RESEARCH NOTE

Family Characteristics and Sexual Risk Behaviors Among Black Men in the United States

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CONTEXT: *Past research indicates that family characteristics are associated with sexual risk-taking behaviors in adolescence and adulthood. Because the prevalence of sexually transmitted diseases is higher among black males than among males of other races, it is important to understand factors associated with sexual risk in this group.*

METHODS: *Data from 1,125 black men participating in the 1991 National Survey of Men were used in structural equation modeling to examine the association of individual and family characteristics with age at sexual initiation and the lifetime number of sexual partners.*

RESULTS: *Men whose mothers worked were likely to have first intercourse at a younger age than others (beta, –.104), whereas those raised by both parents were likely to delay sexual initiation (.072) and to have fewer partners during their lifetime (–.062). Men who were married or had had first intercourse at an older age were likely to have a lower total number of partners than others (–.297 and –.369, respectively).*

CONCLUSIONS: *School and community programs should provide culturally appropriate and accessible activities for black youth, and should reach black males early, while they are still in elementary school. Programming targeted at parents may help them learn skills for communicating effectively with children about sexuality-related issues.*

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Each year, there are approximately 12 million new cases of sexually transmitted disease (STD) in the United States.[1] STD prevalence is higher among blacks than among whites or Asians and Pacific Islanders—for some STDs, by as much as 30%.[2] In 2000, 15–19-year-old black males had a rate of gonorrhea that was about 20 times the rate of Native American or Hispanic males in the same age-group.[3] HIV infection also is more prevalent among black adolescent and adult males than among their white or Hispanic counterparts,[4] and nearly one-half of all AIDS cases reported in 2000 were among blacks; their AIDS prevalence was twice that of Hispanics and eight times that of whites.[5] Furthermore, in the United States, blacks are more likely than members of other races to have multiple partners,[6] and black youth initiate sexual activity earlier than do youth of other races;[7] these behaviors substantially increase an individual's exposure to STDs.[8]

If exposure to STDs is to be reduced among blacks, and particularly among black males, research efforts and prevention strategies must focus on factors that affect risk-taking behaviors in this population. During recent years, it has been increasingly recognized that sexuality-related behaviors in adolescence and adulthood are associated with characteristics of the family during an individual's childhood and early adolescence.[9] Therefore, this study examined the relationship between selected characteristics of the family of origin and risky sexual behaviors among a large, nationally representative sample of heterosexual black men.

INFLUENCES ON SEXUAL RISK BEHAVIORS

Socioeconomic and Cultural Characteristics

When investigating the reasons for racial differences in sexual risk-taking behaviors, it is helpful to examine factors that are directly connected with race[10] (and racism). These factors include a variety of socioeconomic and cultural variables, such as education, urbanization, income level, social norms, values and life goals.

Financial uncertainty and poor educational and career prospects may result in the delay of marriage among economically disadvantaged blacks.[11] Consequently, black youth may feel forced to seek nontraditional methods of achieving adult status, such as initiating sex. Living in neighborhoods that lack quality school systems and supervised recreation areas for youth also may lead to reduced marital expectations, as well as reduced academic aspirations and the inability of parents to provide adequate supervision.[12] However, several studies that controlled for factors such as neighborhood and income level found that race still has a significant effect on the age at voluntary sexual initiation and the number of partners.[13] Hence, factors other than poverty status may be salient in influencing sexual risk-taking behaviors among blacks.

Some of the effect that race has on adolescent sexual behavior may be explained by the differences in sexuality-related norms and values between blacks and members of other races. Black youth are less likely than youth of other races to engage in a "predictable series of noncoital behaviors for a period of time before their first intercourse experi-

ence,"[14] and black adolescent males place a particularly high value on early sexual activity.[15] Blacks also are more tolerant of nonmarital sex and childbearing, and they consider marriage less important than other races.[16]

Family Characteristics

Evidence is growing that characteristics of an individual's family of origin can influence his or her sexual risk-taking behavior. For example, the educational level of an individual's parents—particularly of the mother[17]—influences the age at onset of sexual activity. Adolescents who postpone sexual intercourse have better-educated parents, have received more sexuality education from their parents, possess greater knowledge about sexuality and have higher aspirations than those who begin having sex before age 16.[18]

Level of parental supervision is another important familial consideration. Among low-income black children and adolescents, a low level of parental supervision provides the opportunity for precocious sexual activity.[19] Parental supervision can decrease after a divorce[20]—both because of the reduction in the number of parents in the household and because of the custodial parent's need to work full-time.[21] Boys whose mothers spend many hours at work while they are growing up are likely to begin having sex early.[22]

Findings from studies relating the number of parents in the household to the child's age at sexual initiation are unequivocal: Being raised by a single parent—particularly by a single mother[23]—is associated with early onset of sexual activity,[24] whereas living in a two-parent family is associated with delayed onset.[25] A British study found that males from single-parent families were 50% more likely than those from two-parent families to have initiated sexual activity before the age of 17, and the average age at first sex was two years higher for young men who were raised in a two-parent household than for those whose parents were divorced.[26] Living in a single-parent household predicts sexual debut even when other important variables, such as child's religiosity, child's age and family's socioeconomic status, are taken into account.[27]

Very little information, however, is available regarding the relationship between family structure and sexual risk-taking later in life, and black males are not represented in the few studies that do address this issue. In a study of a small, homogeneous sample of white females younger than 22, those whose parents were divorced reported both an earlier age at sexual initiation and more sexual partners six years later than did those living with both parents.[28] Among unmarried black women, factors present in early life—living in a two-parent family at age 14 and early age at first intercourse—predict multiple sexual partners in adulthood.[29] (Reasons for the unexpected relationship with living in two-parent households are unclear.)

Individual Characteristics

An individual's educational level predicts the lifetime number of sexual partners and is, in turn, affected by his or her mother's educational attainment.[30] Although religious involvement among adolescents is associated with postponement of sexual activity,[31] studies on the relationship between adult religiosity and sexual behavior have produced conflicting results.[32] Religiosity during adulthood is expected to influence the number of partners, because most religious groups discourage members from engaging in sexual activity outside marriage. Findings regarding an individual's marital status are unequivocal: Being married is correlated with having significantly fewer partners than being single.[33]

Hypotheses

Early onset of sexual activity and sexual risk-taking in adulthood are functions of a complex set of relationships among the characteristics of the individual and his or her family of origin. Because the family is the primary source of norms and role models, behaviors that are learned within the family environment are likely to provide the foundation for subsequent attitudes and behaviors. The identification of family-level factors that predict sexually risky behaviors among black men—the population currently most at risk of acquiring STDs—will enable culturally appropriate programs to be developed and implemented specifically for this vulnerable group.

In this study, we examined the association of selected individual and family characteristics with sexual risk-taking behaviors among a national sample of black men. We hypothesized that age at sexual initiation is a function of family characteristics and that the number of sexual partners in adulthood is a function of age at sexual initiation, characteristics of the family and characteristics of the individual.

METHODS

Data and Measures

Data were obtained from the National Survey of Men, which was conducted in 1991 by the Centers for Public Health Research and Evaluation under a grant from the National Institute of Child Health and Human Development. A national probability sample of 3,321 men aged 19–41 was obtained for the study; black men were oversampled, but numbers of other racial or ethnic groups were not sufficient to be included in our analysis. Limiting the sample to blacks, however, prevented race from becoming the dominant variable in the analysis, thereby allowing us to explore specific factors that are often related to race, such as family structure and educational level. The final sample comprised 1,125 black men who indicated they were heterosexual and had engaged in sexual intercourse at least once. Detailed information about the survey design, sampling technique and data collection is provided elsewhere.[34]

Two sexual risk-taking variables were examined: age at sexual initiation and lifetime number of sexual partners. These variables allowed us to measure risk-taking behaviors during adolescence and adulthood, respectively.

We determined age at first intercourse by calculating the interval between respondents' date of birth and the reported date of first intercourse. If the respondent was unable to recall the month and year of sexual initiation, he was asked

TABLE 1. Means (and standard deviations) of variables used in analysis of factors influencing black men's sexual behavior, 1991 National Survey of Men (N=1,125)

Variable	Mean (SD)
Outcome	
Age at sexual initiation (range, 9–34)	15.19 (2.95)
Annual no. of partners since age 18 (range, 0.05–33.33)†	2.42 (3.77)
Individual	
Yrs. of education (range, 0–21)	12.91 (2.00)
Religiosity (range, 0–1)‡	0.53 (0.50)
Marital status (range, 0–1)‡	0.42 (0.49)
Family	
Mother's yrs. of education (range, 0–21)	11.67 (2.87)
Mother's employment status when respondent was aged 5–15 (range, 0–1)‡	0.82 (0.39)
Family structure at age 12 (range, 0–1)‡	0.59 (0.49)

†Estimated by dividing the lifetime number of partners by the number of years since the respondent turned 18. ‡The higher score indicates religious attendance at least once a month, married status, at least six months of employment and presence of both parents.

to give his age at that time. This procedure helped to minimize potential recall bias: For many men in the survey, initiation of sexual activity occurred as many as 20–30 years before the interview. Furthermore, to reduce social desirability bias due to the pressure that society exerts on individuals to conform to norms consistent with current opinion, interviews were conducted in private locations by trained, experienced staff.

Our measure of the lifetime number of partners was adjusted for the effects of age, because older individuals had had a longer period of time in which to potentially engage in sex with different partners: We divided the lifetime number of partners with whom a respondent reported ever having had vaginal intercourse by the number of years since he turned 18. The result was an estimate of the annual number of sexual partners during adulthood.* Because a large proportion of respondents (15%) reported a total of three or fewer partners, the distribution was skewed. However, preliminary analyses showed that a natural log transformation of the data resulted in an adequate approximation of a normal distribution. Hence, we used the log of the estimated annual number of partners during adulthood in the analyses. The possibility of bias stemming from poor recall or social desirability also limits the accuracy of reporting the number of partners; the final interpretation of this study must, therefore, be made with these limitations in mind.

Six variables assessed characteristics of the respondent and his family. Respondents' religiosity reflected their frequency of attendance at religious services (coded zero for less than once a month and one for more frequent attendance). Men's educational level was a continuous variable that measured the total number of years of formal education completed. Marital status was coded one if respondents were currently married and zero if they were not.

The mother's educational level was measured by recording the total number of years of formal education completed by the respondent's mother (or a stepmother with whom he had grown up). The mother's employment status reflected whether a man's mother had worked for pay (full-time or part-time) for at least six months when he was aged 5–15. An affirmative response was coded one, and responses of "no" and "don't know" were coded zero.

The respondent's family structure at age 12 was coded one if he had lived with two parents (biological or adoptive) and zero if he had not. Although this measure captures only one time point and may not represent a respondent's entire childhood, reporting is likely accurate, because the respondent does not have to make an overall judgment about family structure over a long period of time.

The respondents' mean age was about 30 (standard deviation, six; range, 19–40). Mean age at sexual initiation was about 15, and each man had had, on average, slightly more than two sexual partners per year since age 18 (Table 1). Respondents and their mothers had received an average of 12.9 and 11.7 years of education, respectively.

Analytic Approach

The three family characteristics (mother's educational level and employment status and family structure), along with the respondent's marital status and religiosity, were the independent variables in the study model. Age at sexual initiation was a dependent variable that we expected to be predicted by the three familial factors. (Because information on respondents' religiosity during childhood or adolescence was not available, we were unable to investigate the association between religiosity and age at sexual initiation.) We expected age at sexual debut, in turn, to predict the estimated annual number of sexual partners during adulthood.

Respondents' educational level, which we hypothesized to be a function of the mother's educational level, was expected to influence the number of sexual partners, as were marital status and religiosity. In addition to the indirect effects of the family on sexual risk-taking behaviors in adulthood (because of its influence on age at sexual initiation), we expected two familial variables to directly affect respondents' adult sexual behavior: We hypothesized that having a large number of partners during adulthood would be predicted by having grown up in a one-parent household and in a family in which the mother was employed outside the home.

We conducted zero-order correlation analysis using SPSS version 10.0 to identify correlations among the eight variables; the cutoff level for significance was taken as $p<.05$. As expected, the log of the estimated annual number of partners was negatively correlated with age at sexual initiation ($r=-.40$) and marital status ($r=-.33$), and the educational level of a respondent was positively correlated with that of his mother ($r=.17$—Table 2). There were no unexpected correlations among the variables, in terms of either magnitude or direction; hence, our model did not require any modifications.

*We might have instead divided the lifetime number of partners by the number of years since sexual initiation. However, because age at sexual initiation is a dependent variable, creating another variable derived from the number of years since first intercourse would violate the assumption underlying regression analysis that outcome and explanatory variables are measured independently of each other.

TABLE 2. Zero-order correlations among variables used in analysis of factors influencing black men's sexual behavior

Variable	Mother's education	Mother's employment	Family structure	Religiosity	Education	Marital status	Age at first sex	Annual no. of partners†
Mother's education	na	.16***	.00	–.01	.17***	–.15***	–.07*	.16***
Mother's employment		na	–.05	–.03	.06*	–.08***	–.11***	.09***
Family structure			na	.07*	–.09***	.06*	.08***	–.11***
Religiosity				na	.11***	.15***	.11***	–.08***
Education					na	.10***	.13***	–.08***
Marital status						na	.09***	–.33***
Age at first sex							na	–.40***
Annual no. of partners†								na

*p<.05. ***p<.001. †Estimated by dividing the lifetime number of partners by the number of years since the respondent turned 18 (expressed as natural log). *Note:* na=not applicable.

We performed structural equation modeling with AMOS 3.6,[35] using the maximum likelihood estimation procedure to calculate unstandardized estimates of the model parameters, which we then divided by the corresponding standard errors to estimate critical ratios. A critical ratio with an absolute value of at least two indicated that the parameter estimate was significant at p<.05. Standardized regression coefficients were then calculated to assess the strength of the relationships within the model.

Because the data set did not allow us to include any latent variables in the model, we treated the five independent variables as observed factors that were measured without error; hence, these factors were not considered a source of bias.[36] We assumed covariance among all independent variables at the start of the analysis. Unexplained variance for each dependent variable was represented by disturbance (error) terms.[37]

RESULTS

As we had hypothesized, mother's educational level predicted that of respondents (beta, .165—Table 3). Neither educational attainment variable, however, contributed to the model as we had predicted: A mother's educational attainment did not predict her son's age at sexual initiation, and the respondent's educational attainment did not predict his annual number of partners during adulthood.

The strongest predictor of age at sexual initiation was mother's employment (beta, –.095). This finding supports the hypothesis that black males whose mothers spent more time working outside the home initiated sexual activity at an earlier age than others. Family structure also significantly influenced the age at which respondents initiated sexual activity. Thus, as we hypothesized, having grown up in a two-parent family predicts a delayed onset of intercourse, whereas having grown up in a one-parent family predicts an early onset.

Three variables were significant and direct predictors of the annual number of sexual partners. In descending order, these were age at sexual initiation, marital status and family structure. A low lifetime number of sexual partners is predicted by an older age at sexual debut, being married and growing up in a two-parent family. Contrary to our expectation, the remaining variables were not significant predictors of the lifetime number of sexual partners.

We refined the model by eliminating the four relationships that were not significant, as well as the relationship between the mother's educational level and that of her son. All remaining relationships in this second model were still significant (Table 3): prediction of age at first sex by mother's work status (–.104) and family structure (.072), and prediction of annual number of partners by age at first sex (beta, –.369), marital status (–.297) and family structure (–.062).

Both models displayed an excellent fit to the data. Although the simpler model showed an improved fit, it explained just 2% of the factors influencing age at sexual debut and 24% of those influencing partner number. It is therefore clear that additional variables should be examined in future tests of this model.

DISCUSSION

Implications

A limitation of previous research on sexual risk-taking behaviors is that black males are not included or are included only under highly limiting conditions. Because this study involved a nationally representative sample of black men with a wide range of ages, it provides crucial evidence of the connections between characteristics at the individual

TABLE 3. Standardized regression coefficients from structural equation models examining the effect of individual and family characteristics on sexual behavior among black men

Variable	Model one			Model two	
	Education	Age at first sex	Annual no. of partners†	Age at first sex	Annual no. of partners†
Mother's education	.165*	–.053	na	na	na
Working mother	na	–.095*	.027	–.104*	na
Lived with both parents at age 12	na	.073*	–.062*	.072*	–.062*
Religiosity	na	na	–.007	na	na
Education	na	na	.002	na	na
Married	na	na	–.296*	na	–.297*
Age at first sex	na	na	–.366*	na	–.369*
R^2	*.027*	*.019*	*.239*	*.017*	*.237*
χ^2 *for model (df)*	*82.5 (8)*			*7.5 (2)*	
Goodness of fit index	*.981*			*.997*	
Adjusted goodness of fit index	*.916*			*.980*	
Root mean squared error of approximation	*.091*			*.049*	

*p<.05. †Estimated by dividing the lifetime number of partners by the number of years since the respondent turned 18 (expressed as natural log). *Note:* na=not applicable, because no relationship was expected or, for model two, because the result in model one was not significant.

and family levels and sexual risk-taking behaviors in adolescence and adulthood within this racial group. Although the exact nature of these connections is not entirely clear, they have implications for programming.

One of the main findings of this study is that family structure not only predicts age at sexual initiation among black men, but also continues to influence sexual behavior throughout adult life. Although we expected mothers' employment status to also directly affect both outcomes, only early sexual debut was predicted by having a mother who worked at least six months when the respondent was 5–15. Both the mother's employment status and family structure may relate to the level of supervision that parents can provide. Hence, the issue of after-school supervision needs to be addressed. A first step in this process may be to reaffirm to parents that children continue to benefit from adult supervision during adolescence and that even when children are physically mature enough to take care of themselves while parents are away, they still need close guidance, particularly in regard to social development, interaction with peers and romantic relationships.

However, barriers to individual and family success are often racially oriented: The manifestations of racial prejudice in contemporary society may impede effective and safe childrearing among minority ethnic and racial groups, making it difficult for members of these groups to find adequate employment or housing in safe areas. Thus, there is a continuing need for increased research and policy efforts aimed at reducing the prevalence and impact of racism. Because societal efforts to address widespread racism have achieved limited success, and because change at the societal level occurs very slowly, multiple and simultaneous efforts with potentially immediate impact must be undertaken to ameliorate the challenges faced by black families.

For example, school and community programs could provide widely available, organized, affordable and enticing activities for black youth during after-school hours and at times when school is not in session. Culturally appropriate community programming for parents may help them learn skills for communicating effectively and comfortably with children about sexuality-related issues. Furthermore, it is important to address the financial, transportation and other types of barriers that prevent black adolescents from taking part in youth and family programs provided in school and community settings.

Our finding that the age at onset of voluntary sexual intercourse is important in determining sexual risk-taking of black adult men—as indicated by the number of partners—implies that there is enormous potential for reducing sexual risk among black males by promoting their delay of sexual initiation. The finding also underscores the critical need to reach youth with prevention and intervention programming efforts before they become sexually active. Because black males consistently report earlier onset of sexual intercourse than do others,[38] programming efforts need to reach them particularly early, and preferably while they are still in elementary school.

Limitations

This study used single-item measures, which limits its internal validity and reliability. Ideally, multiple indicators of each construct would be included. Some information we used also was not as specific as we desired—for example, a more accurate assessment of the effects of the mother's employment status, including the length of employment and whether it was part-time or full-time, would have been useful. In addition, the data were collected through self-report; a higher degree of reliability may have been obtained if data were also collected from respondents' parents or sexual partners. Finally, because the study was cross-sectional, most variables had to be measured retrospectively, and we had to rely on respondents' recall. A longitudinal approach would have revealed more information, such as the relationship between childhood religiosity and age at sexual initiation.

Future research should expand on this study by addressing these limitations and clarifying the reasons for the relationships between variables. Sexual behavior is a complex phenomenon that is influenced by a wide range of physical, social, intellectual and emotional variables. Certainly, there are variables that were not included in this study that are predictors of sexual risk-taking behaviors and deserve attention—for example, having experienced sexual, physical or emotional abuse during childhood is associated with early sexual initiation[39] and with sexual risk behaviors in adulthood.[40] Exposure to media; physical, cognitive, emotional and sexual development; family and peer communication; exposure to sexuality education; values; childhood religiosity; employment during youth; personality and tendency to interact socially also may help explain variance in age at sexual initiation. Moreover, future studies should include additional parental variables to measure factors such as supervision, aspirations for children, parental values, and sibling and extended family relationships.

CONCLUSION

Previous studies have suggested that race-related factors other than poverty status are important in predicting sexual risk-taking among blacks. This study confirms that both family and individual characteristics influence adolescent and adult sexual risk behaviors among black men. In particular, family structure represents a salient factor that affects sexual risk-taking at both life stages. Future studies should attempt to clarify the complex processes by which race and ethnicity affect sexual risk-taking behaviors.

REFERENCES

1. American Social Health Association, *STD Statistics*, 1998, <http://www.ashastd.org/std/stats/html>, accessed Jan. 26, 2001.

2. Centers for Disease Control and Prevention (CDC), *Tracking the Hidden Epidemics: Trends in STDs in the United States*, 2000, <http://www.cdc.gov/nchstp/dstd/Stats_Trends/Trends2000.pdf>, accessed Jan. 26, 2002.

3. CDC, *STDs in Racial and Ethnic Minorities, STD Surveillance 2000*, 2000, <http://www.cdc.gov/std/stats/TOC2000.htm>, accessed Aug. 1, 2002.

4. CDC, *HIV Prevalence Trends in Selected Populations in the United States: Results from National Serosurveillance, 1993–1997,* 2000, <http://www.cdc.gov/nchstp/dstd/Stats_Trends/Trends2000.pdf>, accessed Jan. 26, 2002.

5. CDC, *Statistics and Trends: HIV/AIDS Among African Americans,* 2000, <http://www.cdc.gov/hiv/pubs/facts/afam.htm>, accessed Aug. 1, 2002.

6. Anderson JE and Dahlberg LL, High-risk sexual behavior in the general population: results from a national survey, 1988–1990, *Sexually Transmitted Diseases*, 1992, 19(6):329–325; Durbin M et al., Factors associated with multiple sex partners among junior high school students, *Journal of Adolescent Health*, 1993, 14(3):202–207; and Smith T, Adult sexual behavior in 1989: number of partners, frequency of intercourse and risk of AIDS, *Family Planning Perspectives*, 1991, 23(3):102–107.

7. Coker A et al., Correlates and consequences of early initiation of sexual intercourse, *Journal of School Health*, 1994, 64(9):372–377; Hofferth S, Kahn J and Baldwin W, Premarital sexual activity among U.S. teenage women over the past three decades, *Family Planning Perspectives*, 1987, 19(2):46–53; Kinsman S et al., Early sexual initiation: the role of peer norms, *Pediatrics*, 1998, 102(5):1185–1192; Ku L, Sonenstein F and Pleck J, Factors influencing first intercourse for teenage men, *Public Health Reports*, 1993, 108(6):680–694; Miller B et al., The timing of sexual intercourse among adolescents, *Youth and Society*, 1997, 29(1):54–83; Young E et al., The effects of family structure on the sexual behavior of adolescents, *Adolescence*, 1991, 26(104):977–986; and Zelnik M and Shah F, First intercourse among young Americans, *Family Planning Perspectives*, 1983, 15(2):64–70.

8. Seidman SN, Mosher WD and Aral SO, Predictors of high-risk behavior in unmarried American women: adolescent environment as a risk factor, *Journal of Adolescent Health*, 1994, 15(2):126–132; Strong B, DeVault C and Sayad BW, *Human Sexuality: Diversity in Contemporary America,* third ed., Mountain View, CA: Mayfield, 1999; and Greenberg J, Magder L and Aral S, Age at first coitus: a marker for risky sexual behavior in women, *Sexually Transmitted Diseases*, 1992, 19(6): 331–334.

9. Devine D, Long P and Forehand R, A prospective study of adolescent sexual activity: description, correlates, and predictors, *Advanced Behavioral Research and Therapy*, 1993, 15(3):185–209; Dorius G, Heaton T and Steffen P, Adolescent life events and their association with the onset of sexual intercourse, *Youth and Society*, 1993, 25(1):3–23; Forste R and Heaton T, Initiation of sexual activity among female adolescents, *Youth and Society*, 1988, 19(3):250–268; Kiernan K and Hobcraft J, Parental divorce during childhood: age at first intercourse, partnership and parenthood, *Population Studies*, 1997, 51(4):41–55; Miller B et al., 1997, op. cit. (see reference 7); Mott F et al., The determinants of first sex by age 14 in a high-risk adolescent population, *Family Planning Perspectives*, 1996, 28(1):13–18; Newcomer S and Udry JR, Parental marital status effects on adolescent sexual behavior, *Journal of Marriage and the Family*, 1987, 49(1):235–240; Pick S and Palos P, Impact of the family on the sex lives of adolescents, *Adolescence*, 1995, 30(119): 667– 673; Taris T and Semin G, Parent-child interaction during adolescence, and the adolescent's sexual experience: control, closeness, and conflict, *Journal of Youth and Adolescence*, 1997, 26(4):373–398; and Thornton A and Camburn D, The influence of the family on premarital sexual attitudes and behavior, *Demography*, 1987, 24(3):323–340.

10. Davis K and Blake J, Social structure and fertility: an analytic framework, *Economic Development and Cultural Change*, 1956, 44(3):214–218.

11. Hogan D and Kitagawa E, The impact of social status, family structure, and neighborhood on the fertility of black adolescents, *American Journal of Sociology*, 1985, 90(4):825–855.

12. Ibid.

13. Forste R and Heaton T, 1988, op. cit. (see reference 9); Furstenberg F, Jr., et al., Race differences in the timing of adolescent intercourse, *American Sociological Review*, 1987, 52(4):511–518; and Ku L, Sonenstein F and Pleck J, 1993, op. cit. (see reference 7).

14. Smith E and Udry JR, Coital and non-coital behaviors of white and black adolescents, *American Journal of Public Health*, 1985, 75(10): 1200–1203.

15. Coker A et al., 1994, op. cit. (see reference 7).

16. Moore K, Simms M and Betsey C, *Choice and Circumstance,* New Brunswick, NJ: Transaction Books, 1986.

17. Leigh G, Weddle K and Loewen I, Analysis of the timing of transition to sexual intercourse for black adolescent females, *Journal of Adolescent Research*, 1988, 3(4):333–334; Ramirez-Valles J, Zimmerman M and Juarez L, Gender differences of neighborhood and social control processes: a study of the timing of first intercourse among low-achieving, urban, African-American youth, *Youth and Society*, 2002, 33(3): 418–441; and Scott-James D and White A, Correlates of sexual activity in early adolescence, *Journal of Early Adolescence*, 1998, 1(2):221–238.

18. Forste R and Heaton T, 1988, op. cit. (see reference 9); Ku L, Sonenstein F and Pleck J, 1993, op. cit. (see reference 7); Miller B et al., 1997, op. cit. (see reference 7); Miller B and Sneesby K, Educational correlates of adolescents' sexual attitudes and behavior, *Journal of Youth and Adolescence*, 1988, 17(6):521–530; Pick S and Palos P, 1995, op. cit. (see reference 9); Rosen R, Herskovitz L and Stack J, Timing of the transition of nonvirginity among unmarried adolescent women, *Population Research and Policy Review*, 1982, 1(2):153–170; Rosenbaum E and Kandel D, Early onset of adolescent sexual behavior and drug involvement, *Journal of Marriage and the Family*, 1990, 52(3):783–798; and Thornton A and Camburn D, 1987, op. cit. (see reference 9).

19. Li X, Feigelman S and Stanton B, Perceived parental monitoring and health risk behaviors among urban low-income African-American children and adolescents, *Journal of Adolescent Health*, 2000, 27(1): 43–48.

20. Devine D, Long P and Forehand R, 1993, op. cit. (see reference 9); Newcomer S and Udry JR, 1987, op. cit. (see reference 9); and Taris T and Semin G, 1997, op. cit. (see reference 9).

21. Miller B and Moore K, Adolescent sexual behavior, pregnancy, and parenting: research through the 1980s, *Journal of Marriage and the Family*, 1990, 52(4):1025–1044.

22. Hansson RO et al., Maternal employment and adolescent sexual behavior, *Journal of Youth and Adolescence*, 1981, 10(1):55–60; Ku L, Sonenstein F and Pleck J, 1993, op. cit. (see reference 7); and Mott F et al., 1996, op. cit. (see reference 9).

23. Newcomer S and Udry JR, 1987, op. cit. (see reference 9); and Taris T and Semin G, 1997, op. cit. (see reference 9).

24. Forste R and Heaton T, 1988, op. cit. (see reference 9); and Kinsman S et al., 1998, op. cit. (see reference 7).

25. Devine D, Long P and Forehand R, 1993, op. cit. (see reference 9); Feldman SS and Brown N, Family influences on adolescent male sexuality: the mediational role of self-restraint, *Social Development*, 1993, 2(1):15–35; Flewelling R and Bauman K, Family structure as a predictor of initial substance use and sexual intercourse in early adolescence, *Journal of Marriage and the Family*, 1990, 52(1):171–181; Hofferth S, Kahn J and Baldwin W, 1987, op. cit. (see reference 7); Kinnaird KL and Gerrard M, Premarital sexual behavior and attitudes toward marriage and divorce among young women as a function of their mothers' marital status, *Journal of Marriage and the Family*, 1986, 48(3):757–765; Miller B et al., 1997, op. cit. (see reference 7); and Rosenbaum E and Kandel D, 1990, op. cit. (see reference 18).

26. Kiernan K and Hobcraft J, 1997, op. cit. (see reference 9).

27. Ibid.; Flewelling R and Bauman K, 1990, op. cit. (see reference 25); Miller B and Bingham C, Family configuration in relation to the sexual behavior of female adolescents, *Journal of Marriage and the Family*, 1989, 51(2):499–506; and Miller B and Moore K, 1990, op. cit. (see reference 21).

28. Devine D, Long P and Forehand R, 1993, op. cit. (see reference 9).

29. Seidman SN, Mosher WD and Aral SO, 1994, op. cit. (see reference 8).

30. Forste R and Heaton T, 1988, op. cit. (see reference 9); Greenberg J, Magder L and Aral S, 1992, op. cit. (see reference 8); Kinnaird KL and Gerrard M, 1986, op. cit. (see reference 25); Ku L, Sonenstein F and Pleck J, 1993, op. cit. (see reference 7); Miller B and Sneesby K, 1988, op. cit. (see reference 18); and Pick S and Palos P, 1995, op. cit. (see reference 9).

31. Forste R and Heaton T, 1988, op. cit. (see reference 9); Ku L, Sonenstein F and Pleck J, 1993, op. cit. (see reference 7); Mott F et al., 1996, op. cit. (see reference 9); Seidman SN, Mosher WD and Aral SO, 1994, op. cit. (see reference 8); and Thornton A and Camburn D, 1987,

op. cit. (see reference 9).

32. Davidson J, Darling C and Norton L, Religiosity and the sexuality of women: sexual behavior and sexual satisfaction revisited, *Journal of Sex Research*, 1995, 32(3):235–243; Langer L, Warheit G and McDonald L, Correlates and predictors of risky sexual practices among a multiracial/ethnic sample of university students, *Social Behavior and Personality*, 2001, 29(2):133–144; and Leak G, Relationship between religious orientation and love styles, sexual attitudes, and sexual behaviors, *Journal of Psychology and Theology*, 1993, 21(4):315–318.

33. Anderson JE and Dahlberg LL, 1992, op. cit. (see reference 6); Binson D et al., Multiple sexual partners among young adults in high-risk cities, *Family Planning Perspectives*, 1993, 25(6):268–272; Kost K and Forrest JD, American women's sexual behavior and exposure to risk of sexually transmitted diseases, *Family Planning Perspectives*, 1992, 24(6):244–254; Leigh B, Temple M and Trocki K, The sexual behavior of U.S. adults: results from a national survey, *American Journal of Public Health*, 1993, 83(10):1400–1408; Peterson J et al., Multiple sexual partners among blacks in high-risk cities, *Family Planning Perspectives*, 1993, 25(6):263–267; Smith T, Adult sexual behavior in 1989: number of partners, frequency of intercourse and risk of AIDS, *Family Planning Perspectives*, 1991, 23(3):102–107; and Somse P, Chapko MK and Hawkins RV, Multiple sexual partners: results of a national HIV/AIDS survey in the Central African Republic, *AIDS*, 1993, 7(4):579–587.

34. Tanfer K, National Survey of Men: design and execution, *Family Planning Perspectives*, 1993, 25(2):83–86.

35. Arbuckle JL, *AMOS User's Guide: Version 3.6*, Chicago: SmallWaters Corp., 1997.

36. Mueller RO, *Basic Principles of Structural Equation Modeling: An Introduction to LISREL and EQS*, New York: Springer, 1996.

37. Kline R, *Principles and Practice of Structural Equation Modeling*, New York: Guilford Press, 1998.

38. Mott F et al., 1996, op. cit. (see reference 9).

39. Miller BC, Monson BH and Norton MC, The effects of forced sexual intercourse on white female adolescents, *Child Abuse and Neglect*, 1995, 19(10):1289–1301; and Neumark-Sztainer D et al., Psychosocial correlates of health compromising behaviors among adolescents, *Health Education Research*, 1997, 12(1):37–52.

40. Felitti V et al., Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults, *American Journal of Preventive Medicine*, 1998, 14(4):245–258.

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