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Sisters' and Girlfriends' Sexual and Childbearing Behavior: Effects on Early Adolescent Girls' Sexual Outcomes

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Abstract

This study examined three key issues related to the effects of sisters' and girlfriends' sexual and childbearing behavior on early adolescent girls' sexual outcomes. Subjects were 455 girls from predominantly minority racial backgrounds. Results indicated that number of sexually active girlfriends, number of sexually active sisters, and presence of an adolescent childbearing sister were positively associated with permissive sexual attitudes, positive intentions for future sexual activity, and a greater likelihood of being a nonvirgin. The strength of these relationships did not vary by race, but there was a greater presence of permissive social influences for African American girls than for nonblack girls. Results from multiple hierarchical regression analyses indicated that having both many sexually active girlfriends and an adolescent childbearing sister had particularly strong effects on permissive sexual attitudes and a nonvirgin status.

There is increasing evidence that siblings and friends play a central role in the onset of adolescent sexual activity. For example, same-sex friendship dyads have been shown to share similar sexual attitudes and ages at first sexual intercourse (Billy, Rodgers, & Udry, 1984; Billy & Udry, 1985; Mirande, 1968; Rodgers, Billy, & Udry, 1984; Shah & Zelnik, 1981; Udry, 1988; Udry & Billy, 1987). Adolescent sibling pairs have also been shown to have correlated ages at sexual onset and extent of sexual permissiveness (Haurin & Mott, 1990; Rodgers & Rowe, 1988, 1990; Rodgers, Rowe, & Harris, 1992; Rowe, Rodgers, Meseck-Bushey, & St. John, 1989). In addition, the sisters of pregnant and childbearing adolescents appear to be at a twofold elevated risk of adolescent childbearing themselves (East & Felice, 1992; Friede et al., 1986; Goldfarb et al., 1977; Hogan & Kitagawa, 1985) and to have higher sexual activity rates and younger ages of coitarche than other girls of the same age, race, and socioeconomic status (Hogan & Kitagawa, 1985).

As socializing agents, both siblings and friends may set standards of conduct or serve as role models who shape the development of sexual attitudes and sexual norms. Once established, these norms may eventually guide early adolescents' sexual behavior. Hogan and Kitagawa (1985) discussed this socialization process with regard to adolescent parenthood, proposing that girls who witness their sisters become teenage mothers are more likely to accept nonmarital, adolescent parenthood as normative. Such attitudinal changes are thought to precede an increased willingness to engage in early sexual activity and nonmarital childbearing. This may be especially likely for early adolescent siblings who are making formative decisions about school, employment, marriage, and family formation.

Given that siblings and friends can be powerful reference groups for shaping adolescents' sexual attitudes, it is interesting to consider whether the number of sexually active siblings and the number of sexually active friends are consequential for guiding adolescents' sexual attitudes, sexual initiation intentions, and sexual onset. It would seem reasonable to expect

that a large number of sexually active siblings and friends would be associated with stronger and more pervasive pressures to conform. Indeed, whether or not an adolescent engages in cigarette smoking and drug use is highly related to the number of peers and friends who engage in such behaviors (Mosbach & Leventhal, 1988; Oetting & Beauvais, 1986).

Two studies have indirectly implicated the importance of siblings' sexual experience for adolescent sexual onset. Miller and associates (Miller, Higginson, McCoy, & Olson, 1987) found that sexual intercourse experience was less common among adolescents who had many younger siblings and that adolescents who held the most conservative sexual attitudes had more siblings, especially more younger siblings. Rodgers and Rowe (1988) found, in studying random sibling pairs within families, that younger siblings had systematically higher levels of sexual activity at a given age than their older siblings, even when controlling for various genetic, developmental, and historical effects. Even in these studies, however, investigators have examined sibling effects on adolescent sexual behavior principally by analyzing family size as a correlate of adolescent sexual activity, or by estimating the concordance of sexual status of one random sibling pair within the family. To our knowledge, no study to date has attempted to bridge these two types of studies by examining the relationship between adolescents' sexual outcomes and the sexual experience of all same-sex siblings within the family.

Similarly, with regard to friends' influence on adolescent sexual behavior, most research on friends' effects has examined concordance of sexual experience within friendship dyads and has omitted examining how the sexual experience within a friendship group could be consequential for adolescents' sexual attitudes and sexual intentions. Moreover, only one study to date has examined whether an association exists between adolescents' sexual attitudes and their friends' sexual behavior. In that study, Shah and Zelnik (1981) reported that 15- to 19-year-old women who believed that premarital sex was acceptable were likely to have friends who shared that view. Their data further showed that adolescents' views about sex before marriage were highly related to whether their friends had actually engaged in premarital sex.

The strength of the linkages between adolescents' sexual outcomes and their friends' and siblings' sexual behavior may also vary for different racial groups. For example, sisters' age at first intercourse was found to be more highly correlated among black women than among white women (Haurin & Mott, 1990). Similarly, Shah and Zelnik (1981) reported that the similarity of friends' sexual attitudes was higher for black women than for white women. However, Billy and Udry (1985) found a correspondence between female friends' intercourse status for white females only, with black females no more likely to have friends with the same intercourse status than two women chosen at random.

The study presented in this article addressed three key issues related to the linkages between sisters' and girlfriends' sexual and childbearing behavior and early adolescent girls' sexual outcomes. First, we examined whether the number of sexually active girlfriends and the number of sexually active sisters were associated with early adolescent girls' attitudes about premarital sex and with their sexual status (virgin vs. nonvirgin) and, for virginal girls, their sexual initiation intentions (that is, girls' intentions of initiating sexual relations in the near future). These relationships were also examined while controlling for number of sisters within the family to rule out the possibility that it was not simply the number of sisters per se that was consequential for girls' sexual outcomes. In addition, we examined sister and girlfriend linkages to adolescent sexual outcomes within racial group to determine whether the strength of the relationships varied by race. The current sample includes, in particular, a sizeable Hispanic (Mexican American) subsample, allowing for an analysis of sister and girlfriend linkages to adolescent sexual outcomes within this and other (black, white, and

Asian) populations. Second, in efforts to examine the precursors of the reported early childbearing and higher sexual activity rates among the sisters of childbearing adolescents, we compared the sexual attitudes, sexual initiation intentions, and sexual status of girls who had at least one adolescent childbearing sister with girls who had only nulliparous (nonchildbearing) adolescent sisters. Third, using a hierarchical regression model, we examined the unique contribution and possible interaction effects of each sister and girlfriend status variable in “predicting” early adolescent girls’ sexual attitudes, sexual initiation intentions, and sexual status. This study deliberately focused on girls only, in an effort to identify the influences of friends and siblings on girls’ sexual behavior, influences which may also ultimately influence girls’ pregnancy and childbearing behavior.

Method

Subjects

Subjects were 455 early adolescent girls (ranging in age from 11 to 15 years, with a mean of 12.93 years) from predominantly minority racial backgrounds (30% Hispanic, 29% black, 16% white, 10% Asian, and 15% of other or not reported racial background). All subjects were attending sixth through eighth grades in public suburban junior high schools in Southern California. Subjects were predominantly of low socioeconomic status, with almost half of the subjects’ families (48%) having a mean annual family income of less than \$15,000 and with the modal family income between \$8,000 and \$14,999. Twenty-five percent of subjects’ families were receiving Aid to Families with Dependent Children at the time this study was conducted, and 45% of subjects’ families had received AFDC at least one time previously. Thirty-two percent of the subjects’ mothers had less than a high school education; 25% had completed high school; 30% had completed some college; and 12% had a college or graduate degree. (Data on family income, AFDC status, and mothers’ education were based on questionnaires completed by 72% of subjects’ mothers.) To be eligible for the study, all girls had to have at least one older sister between 15 and 19 years of age who was living with them at the time of the study. The total number of sisters in subjects’ families ranged from 1 to 8 and the mean family size was 2.5 siblings. Subjects were recruited by sending a letter to all eligible girls’ parents requesting their daughters’ participation in a study on sister and girlfriend influences on girls’ development. Of all eligible participants (i.e., all sixth- through eighth-grade girls who had at least one 15- to 19-year-old sister), approximately 85% agreed to participate.

Measures

All subjects completed self-administered questionnaires about their sexual attitudes, sexual initiation intentions, and sexual intercourse experience. Subjects were also asked about their girlfriends’ sexual status (e.g., How many of your girlfriends have had sex with a boy?). Response options were: 0 (none of my girlfriends have had sex), 1 (a few of my girlfriends), 2 (most of my girlfriends), and 3 (all of my girlfriends have had sex). A response option of “don’t know” was available and used by 11% of respondents when reporting about their girlfriends’ sexual status. Subjects also reported on their sisters’ sexual and childbearing behavior (e.g., How many of your sisters have had sex with a boy [had a baby] when they were 19 years old or younger?). Response options for sisters’ sexual and childbearing status were: 0 (none of my sisters have had sex [had a baby] while 19 years old or younger), 1 (one of my sisters), 2 (two of my sisters), and 3 (three or more of my sisters have had sex [had a baby] while 19 years old or younger). Because less than 5% of subjects ($n = 22$) had more than one adolescent childbearing sister, the presence or absence of at least one adolescent childbearing sister was used in the analyses of this study, coded respectively as 1 and 0. Nine percent of subjects reported not knowing the sexual status of one or more of their sisters, and 4% of subjects reported not knowing if their sister had had a baby while still a

teenager. Subjects who did not know the sexual or childbearing status of their sisters or the sexual status of their girlfriends were omitted from those analyses respectively.

Subjects' sexual attitudes were assessed using the Revised Sexual Permissiveness Scale (RSPS; Sprecher, McKinney, Walsh, & Anderson, 1988), a revised version of Reiss' (1964) Sexual Permissiveness Scale. The scale includes questions about acceptance of sexual intercourse at five relationship stages (e.g., Is sexual intercourse acceptable when a couple: just met? is dating occasionally? is dating often [e.g., once a week]? is going steady? is engaged to be married?). Response options used in this study were 1 (yes, really okay), 2 (yes, sort of okay), 3 (no, sort of not okay), and 4 (no, really not okay). Scores from each relationship stage were reversed so that high scores indicated permissive sexual attitudes. The validity of this scale is supported by theoretically predicted associations between increasing acceptance of premarital sexual activity at increasingly committed relationship stages (Sprecher et al., 1988). For this study, subjects' sexual attitudes were indexed by adding scores of acceptance of sexual intercourse at the going steady and engaged relationship stages. These two levels were used because the other three relationship level scores had relatively low variability, with most girls (at least 77%) disapproving of sexual intercourse at the dating often, dating occasionally, and just met relationship stages.

Subjects' sexual initiation intentions were indexed using four items drawn from Olsen, Weed, Daly, and Jensen (1992) that ask respondents about their intentions of future sexual involvement. For two reasons, only virgins were included in analyses involving sexual intentions. First, we were interested primarily in the sexual onset behavior of young adolescents. Second, it is likely that the intentions to have sexual intercourse over the next year for nonvirgins would be disproportionately high relative to virgins. Items for the sexual initiation intention scale included: How likely is it that you will have sexual intercourse in the next year?. If someone tried to get you to have sex with him, what would you do?. How sure are you that you are ready to have sex?, and, Would you date someone who tried to get you to have sex with him? An item pertaining to intention to engage in sexual petting behavior, included in Olsen et al.'s original sexual intention scale, was deleted from the items used in this study because we were interested specifically in subjects' intention to engage in sexual intercourse. Response options for the sexual intention scale ranged from 1 (very unlikely or very unsure) to 5 (very likely or very sure) with high scores indicating positive sexual intention. Olsen et al. (1992) report high internal reliability (Cronbach alpha = .91) for their five-item scale. Using the current sample and the four items described above, the Cronbach alpha was .74.

Subjects' sexual status was assessed by the questionnaire item, Have you ever had voluntary sexual intercourse with a boy? Response options were yes or no, coded respectively as 1 and 0. This question was asked twice on the questionnaire packet to detect inconsistencies in girls' responses. Both responses for all Subjects were consistent.

Procedure

Testing was conducted in a small, private room in (the subjects' schools (e.g., a conference room or the library) during the fall of 1991. Two adult women administered the questionnaire packet to four or five students at one time so that students' questions about the survey could be answered fully and individually. Subjects were instructed to be quiet and not to discuss their responses with each other either during or after the testing session. Subjects were able to complete the survey in about 1 hour. All questionnaires were coded using only an identification number, and all subjects were assured of the confidentiality of their responses. The subjects' mothers completed a short questionnaire about basic demographic information at their homes; their daughters delivered the forms to their mothers the day of the testing. Mothers were then instructed to return their forms within 1

week to the investigator, either by mail (a stamped, self-addressed envelope was provided) or by having their daughters return the form to the school's main office. Seventy-two percent of subjects' mothers ($n = 328$) completed and returned the surveys. Subjects whose mothers participated did not differ from subjects whose mothers did not participate on such sociodemographic characteristics as age, race, family size, religiosity, religion, sexual status, or presence or absence of an adolescent childbearing sister.

Results

Before addressing the main analyses of the study, the descriptive data associated with the measures used in this study are briefly presented. Within the current sample, most adolescents had at least a few sexually active girlfriends, with 39% of girls responding that a few of their girlfriends had had sex and 20% of girls responding that most or all of their girlfriends had had sex. Regarding sisters' sexual status, exactly half of the sample responded that none of their sisters were sexually active, while 41% reported that at least one of their sisters was sexually active while 19 years old or younger. Twenty percent of the subjects ($n = 91$) reported that at least one of their sisters had had a baby while still a teenager.

Regarding subjects' sexual attitudes, subjects as a whole were quite conservative, with most girls not accepting sexual intercourse at the just met, dating occasionally, dating often, or going steady stages. It was only at the engaged to be married stage that sexual intercourse was accepted by a majority of the respondents (70%). Twelve percent of this sample of 11- to 15-year-old girls were nonvirgins ($n = 55$), a figure in line with other data gathered on national samples (Hofferth, Kahn, & Baldwin, 1987; Smith & Udry, 1985). When analyzed separately by race, the nonvirgin rate of blacks (18%) was significantly higher than that of Hispanics (10%; $\chi^2 = 4.27, p < .05$), Asians (4%; $\chi^2 = 5.34, p < .05$), and whites (4%; $\chi^2 = 8.71, p < .01$). The nonvirgin rates for Hispanics, whites, and Asians were all comparable.

Relations Between Subjects' Sociodemographic Characteristics and the Variables Used in This Study

Prior to presenting the main analyses of this study, we wished to determine whether background characteristics of the adolescent (e.g., age, religiosity, socioeconomic status, number of siblings, number of brothers, and number of sisters) might be related to subjects' sexual attitudes, sexual intentions, and sexual behavior. Previous research has been inconsistent, with some studies showing that adolescent sexual activity is related to subjects' socioeconomic status (Haurin & Mott, 1990; Kantner & Zelnik, 1972; Miller & Bingham, 1989), religiosity (Haurin & Mott, 1990; Miller et al., 1987), number of brothers (Rodgers, 1983), and number of sisters (Miller et al., 1987), while other studies have found no relation among these sociodemographic variables and subjects' sexual behavior or attitudes (Miller et al., 1987; Shah & Zelnik, 1981). Thus, to determine whether subjects' sexual outcomes were related to their sociodemographic characteristics, we computed correlations among subjects' age, race, religiosity, socioeconomic status (SES), number of siblings, number of brothers, number of sisters and girls' sexual attitudes, sexual intentions, and sexual status (coded dichotomously as 0 = virgin and 1 = nonvirgin). Race was coded dichotomously as black and nonblack (0 = nonblack, 1 = black), given that the nonvirgin rate for blacks was significantly higher than that for girls of other races and that the sexual activity rates for all nonblack girls (i.e., Hispanics, whites, and Asians) were all comparable. Religiosity was indexed by subjects' reports of their frequency of attending religious services, with five response options ranging from never attend to attend weekly or more often. Subjects' socioeconomic status was indexed by the highest level of education completed by subjects' mothers (with eight response options ranging from did not finish grade school to Master's

degree or beyond) and by reported annual family income (with six response options ranging from under \$8,000 to over \$45,000), both of which were assessed by subjects' mothers' reports.

Results indicate that age is significantly associated with virginal girls' sexual intentions ($r = .14, p < .01$), with older girls having more permissive sexual intentions. Sexual status, or being a nonvirgin, is significantly associated with being black ($r = .13, p < .01$). None of the other sociodemographic variables correlate significantly with girls' sexual outcomes.

Correlations were also computed between the six subject sociodemographic variables (age, race, religiosity, SES, number of sisters, number of brothers, and number of siblings) and number of sexually active girlfriends, number of sexually active sisters, and the presence of at least one adolescent childbearing sister (coded as 0 = no adolescent childbearing sisters and 1 = one or more adolescent childbearing sisters). Results indicate that subjects' age correlates significantly with number of sexually active girlfriends ($r = .31, p < .001$), number of sexually active sisters ($r = .17, p < .01$), and presence of an adolescent childbearing sister ($r = .11, p < .05$). Race (coded as 0 = nonblack and 1 = black) also correlates significantly with number of sexually active girlfriends ($r = .17, p < .01$), number of sexually active sisters ($r = .15, p < .01$), and presence of an adolescent childbearing sister ($r = .15, p < .01$). None of the other correlations reached significance. Thus, older and black subjects are more likely to have sexually active girlfriends, sexually active sisters, and an adolescent childbearing sister. Given these relationships, subjects' age and race (black versus nonblack) were used as control variables in all analyses.

As further preliminary analyses, correlations were also computed among girlfriend and sister status variables (number of sexually active girlfriends, number of sexually active sisters, and presence of an adolescent childbearing sister). Results show that number of sexually active girlfriends is significantly related to number of sexually active sisters ($r = .37, p < .001$) and the presence of an adolescent childbearing sister ($r = .28, p < .001$). Thus, early adolescent girls who have sexually active sisters and an adolescent childbearing sister are likely to also have sexually active girlfriends. As would be expected, number of sexually active sisters is significantly associated with having a teenage childbearing sister ($r = .52, p < .001$). Controlling for number of sisters within the family had little effect on these correlations. The interrelations of the dependent variables of this study, namely girls' sexual attitudes, sexual intentions, and sexual status, were also calculated. Consistent with previous research (e.g., Shah & Zelnik, 1981), girls' sexual attitudes are significantly related to virgins' intentions to initiate sex ($r = .39, p < .001$) and all girls' sexual status ($r = .23, p < .001$). These significant relationships partially substantiate the validity of this study's measures of sexual attitude and sexual intention.

Correlations Among Number of Sexually Active Girlfriends and Number of Sexually Active Sisters and Girls' Sexual Outcomes

The correlations among number of sexually active girlfriends and sisters and girls' sexual attitudes, sexual initiation intentions, and sexual status are shown in Tables 1, 2, and 3. Pearson's r was used for all correlational analyses and Bonferroni-adjusted probability values were used to gauge statistical significance. Coefficients for the total sample are partial correlations controlling for subjects' age and race (black versus nonblack). This was done given the significant relationships among age, race, and the independent and dependent variables of this study. Using the total sample, results indicate that number of sexually active girlfriends and number of sexually active sisters are significantly associated with girls' sexual attitudes and sexual status and virgins' sexual initiation intentions. Thus, the more sexually active friends and sisters early adolescent girls have, the more permissive they are with regard to their attitudes about premarital sex, their sexual behavior and, for virginal

girls, their intentions to have sex. Controlling for number of sisters within the family did not diminish the significance levels of any of the correlations with sister status when using the total sample. Thus, it is the number of sexually active sisters, specifically, that appears to be important for girls' sexual outcomes and not the number of sisters in adolescents' families per se.

When analyzed separately by race, correlations were controlled for subject's age only. The significant correlations found with the total sample are replicated in all but six cases: number of sexually active sisters did not correlate significantly with black girls' sexual attitudes, black girls' sexual intentions (when controlling for total number of sisters), black girls' sexual status, Hispanic girls' sexual status, and white girls' sexual status. In addition, number of sexually active girlfriends did not correlate significantly with Asian girls' sexual intentions. When testing for differences in magnitude of the within-race correlations (using Fisher's procedure and the chi-square test for homogeneity as described in Cohen and Cohen, 1983), none of the correlation contrasts were significant. Thus, the strength of the relationships between sisters' and girlfriends' sexual status and girls' sexual outcomes did not differ significantly among black, Hispanic, white, or Asian girls.

Presence of an Adolescent Childbearing Sister and Girls' Sexual Outcomes

To determine whether sisters' childbearing status was associated with early adolescent girls' sexual outcomes, three separate analyses of covariance were computed using the presence or absence of an adolescent childbearing sister as the independent variable and using girls' sexual attitudes, sexual initiation intentions, and sexual status as the three dependent variables. Three separate ANCOVAs were computed because analyses involving subjects' sexual initiation intentions used virgins only. To compute a MANCOVA on all three dependent variables, using virgins only, would have biased the results. The two sister groups (i.e., girls with a teenage childbearing sister and girls without a teenage childbearing sister) were similar with regard to socioeconomic status, number of sisters, number of brothers, number of siblings, and family type (one-parent vs. two-parent families). However, because girls with an adolescent childbearing sister tended to be older and were more likely to be black than of another race, subjects' age and race (coded dichotomously as 0 = nonblack and 1 = black) were used as control variables in each of the ANCOVAs. Results shown in Table 4 indicate that, when compared to girls with nonchildbearing adolescent sisters, girls with at least one adolescent childbearing sister have more permissive attitudes about premarital sex. When analyzing virgins only, girls with an adolescent childbearing sister have more positive intentions to initiate sexually in the near future than do girls with only nonchildbearing sisters. When examining all subjects' sexual status, girls with at least one adolescent childbearing sister were almost 4 times more likely to be nonvirgins ($M = 0.26$) than were girls with only nonchildbearing sisters ($M = 0.07$).

Regression Analyses

To explore further the relations among girlfriends' and sisters' sexual and childbearing behavior and girls' sexual outcomes, a series of hierarchical regression analyses were computed. The three dependent variables were girls' sexual attitudes, sexual intentions, and sexual status (coded as 0 = virgin and 1 = nonvirgin). Subjects' age, race, and number of sisters within the family were entered on the first step. Race was coded dichotomously as 0 = nonblack and 1 = black. Number of sexually active girlfriends, number of sexually active sisters, and presence of an adolescent childbearing sister (coded as 0 = no adolescent childbearing sisters and 1 = at least one adolescent childbearing sister) were entered on the second step. The three 2-way interaction terms were entered on the third step, and the one 3-way interaction term was entered on the final step. These analyses allowed for a determination of the unique contribution and relative strength of each status variable in

“predicting” girls’ sexual outcomes, as well as an analysis of their possible interaction effects due to the joint contribution of two or three girlfriend and sister status scores beyond their independent contributions alone. For example, it may be that having both sexually active girlfriends and sexually active sisters enhances the likelihood of an adolescent being sexually active beyond having either influence alone. Or, similarly, having sexually active sisters and an adolescent childbearing sister may interact to increase girls’ likelihood of having sex. These analyses test for such effects.

Results shown in Table 5 indicate that, after subjects’ sociodemographic characteristics have been accounted for, number of sexually active girlfriends, the presence of an adolescent childbearing sister, and their interaction make a unique contribution to the variance in girls’ sexual attitudes, accounting for 19% of the variance. Regarding subjects’ sexual intentions, number of sexually active girlfriends and number of sexually active sisters uniquely predict virginal girls’ sexual intentions. None of the interaction terms significantly predict girls’ sexual intentions. Results of the regression analysis for girls’ sexual status show that number of sexually active girlfriends, presence of an adolescent childbearing sister, and their interaction uniquely contribute to the variance associated with girls’ sexual behavior. All variables and their interactions are positively associated with girls’ sexual outcomes, indicating that the significant predictor variables are associated with permissive sexual attitudes, positive intention for future sexual activity, and the likelihood of being a nonvirgin. All variables contribute significant amounts of the variance in sexual outcome, with 20%, 24%, and 17% of the variance accounted for in girls’ sexual attitudes, sexual intentions, and sexual status, respectively.

Discussion

As a whole, the results of this study suggest the significance of siblings and friends as potentially important reference groups and socializing agents for early adolescent girls’ sexual outcomes. Girlfriends’ sexual behavior and sisters’ sexual and childbearing behavior may set standards of conduct that shape early adolescent girls’ sexual attitudes and guide their sexual behavior. Girlfriend and sister influence, however, varies by outcome. Results from correlational analyses indicate that having many sexually active girlfriends and having many sexually active sisters are significantly related to permissive attitudes about premarital sex. When all three girlfriend and sister status variables are considered conjointly in the regression analysis—which is, of course, how they are actually experienced in life—number of sexually active girlfriends, presence of a childbearing adolescent sister, and their interaction are associated with girls’ sexual attitudes. This is also the case with girls’ sexual status, with number of sexually active girlfriends, presence of an adolescent childbearing sister, and their interaction significantly associated with nonvirgin status. It appears, then, that once sisters’ adolescent childbearing status is taken into account, number of sexually active sisters is not a significant factor for girls’ sexual attitudes or sexual status. Or, put another way, having an adolescent childbearing sister has a stronger effect on permissive sexual attitudes and nonvirgin status than does having many sexually active sisters.

The significance of these findings is twofold. First, they highlight the importance of the sibling group and the friendship group, in terms of the groups’ sexual and childbearing behavior, for early adolescent girls’ sexual outcomes. Most previous research has focused, instead, on the behavioral and attitudinal similarity within sibling and friendship dyads. Second, these results are important because they suggest that girlfriend and sister influences interact together to direct girls’ sexual attitudes and sexual behavior. Siblings and friends appear not to present the adolescent with contradictory or inconsistent influences but, rather, they appear to expose the adolescent to consistent role models who serve to act together in heightening adolescents’ permissive sexual attitudes and sexual behavior.

A somewhat different picture emerges when examining virginal girls' sexual intentions. Intention to initiate sexually for virginal girls is related to having many sexually active girlfriends and many sexually active sisters. Presence of an adolescent childbearing sister has no relationship to virginal girls' sexual intentions. This finding may be partially explained by the fact that very few virgins (only 17%) have a teenage childbearing sister. Thus, number of sexually active girlfriends and number of sexually active sisters appear to be most important for virginal girls' sexual intentions, with presence of an adolescent childbearing sister not contributing significantly beyond that already accounted for by sisters' sexual status.

When the correlations were computed separately within racial group, the strength of the relationships among sisters' and girlfriends' sexual status and girls' sexual outcomes did not differ significantly across the various racial groups studied. Thus, contrary to other studies that have found that sibling and friend effects vary for black adolescents and for white adolescents (e.g., Billy & Udry, 1985; Haurin & Mott, 1990; Shah & Zelnik, 1981), the results of the current study indicate that having many sexually active girlfriends and many sexually active sisters is associated with equally permissive sexual outcomes for girls of all of the racial groups studied. However, it is important to note that although the linkages are not stronger for blacks than for nonblacks, black girls in the sample are more likely to have more sexually active girlfriends, more sexually active sisters, and to have an adolescent childbearing sister than are nonblack girls. Thus, there appears to be a greater presence of permissive social influences for African American girls, influences that are not present for girls from the other racial backgrounds.

Our findings also indicate that, when compared to girls with only nonchildbearing adolescent sisters, girls with an adolescent childbearing sister have more permissive sexual attitudes and more positive intentions for future sexual activity, and are more likely to be nonvirgins. To our knowledge, this is the first study to examine having an adolescent childbearing sister vis-à-vis adolescents' sexual attitudes and sexual intentions. All studies to date examining sisters' childbearing status have focused only on sibling outcomes of pregnancy or childbearing (Friede et al., 1986; Goldfarb et al., 1977) and only one study has shown an earlier age at coitarche for the sisters of childbearing teens (Hogan & Kitagawa, 1985). Thus, it may be that having an adolescent childbearing sister alters girls' sexual attitudes, attitudes which, over time, shape their sexual intentions and, ultimately, change their sexual behavior. Or, considering our criterion of adolescent childbearing sisters (i.e., we selected out households that were more accepting of teenage births, as opposed to abortions), perhaps girls with adolescent childbearing sisters grow up in families and social climates where teenage sexuality and childbearing are condoned or even encouraged, making both sisters equally susceptible to early parenthood (East & Felice, 1992; Haurin & Mott, 1990). In either case, further longitudinal research is needed to substantiate these processes of influence.

Several limitations of this study warrant specific comment. Perhaps the most significant limitation was that girlfriend and sister sexual and childbearing behavior were assessed using subjects' reports. Certainly, reporter bias may have inflated the correlational measures of association. Indeed, although sisters' and girlfriends' sexual data are subject to perceptual bias, the childbearing data are presumably quite reliable. In any case, it should be emphasized that this study assessed girls' perceptions of others' sexual activity and did not attempt to capture the true sexual status of specific girlfriends or sisters.

The results of this study should also be placed in the proper context, recognizing that there exist other, perhaps more powerful, influences on adolescent sexual behavior. For example, many studies have demonstrated pubertal and hormonal influences on adolescents' age at

coitarche (Udry, 1988; Udry & Billy, 1987; Udry, Halpern, & Campbell, 1991). Preliminary evidence also exists that indicates an indirect biological path between mother's menarcheal age and daughter's sexual behavior (Newcomer & Udry, 1984). Such familial-biological processes of influence certainly warrant further consideration in explaining the covariation between sisters' sexual status as found in this study.

The single-occasion design of the study was also a limitation. For example, we believe that girlfriends' and sisters' sexual behavior shape early adolescent girls' sexual attitudes and intentions, which, in turn, guide their sexual behavior. This process of influence cannot, however, be tested using the current correlational design. It is equally plausible that girls with liberal sexual attitudes and permissive sexual intentions and behavior seek out friends who share these predispositions. Of course, this would not be a possible explanation within sister relationships because sisters cannot select or deselect one another. Thus, at the very least, we can interpret our findings as evidence that exposure to sexually active sisters and adolescent childbearing sisters may enhance early adolescent girls' permissiveness with regard to their own sexual attitudes and behavior. Recall, too, that girls in our sample who had sexually active sisters and adolescent childbearing sisters were likely to also have sexually active girlfriends. Again, because siblings cannot select one another, girls are likely to be choosing friends who match the sexual experience of their siblings. This interpretation places the origins of adolescent sexual activity within the immediate family context, with friends and peers as more indirect, distal influences. We caution, however, as have others (e.g., Jessor & Jessor, 1975; Rodgers & Rowe, 1990; Udry & Billy, 1987), that a far more complex picture likely exists with regard to the etiology of adolescent sexual activity.

Despite these limitations, however, the results of the current study point to the risk of early sexual initiation among young adolescent girls who have many sexually active girlfriends and sisters and at least one adolescent childbearing sister. It follows, then, that such individuals would be a strategic population to target in a pregnancy prevention program (cf. East & Felice, 1992). The present findings also call for further research on the specific components of the sister and girlfriend relationships that make a difference in early adolescent girls' sexual outcomes. Rodgers and Rowe (1988) have proposed a sibling interaction hypothesis that holds much promise in predicting sibling similarity in adolescent sexual behavior (see also Rodgers et al., 1992; Rowe et al., 1989). With further research into such mechanisms, these findings could be used to better understand, and, ultimately, to reduce, the reported elevated sexual activity and pregnancy rates among the sisters of sexually active and childbearing adolescents.

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Table 1

Correlations Among Number of Sexually Active Girlfriends and Sisters and Girls' Sexual Attitudes

Sexual Attitudes ^a	Number of Sexually Active		
	Girlfriends	Sisters	Sisters ^b
Total (<i>n</i> = 455)	.28 ***	.19 ***	.22 ***
Hispanic (<i>n</i> = 137)	.31 ***	.24 **	.29 ***
Black (<i>n</i> = 132)	.33 ***	.16	.19
White (<i>n</i> = 73)	.33 **	.31 **	.26 *
Asian (<i>n</i> = 46)	.54 ***	.42 **	.44 ***

^aCoded such that high scores indicate permissive sexual attitudes.

^bPartial correlations controlling for subjects' age, race (when computed for the total sample), and number of sisters in the family.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 2

Correlations Among Number of Sexually Active Girlfriends and Sisters and Girls' Sexual Intentions

Sexual Intentions ^a	Number of Sexually Active		
	Girlfriends	Sisters	Sisters ^b
Total (<i>n</i> = 400)	.45 ***	.32 ***	.26 ***
Hispanic (<i>n</i> = 123)	.33 ***	.21 *	.20 *
Black (<i>n</i> = 108)	.31 ***	.27 **	.19
White (<i>n</i> = 70)	.38 ***	.51 ***	.45 ***
Asian (<i>n</i> = 44)	.23	.38 *	.38 *

^aCoded such that high scores indicate positive intention to initiate. Includes virgins only.

^bPartial correlations controlling for subjects' age, race (when computed for the total sample), and number of sisters in the family.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 3

Correlations Among Number of Sexually Active Girlfriends and Sisters and Girls' Sexual Status

Sexual Status ^a	Number of Sexually Active		
	Girlfriends	Sisters	Sisters ^b
Total (<i>n</i> = 455)	.33 ***	.25 ***	.27 ***
Hispanic (<i>n</i> = 137)	.23 **	.13	.16
Black (<i>n</i> = 132)	.27 **	.18	.20
White (<i>n</i> = 73)	.23 *	.16	.20
Asian (<i>n</i> = 46)	.48 ***	.29 *	.29 *

^aCoded such that 0 = virgin and 1 = nonvirgin.

^bPartial correlations controlling for subjects' age, race (when computed for the total sample), and number of sisters in the family.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 4

Means, Standard Deviations, and *F* Values of Girls' Sexual Attitudes, Sexual Intentions, and Sexual Status By Sisters' Adolescent Childbearing Status

Sexual Outcome	Nonchildbearing Sisters (<i>n</i> = 346)	Childbearing Sisters (<i>n</i> = 91)	<i>F</i> (<i>df</i>)
Attitudes ^{<i>a</i>}	1.86	2.31	12.99 ** (3,429)
<i>SD</i>	1.05	1.14	
Intentions ^{<i>b</i>}	6.35	7.46	4.20 * (3,377)
<i>SD</i>	3.91	4.32	
Status ^{<i>c</i>}	0.07	0.26	28.60 ** (3,428)
<i>SD</i>	0.26	0.44	

^{*a*}High scores indicate permissive sexual attitudes.

^{*b*}High scores indicate positive intention to initiate. Includes virgins only.

^{*c*}Coded as 0 = virgin and 1 = nonvirgin.

* *p* < .05.

** *p* < .001.

Table 5

Girlfriends' and Sisters' Sexual and Childbearing Behavior as Predictors of Girls' Sexual Attitudes, Sexual Intentions, and Sexual Status

Predictor	Attitudes ^a			Intentions ^b			Status ^c		
	β	<i>t</i>	Cumulative R^2	β	<i>t</i>	Cumulative R^2	β	<i>t</i>	Cumulative R^2
Age	.02	—	.01	.09	—	.04	.04	—	.04
Race ^d	.27	—	.01	.17	—	.04	.04	—	.05
Number of sisters	.07	—	.01	.08	—	.04	-.03	—	.06
Number sexually active girlfriends	.43	5.57***	.13	.47	6.02***	.17	.13	3.99***	.13
Number sexually active sisters	.02	—	.13	.18	2.79**	.23	-.01	—	.13
Childbearing sister ^e	.38	2.54*	.16	.16	—	.23	.24	2.88**	.15
Sexually active girlfriends × sexually active sisters	.05	—	.16	.04	—	.23	.09	—	.15
Sexually active girlfriends × childbearing sister	.36	2.22*	.19	.22	—	.24	.44	1.97*	.17
Sexually active sisters × childbearing sister	-.07	—	.19	.24	—	.24	-.05	—	.17
Sexually active girlfriends × sexually active sisters × childbearing sister	-.24	—	.20	.14	—	.24	-.02	—	.17
<i>F</i> (<i>df</i>)	<i>F</i> (11,438) = 5.63***			<i>F</i> (11,397) = 9.04***			<i>F</i> (11,423) = 8.27***		
Total R^2	.20			.24			.17		

^aCoded such that high scores indicate permissive sexual attitudes.

^bCoded such that high scores indicate positive intention to initiate. Includes virgins only.

^cCoded as 0 = virgin and 1 = nonvirgin.

^dCoded as 0 = nonblack and 1 = black.

^eCoded as 0 = only nonchildbearing adolescent sisters and 1 = at least one adolescent childbearing sister.

* $p < .05$.

** $p < .01$.

*** $p < .001$.