second, the information on sexual behaviors is based on self-reported data and thus subject to error. However, audio computer assisted self-interviewing (ACASI) technology was used to increase the probability of accurate reporting [34]. Third, each construct measured attitudes

and perceptions related to sex and pregnancy, but did not account for attitudes relating to sexual behaviors other than vaginal sex (e.g., oral sex). Adolescent virgins may perceive oral sex differently than vaginal sex and may have engaged in such behaviors although they have not made the transition to first vaginal sex [35]. Fourth, data were collected during 1995 and 1996 and it is not known whether attitudes among the subgroups may have changed.

Further research is needed to test whether reinforcing protective attitudes can be effective in delaying sex. Given the present findings, we conclude that it is important to conduct sexual health classes in gender and race specific groupings. Tailoring prevention programs by gender, and also by race, may help adolescents more freely discuss sexual issues and make decisions that are more relevant and salient to their lives. Although schools and other settings may have difficulty implementing separate programs tailored to race, inclusive programs that take a multifaceted approach could be just as effective, while decreasing the burden of implementing separate programs. Additionally, these data show that it is important to target African American boys at an early age, since more than two thirds were sexually experienced by age 15.

Although the concept of shame and guilt may be provocative to the health community, more research is needed to understand why the anticipation of shame and guilt is a powerful protective factor for Whites, but not for African Americans. It is possible that differences in perceptions of shame and guilt with sex, as well as subsequent sexual initiation rates are influenced by different social norms. More research is needed to understand these influences. More research is also needed to examine whether adolescents should be encouraged to delay sex until some optimal age, after which negative health outcomes are attenuated, and whether optimal age differs by gender and race. Such research is essential for providing guidelines to pediatricians, prevention practitioners, and parents to promote the health and well being of adolescents.

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References

1. Kaestle CE, Halpern CT, Miller WC, Ford CA. Young age at first sexual intercourse and sexually transmitted infections in adolescents and young adults. Am J Epidemiol 2005;161:774–780. [PubMed: 15800270]
2. Niccolai LM, Ethier KA, Kershaw TS, Lewis JB, Meade CS, Ickovics JR. New sex partner acquisition and sexually transmitted disease risk among adolescent females. J Adolesc Health 2004;34:216–23. [PubMed: 14967345]
3. Smith CA. Factors associated with early sexual activity among urban adolescents. Soc Work 1997;42:334–46. [PubMed: 9228830]
4. Blum, RW. Mothers' Influence on Teen Sex: Connections That Promote Sexual Intercourse. Center for Adolescent Health and Development, University of Minnesota; 2002. p. 1-24.
5. Hallfors DD, Waller MW, Bauer DJ, Ford CA, Halpern CT. Which comes first in adolescence-sex and drugs or depression? Am J Prev Med 2005;29:163–70. [PubMed: 16168864]
6. Santelli JS, Brener ND, Lowry R, Bhatt A, Zabin LS. Multiple sexual partners among U.S. adolescents and young adults. Fam Plann Perspect 1998;30:271–5. [PubMed: 9859017]
7. Centers for Disease Control and Prevention. Trends in sexual risk behaviors among high school students-United States, 1991-2001. 51. Department of Health and Human Services; 2002.

8. Miller BC, Norton MC, Curtis T, et al. The timing of sexual intercourse among adolescents: family, peer, and other antecedents. Youth Soc 1997;29:54–83.
9. Whitbeck LB, Yoder KA, Hoyt DR, Conger RD. Early adolescent sexual activity: A developmental study. J Marriage Fam 1999;61:934–46.
10. Santelli JS, Kaiser J, Hirsch L, Radosh A, Simkin L, Middlestadt S. Initiation of sexual intercourse among middle school adolescents: The influence of psychosocial factors. J Adolesc Health 2004;34:200–8. [PubMed: 14967343]
11. DiIorio C, Dudley WN, Kelly M, Soet JE, Mbwara J, Potter JS. Social cognitive correlates of sexual experiences and condom use among 13- through 15-year-old adolescents. J Adolesc Health 2001;29:208–16. [PubMed: 11524220]
12. Meier AM. Adolescents' transition to first intercourse, religiosity, and attitudes about sex. Soc Forces March;2003 81:1031–52.
13. Carvajal SC, Parcel GS, Basen-Engquist K, et al. Psychosocial predictors of delay of first sexual intercourse by adolescents. Health Psychol 1999;18:443–52. [PubMed: 10519460]
14. Jaccard J, Dodge T, Dittus P. Do Adolescents Want to Avoid Pregnancy? Attitudes toward pregnancy as predictors of pregnancy. J Adolesc Health 2003;33:79–83. [PubMed: 12890598]
15. Unger JB, Molina GB, Teran L. Perceived consequences of teenage childbearing among adolescent girls in an urban sample. J Adolesc Health 2000;26:205–12. [PubMed: 10706168]
16. Stevens-Simon C, Kelly L, Singer D, Cox A. Why pregnant adolescents say they did not use contraceptives prior to conception. J Adolesc Health 1996;19:48–53. [PubMed: 8842860]
17. Bruckner H, Martin A, Bearman PS. Ambivalence and pregnancy: adolescents' attitudes, contraceptive use and pregnancy. Perspect Sex Reprod Healt 2004;36:248–57.
18. Zabin LS, Astone NM, Emerson MR. Do adolescents want babies? The relationship between attitudes and behavior. J Res Adolesc 1993;3:67–86. [PubMed: 12318551]
19. Laraque D, McLean DE, Brown-Peterside P, Ashton D, Diamond B. Predictors of reported condom use in central Harlem youth as conceptualized by the health belief model. J Adolesc Health 1997;21:318–27. [PubMed: 9358295]
20. Smith LH, Guthrie BJ, Oakley DJ. Studying adolescent male sexuality: Where are we? J Youth Adolesc 2005;34:361–77.
21. Centers for Disease Control and Prevention. Youth Risk Behavior Surveillance-United States, 2003. MMWR Surveillance Summaries 2004;53(SS2):1–96.
22. Miller KE, Sabo DF, Farrell MP, Barnes GM, Melnick MJ. Athletic participation and sexual behavior in adolescents: The different world of boys and girls. J Health Soc Behav 1998;39:108–23. [PubMed: 9642902]
23. Baumer EP, South SJ. Community effects on youth sexual activity. J Marriage Fam 2001;63:540–54.
24. Santelli JS, Lowry R, Brener ND, Robin L. The Association of sexual behaviors with socioeconomic status, family structure, and race/ ethnicity among US adolescents. Am J Public Health 2000;91:1582–88. [PubMed: 11029992]
25. Kalmuss D, Davidson A, Cohall A, Laraque D, Cassell C. Preventing sexual risk behaviors and pregnancy among teenagers: Linking research and programs. Perspect Sex Reprod Health 2003;35:87–93. [PubMed: 12729138]
26. Davies SL, Dix ES, Rhodes SD, Harrington KF, Frison S, Willis L. Attitudes of youth African American fathers toward early childbearing. Am J Health Behav 2004;28:418–25. [PubMed: 15482971]
27. Halpern CT, Hallfors DD, Bauer DJ, Iritani B, Waller MW, Cho H. Implications of racial and gender differences in patterns of adolescent risk behavior for HIV and other sexually transmitted diseases. Perspect Sex Reprod Health 2004;36:239–47. [PubMed: 15687082]
28. Hallfors DD, Iritani B, Miller WC, Bauer D. Sexual and Drug Behavior Patterns and HIV/STD Racial Disparities: The Need for New Directions. American Journal of Public Health 2007;97(1):125–132. [PubMed: 17138921]
29. Rostosky SS, Regnerus MD, Comer Wright ML. Coital Debut: The role of religiosity and sex attitudes in the Add Health survey. J Sex Resr 2003;40:358–67.

30. Harris, KM.; Florey, F.; Tabor, J.; Bearman, PS.; Jones, J.; Udry, JR. The National Longitudinal Study of Adolescent Health: Research design [Add Health Web site]. 2003. Available at: http://www.cpc.unc.edu/projects/addhealth/design. Accessed June 26, 2006

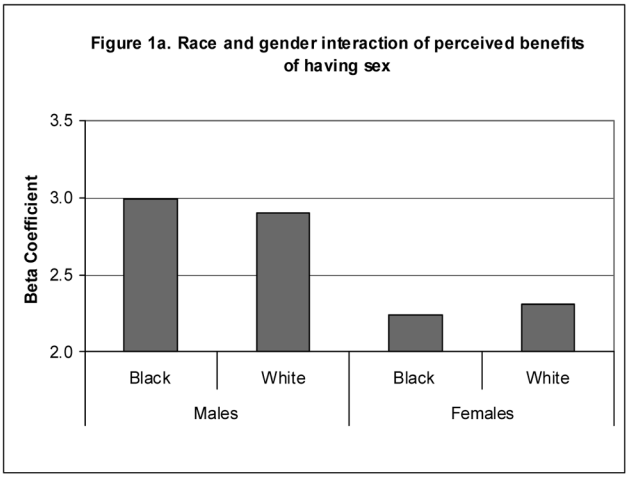
31. DeVellis, RF. Scale Development: Theory and Applications. 2nd ed.. Sage Publications; Thousand Oaks, CA: 2003.

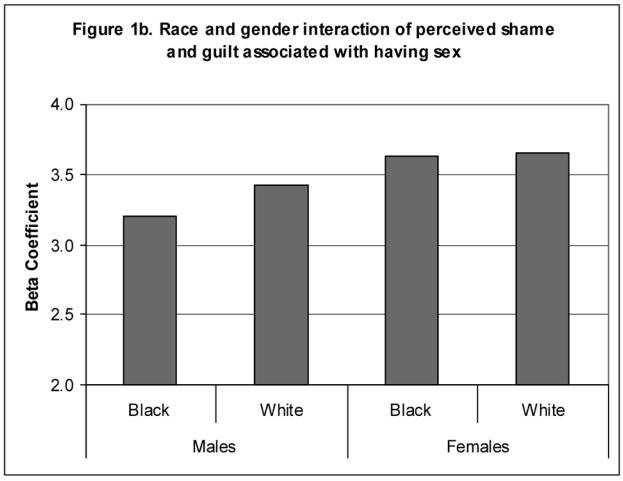
32. NcNeely C, Shew ML, Beuhring T, Sieving R, Miller BC, Blum RW. Mothers' influence on the timing of first sex among 14- and 15-year-olds. J Adolesc Health 2002;31:256–65. [PubMed: 12225738]

33. Weinberger, DR.; Elvevag, B.; Giedd, JN. The adolescent brain: A work in progress. The Campaign to Prevent Teen Pregnancy; Washington, DC: 2005. p. 1-24.

34. Turner CF, Ku L, Rogers SM, Lindberg LD, Pleck JH, Sonenstein FL. Adolescent sexual behavior, drug use, and violence: increased reporting with computer surveillance technology. Science 1998;280:867–873. [PubMed: 9572724]

35. Halpern-Felsher BL, Cornell JL, Kropp RY, Tschann JM. Oral versus vaginal sex among adolescent: Perception, attitudes and behavior. Pediatrics 2005;115:845–51. [PubMed: 15805354]





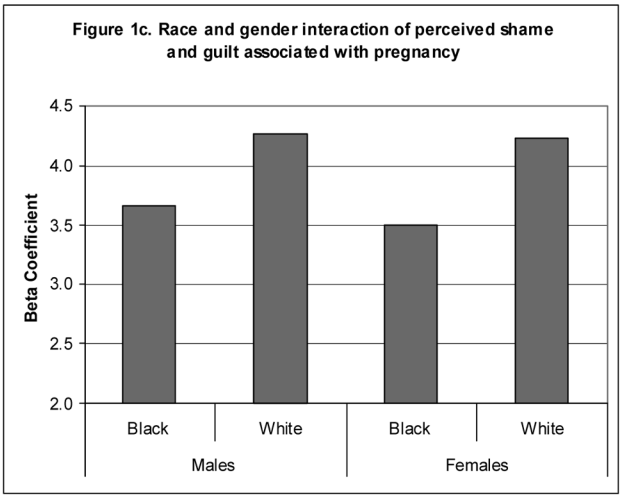


Figure 1.
Race and gender interactions of sex and pregnancy attitude variables*
* Controlling for virginity status. All interaction terms were significant at $p \leq .001$

Table 1

Factor Loadings for Sex and Pregnancy Attitude Variables

Items	Factor 1	Factor 2	Factor 3
Perceived Benefits of Having Sex			
If you had sexual intercourse, it would relax you.	**.82**	−.10	.13
If you had sexual intercourse, it would make you more attractive to the opposite sex.	**.76**	.09	.04
If you had sexual intercourse, you would feel less lonely.	**.74**	.18	.02
If you had sexual intercourse, it would give you a great deal of physical pleasure.	**.74**	−.17	.08
If you had sexual intercourse, your friends would respect you more.	**.58**	.18	.04
Perceived Shame and Guilt Associated with Pregnancy			
It wouldn't be all that bad if you got pregnant or got someone pregnant at this time in your life	.08	**.74**	−.00
Getting pregnant or getting someone pregnant at this time in your life is one of the worst things that could happen to you.	.08	**.66**	−.00
If you got pregnant or got someone pregnant, it would be embarrassing for you.	−.00	**.65**	.35
If you got pregnant or got someone pregnant, it would be embarrassing for your family.	−.08	**.59**	.36
Perceived Shame and Guilt Associated with having Sex			
If you had sexual intercourse, afterward, you would feel guilty.	.18	.08	**.78**
If you had sexual intercourse, your partner would lose respect for you.	.02	−.07	**.72**
If you had sexual intercourse, if would upset your mother.	.08	.22	**.67**
Cronbach's α	.77	.77	.67

Table 2

Mean Attitude Scores and Socio-demographic Characteristics of Virgins and Non-virgins* at Wave I by Race and Gender

	Males				Females			
	Non-Hispanic White (n=2420)		Non-Hispanic Black (n=858)		Non-Hispanic White (n=2360)		Non-Hispanic Black (n=1014)	
	Virgins at Wave I n=1307 (54%)	Non-Virgins at Wave I n=1113 (46%)	Virgins at Wave I n=240 (28%)	Non-Virgins at Wave I n=618 (72%)	Virgins at Wave I n=1280 (54%)	Non-Virgins At Wave I n=1080 (46%)	Virgins at Wave I n=454 (45%)	Non-Virgins at Wave I n=560 (55%)
Perceived benefits of having sex	2.89	3.21	3.10	3.31	2.30	2.61	2.31	2.45
Perceived shame and guilt associated with having sex	3.37	2.77	3.16	2.51	3.72	2.89	3.66	2.97
Perceived shame and guilt associated with pregnancy	4.20	3.81	3.74	3.16	4.27	3.72	3.96	3.34
Mean Age	16.39	16.92	16.50	16.88	16.28	16.77	16.37	16.86
Family Structure								
Two parent biological	66.7%	49.6%	30.1%	22.9%	67.1%	45.4%	37.8%	25.9%
Two parent one non-biological	16.1%	21.6%	12.5%	15.0%	15.0%	22.9%	10.1%	13.8%
Single mother	11.5%	18.6%	43.7%	42.4%	13.0%	19.2%	44.6%	44.3%
Other	5.7%	10.2%	13.7%	19.7%	4.9%	12.5%	7.5%	16.0%
Parental Education								
Less than High School	5.8%	11.6%	8.0%	11.9%	6.5%	13.2%	11.3%	19.0%
High School diploma	27.2%	34.7%	39.7%	41.3%	28.0%	35.7%	38.0%	35.2%
High school diploma plus	21.1%	25.1%	21.5%	18.4%	24.6%	22.6%	21.2%	24.5%
College graduate and beyond	45.9%	28.6%	30.9%	28.5%	40.9%	28.5%	29.4%	21.3%

* all respondents were ages 15-21

Table 3

Logistic Regression Models Assessing Sex and Pregnancy Related Attitudes and Likelihood of Transition to First Sex at Wave II Stratified by Gender and Race

	Male				Female			
Variables	**Non-Hispanic White n=1307**		**Non-Hispanic Black n=240**		**Non-Hispanic White n=1280**		**Non-Hispanic Black n=454**	
	OR	**95% CI**	**OR**	**95% CI**	**OR**	**95% CI**	**OR**	**95% CI**
Perceived benefits of having sex	1.20	0.96-1.50	1.12	0.64-1.96	1.15	0.94-1.40	**1.75****	1.24-2.49
Perceived shame and guilt associated with having sex	**0.56*****	0.47-0.68	0.72	0.37-1.38	**0.56*****	0.46-0.69	**0.73**†	0.51-1.03
Perceived shame associated with pregnancy	1.09	0.89-1.36	0.58	0.33-1.02	0.94	0.75-1.18	1.16	0.81-1.68
Age	1.18	0.99-1.41	1.28	0.79-2.08	**1.41*****	1.20-1.66	0.97	0.66-1.42
Family Structure								
Two parent biological	*Referent*		*Referent*		*Referent*		*Referent*	
Two parent one non-biological	1.45	0.90-2.34	0.77	0.22-2.70	**1.61***	1.06-2.45	1.26	0.35-4.54
Single mother	1.87	0.98-3.58	1.17	0.50-2.75	1.20	0.66-2.20	**1.95***	1.06-3.61
Other	**2.78****	1.30-5.93	**7.42*****	2.42-22.74	0.85	0.35-2.06	**7.54****	2.09-27.10
Parental Education								
Less than High School	*Referent*		*Referent*		*Referent*		*Referent*	
High School diploma	0.73	0.28-1.91	**0.09***	0.01-0.62	0.77	0.31-1.87	2.87	0.95-8.62
High School diploma plus	0.71	0.28-1.83	**0.09***	0.01-0.65	0.61	0.26-1.42	2.26	0.78-6.54
College graduate and beyond	0.66	0.24-1.78	**0.14***	0.03-0.82	**0.37****	0.17-0.75	0.99	0.35-2.80

† p< .10

* p ≤.05

** p≤.01

*** p≤.001