

## Why Do They Start It? Explaining Reported Early-Teen Sexual Activity<sup>1</sup>

Craig B. Little<sup>2,4</sup> and Andrea Rankin<sup>3</sup>

---

*This paper seeks an account of why young teens initiate consensual sexual activity. It does so by constructing statistical models aimed at distinguishing those who report having initiated sexual activity from those who have not in four samples of eighth graders from an Upstate New York county. Theoretical selection of the model variables is guided by insights from "problem syndrome," control and differential association theories. From our findings we conclude the following: (1) Risk behaviors foreseen by the "problem syndrome" approach, including having used marijuana and having been drunk, are significant, powerful predictors of early-teen sexual activity. (2) The social setting of consensual sexual activity differs by sex at the eighth grade level. For example, having a boyfriend is a more consistent, powerful predictor variable for girls than is having a girlfriend for boys and there is evidence to support the hypothesis that boys initiate sexual activity in the context of status-seeking while girls are more likely to do so as a way of attaining approval. (3) Our findings do not give clear primacy to parents or peers as an influence on early-teen consensual sexual activity. Both control theory, usually associated with "parental-influence" variables, and differential association theory, usually associated with "peer-influence" variables, receive support. (4) The results of the research spanning a 2-year period of intensive community antiteen-pregnancy efforts by a Zero Adolescent Pregnancy (ZAP) campaign are consistent with*

<sup>1</sup>Earlier versions of this paper were presented at the 1998 Eastern Sociological Society Annual Meeting in Philadelphia and the 1999 ESS Annual Meeting in Boston.

<sup>2</sup>Department of Sociology/Anthropology, SUNY Cortland, Cortland, New York 13045.

<sup>3</sup>Jacobus Center for Reproductive Health, Cortland County Health Department, Cortland, New York.

<sup>4</sup>To whom correspondence should be addressed; e-mail: littlec@cortland.edu.

*the conclusion that such a multifaceted approach might help lower early-teen initiation of sexual activity.*

---

**KEY WORDS:** adolescent sexual activity; adolescent sexual intercourse; adolescent risk behaviors; teenage consensual sex; teen pregnancy prevention.

## INTRODUCTION

In a chapter toward the end of her book, *Dubious Conceptions: The Politics of Teenage Pregnancy*, Luker (1996) addresses an important question, "Why Do They Do It?" Here she grapples with the issue of why "approximately 1 million young women get pregnant each year." Despite declining rates of teen pregnancy in the 1990s, the matter is consequential because of the widespread belief that teen pregnancy continues to be a wellspring of vexing, expensive social problems, including welfare dependency, educational deficiency, and the ills associated with a culture of poverty. Luker concludes that teen pregnancy is but one aspect of much larger historical alterations in the fertility patterns of American women that have been affected by "changes in public attitudes toward gender roles, marriage, sexual and reproductive behavior, family structure, and single mothers," especially over the last three decades (Luker, 1996:174).

She also reminds us that while concern for *teen pregnancy* is often associated with the assumption that *teen birth rates* have been rising dramatically, this is not actually the case. For most of this century, the birth rates of women 15–19 years old have remained quite stable at around 50–60 per thousand. This is because higher teen pregnancy rates had been offset by higher rates of abortion. Recently, declines in teen sexual activity along with an increase in contraceptive use have caused a decrease in teen pregnancy, as well as birth rates (Donovan, 1998). Moreover, although 1957 was the year of the highest ever number of teen births in the United States, these births were mostly in wedlock or they motivated hasty marriages. The big difference 40 years later is the increased rate of out-of-wedlock teen births. Between 1970 and 1990, the rate of out-of-wedlock teen births nearly doubled overall from 22.4 per thousand teenage women to 42.5, and it nearly tripled for White teen women (10.9–29.5) while the rates for Black women remained relatively more stable (96.9–110.1) (Luker, 1996). In 1996, 76% of teen births to women aged 15–19 were out-of-wedlock compared to 15% in 1960 (Kids Count, 1998; Moore *et al.*, 1995).

Another change, especially between 1960 and 1990, has been the rate of *sexual activity* among teenagers of both sexes. "Depending on which estimates are used, the number of sexually active teenagers almost *doubled* during this 30-year period" for females, and it increased substantially for males

also (Luker, 1996:197). The most recent data diverge somewhat from those over the longer term. Between 1990 and 1997, the percent of female teens between 15 and 19 who reported ever having had sex remained constant at 48% while the same rate for males dropped from 61 to 49% (Kids Count, 1998). In contrast to the near-term trend for male teens, recent data also show that between 1988 and 1995 the percentage of girls who have had sex *before* the age of 15 went from 11 to 19%, while it remained stable for boys at 21% (Koch, 1998:589). Thus, even as there appears to have been a slight decrease in the rate of sexual activity by those 15–19 years old because of the decrease among males, there is an alarming trend of increased sexual activity among young-teen women (Center for Disease Control, 1998; Donovan, 1998).

This paper seeks an account of why young teens initiate consensual sexual activity. We begin by reviewing the theoretical issues relating to this research question as they are reflected in the more general literature on deviant behavior, parental versus peer influences on socialization, and differences between the sexual behavior of boys and girls. After describing the community context and origins of the study, we build a theoretical model containing a number of variables that we predict might be associated with the likelihood of early-teen sexual activity. Using logistic regression, the model is then tested across two samples of eighth grade students from whom data were collected at two times from each, in January and June of 1996 and in the same two months of 1998. We conclude by discussing our results as they illuminate patterns of risk behavior among early teens, differences by gender, the time when the respondents are surveyed, the weight of parental versus peer influence on sexual activity, and the context of the community in which this research was conducted.

## THEORETICAL ISSUES

Explanations of teen sexual activity have often been embedded within the sociological literature on deviant behavior (Benda and DiBlasio, 1991). One approach has been to regard teen sex as but one of numerous risk-taking behaviors constituting a “problem behavior syndrome” that is more characteristic of some youngsters than others (Jessor and Jessor, 1977). Our own statistical models presented ahead allow us to examine the relative importance of the associated risk-taking behaviors such as alcohol and marijuana use as they relate to early-teen sexual activity.

Another theoretical matter can be framed by the recent debate stimulated by Harris (1998) who argues that social scientists may have tended to overemphasize the importance of parents relative to peers in explaining why children turn out the way they do. The proportional influence of parents versus peers in sociology has typically been presented as the opposition of

“control” and “differential association” theories, particularly when applied to delinquency (Akers *et al.*, 1979; Hirschi, 1969; Sutherland, 1939). In respect to control theory, the reasons for *conforming* behavior are to be found in the bonds the individual establishes with the conventional order, including parents and their values. When there is evidence that a youngster’s bonds to the conventional order are weak, control theory predicts a greater likelihood of deviance. Differential association theorists, on the other hand, focus on the role of peer influences—both those favorable to delinquent activity and those that inhibit it—as the primary variables to explain the youthful *deviance* probability. A person who closely associates with peers whose behavior and beliefs are deviant is apt to learn to be delinquent from those peers. By incorporating both parental and peer variables in our statistical models, we are able to shed some light on the relative contributions of parental, “control theory” variables and peer, “differential association” variables to the explanation of why early teens engage in consensual sexual activity.

Still another theoretical matter has to do with differences between girls and boys when explaining delinquent behavior, in general, or sexual activity more specifically. It has long been the case that males have had higher rates on most indicators of deviance or crime than women, regardless of whether measured by official arrest rates or self-report (Smith and Visser, 1980). The reasons proposed range from hypothesized biologically rooted differences between the sexes to gender role socialization or, particularly in respect to the young, the greater degree of parental control to which girls are subjected as compared to boys. While the sexual activity rate for boys under 16 still exceeds that of girls the same ages, the recent trend toward a shrinking of the gap may be related to changes in gender role socialization emphasizing greater sexual equality and, also, a loosening of parental controls on girls. In this paper, we address the different motives that boys and girls may have for initiating sexual activity. In general, previous researchers have reported that women are more sexually motivated as an expression of love in the context of emotionally involved relationships while men are more motivated by sex as a source of pleasure with less emphasis on the emotional, relational context of the activity (Carroll *et al.*, 1985; DeGaston *et al.*, 1996; Lords, 1991; Whitley, 1988). We shed additional light on this issue by estimating separate regression models for females and males with a particular focus on apparent differences in their motives for initiating sexual activity.

## THE COMMUNITY RESEARCH CONTEXT

This study is part of a research strategy embedded in a community-wide effort to reduce teen pregnancy rates in an Upstate New York county over

the past 10 years. During that time, the county's health department has sponsored a Zero Adolescent Pregnancy (ZAP) program focusing the energies of the community's social services, educational, business, media, and religious sectors. A portion of this effort has been the introduction and evaluation of curricula in the public schools designed to delay the onset of teen sexual activity. The collection of extensive data from eighth grade students throughout the county—at three times in 1996 and two times in 1998—provides an unusually detailed data set from which to assess the validity and reliability of the data collection instruments, to construct explanatory models for comparison over time, and to inform speculation about the impact of the overall pregnancy reduction program in the community.

### **The Initial Curriculum Evaluation Study**

The prevention of teen pregnancy has become a subject of great interest to policymakers in recent years. Educational programs delivered in the public schools, often as part of the overall health curriculum, have been among the widespread approaches to the problem (Kirby and Coyle, 1997). In 1996, using a quasi-experimental design, we undertook a project to test the effectiveness of a modified "Postponing Sexual Involvement" (PSI), "peer-taught" curriculum directed at eighth grade students in an Upstate New York county. The PSI curriculum calls for high school students to be trained as "peer educators" who then, under supervision, conduct classes for junior high school students. For more on the PSI curriculum, see Howard and McCabe (1990). The evaluation study involved collection of anonymous questionnaire data from experimental and control groups three times, before (January) and after (June and September) the experimental introduction of the PSI curriculum. The experimental group of students was in a school's eighth grade classes that received the PSI curriculum; the students in the control schools' classes received the standard health curriculum without the PSI component. The results of this research revealed no evidence that the PSI program succeeded in reducing significantly the initiation of eighth grade students into sexual activity at either 2 or 6 months following exposure to the curriculum. Coincidentally, this finding replicated results from the largest evaluation of the PSI curriculum to date by Kirby and his associates in California (Kirby *et al.*, 1997). While there is some evidence that our students reacted well to the PSI curriculum, and that it may have had a modest impact on eighth graders' thoughts about their projected sexual behavior, there is no direct evidence that it actually succeeded in postponing sexual involvement as measured by the students' reported behavior.

Likewise consistent with Kirby, we conclude that although the PSI curriculum has broad appeal, the intervention of only four or five peer-taught sessions "is too modest to have a significant impact on behavior" (Kirby *et al.*, 1997:108). Indeed, the only evidence of any curricula changing adolescent sexual behavior comes from programs lasting an average of 15 sessions, as opposed to the PSI norm of 4 or 5. It appears to be essential that students have considerable time to learn and practice the refusal and resistance skills of the curriculum through role playing. The lessons of our study, as with Kirby's, should lead educational policymakers and practitioners to assess critically their expectations for school-based initiatives. The goal of a school-based curriculum that does not consume a great amount of educational resources and time, and that still effectively delays the sexual involvement of early adolescents, remains elusive.

Altogether, the initial research evaluating school-based PSI programs forced us to confront some basic questions before attempting additional educational interventions: What characteristics distinguish relatively young initiates into consensual sexual activity? Is there evidence from the data we collected for our curriculum evaluation that can provide insights into why, in eighth grade or before, some youngsters start their sexual involvement while others do not?

## **BUILDING A MODEL OF EARLY-TEEN SEXUAL ACTIVITY**

Previous research, much of it on high-school-age rather than junior high-school-age teens, suggests a number of variables that ought to predict sexual activity. Ultimately, we will be interested in evidence concerning which of these factors are most importantly associated with the likelihood of early-teen sexual activity, and especially in the differences between girls and boys. As theoretical context for the construction of our own statistical models, we will first review previous findings concerning a number of possible explanatory variables.

### **Background Variables**

#### *Sex*

Throughout the teen years, more males consistently report having had sexual intercourse than females (Alan Guttmacher Institute, 1998; DeGaston *et al.*, 1995). In 1995, 22% of females versus 27% of males 15 years old reported having engaged in intercourse (Alan Guttmacher Institute, 1998) with this spread narrowing only slightly to 65% for females and 68% for males

at age 18. The possible reasons for the gender differences were discussed above. In our models we include sex as an important background variable and we also build separate models for girls and boys.

### *Family Structure*

The findings from some studies indicate that children who live with both biological parents are less likely to be sexually active than those from one-parent homes (Flewelling and Bauman, 1990; Forste and Heaton, 1988; Hayes, 1987; Miller and Bingham, 1989; Newcomer and Udry, 1987; Upchurch *et al.*, 1998; Whitbeck *et al.*, 1996) while the sexual activity of children in remarried families usually falls between the first two (Miller and Moore, 1990; Thornton and Camburn, 1987). Devine *et al.* (1993) found that parental divorce during early adolescence was associated with earlier onset and greater frequency of sexual activity for females, but not for males. Less parental supervision in single-parent homes and modeling of single-parent dating behavior are among the possible explanations for these tendencies (Dornbusch *et al.*, 1985; Miller and Moore, 1990). For this reason, the parental composition of the family has been interpreted in some studies as a "control" variable indicative of support for control theory (Udry, 1988).

### *Socioeconomic Status*

Several studies have shown an association between poverty and sexual activity, as well as early pregnancy. Increased maternal education has been found to be associated with later age of adolescent first intercourse (Cooksey *et al.*, 1996) and socioeconomic status (SES) has been shown to be a factor in adolescent females' timing of first intercourse (Brewster *et al.*, 1993). As SES decreases, the rates of sexual activity tend to increase (Hogan and Kitagawa, 1985; Moore *et al.*, 1986). It is possible that SES is inversely related to sexual activity through variation in socialization techniques that parents use as ways to control and discipline their children. SES has been found to be positively related to the use of physical punishment as a socialization technique, and punishment techniques tend to break rather than build the bonds between parent and child. Also, as Henry and Short (1954) have suggested, punishment-oriented, as opposed to love-oriented, socialization techniques may attenuate superego development. Weakened parental bonds and weak superego development may then contribute to higher rates of early-teen risk-taking behavior, in general, and sexual activity, in particular.

## **Associated Risk Behaviors**

### *Substance Use*

Alcohol and other drug use have been found to be associated with teen sexual activity (Huizinga *et al.*, 1993; Parker *et al.*, 1994; Rosenbaum and Kandel, 1990; Smith, 1997; Yamaguchi and Kandel, 1987). Among the most commonly reported correlations with teen sexual activity, both for males and females, is a constellation of “problem” behaviors including smoking, drinking, drug use, and “delinquent” behavior, usually constituting low-level status offenses (Devine *et al.*, 1993; Donovan and Jessor, 1985; Elliott and Morse, 1989; Mott and Haurin, 1988; Rogers and Rowe, 1990). From this viewpoint, teenage sexual activity has been described as a “syndrome” of problem behaviors that may stem from a single common source, such as low self-control (Benda and Corwyn, 1998; Gottfredson and Hirschi, 1990).

### *Dating*

Several studies indicate that early and steady dating is strongly related to the likelihood of teen sexual activity by both boys and girls (DeGaston *et al.*, 1996; Janus and Janus, 1985; Miller *et al.*, 1986; Thornton, 1990). This variable could be taken as one of several indicating the influence of peers in the context of differential association theory.

### *Physical Punishment*

Child maltreatment has been found to be associated with teenage sexual activity (Small and Luster, 1994). Straus (1998) has proposed a model in which corporal punishment by parents, mediated by a number of variables—including a weakened child-to-parent bond, premature seeking of alternative bonds, and vulnerability to peer pressure—leads to a greater likelihood of teen sexual activity and early pregnancy. As we have suggested under SES above, physical punishment as a parental technique of socialization and control may be related to early-teen initiation into consensual sex.

## **Beliefs and Perceptions**

### *Peer Influences*

At least two types of peer influence may be important. First, teen sexual activity may be affected by what adolescents *believe* that their friends

are *doing*, regardless of their friends' actual behavior. This point has been argued by Newcomer *et al.* (1980) and other studies have suggested that what a young person thinks is the norm for his or her peer group strongly influences how he or she chooses to act in respect to sexual involvement (Whitbeck *et al.*, 1993). From another perspective, in contrast to an assessment of peers' activity, adolescents may be affected by *how their friends would feel about them*—approval or disapproval—if their friends knew that they were having sex. More generally, numerous studies find a strong connection between peer influences and teen sexual activity (Benda *et al.*, 1994; Benda and DiBlasio, 1991, 1994; Janus and Janus, 1985; Rogers and Rowe, 1990; Whitbeck *et al.*, 1996; Yamaguchi and Kandel, 1987). These findings have often been interpreted as lending support to the theory of differential association (DiBlasio and Benda, 1990, 1993).

### *Parental Influences*

Miller and Moore (1990) report that the findings concerning the influence of family variables on sexual activity are very mixed. Baker *et al.* (1988) found that parents' reported behavioral norms accounted for only 5% of the variance in whether adolescents have had intercourse. In one study, parental reaction to sex was a relatively weak predictor of sexual activity for males, but not significantly correlated for females (DiBlasio and Benda, 1992). Findings with regard to parental influences have also been interpreted in relation to control theory (DiBlasio and Benda, 1994).

## **THE RESEARCH STRATEGY**

In 1998, the original 1996 data were supplemented by another two waves of questionnaires (January and June) from that year's class of eighth grade students throughout the county. The data reported in this paper come from all of the eighth grade students in two of the county's schools for which complete, entirely comparable returns were available in January and June of both 1996 and 1998. One of the schools is in the county's only small city while the other is in one of its outlying villages. Together, they are representative of the county's socioeconomic and demographic profile. For each of the four data sets, we construct a statistical model to predict whether or not respondents report having engaged in consensual sex. In 1997, our survey data were supplemented with the results of focus-group interviews with 51 teens from the community. We will refer briefly to these data as part of the context for interpretation of the findings from our statistical modeling.

## Data Collection

A consent form and a letter of explanation were sent home to the parents and, if parents did not want their children participating in the survey, they needed to return the form. Fewer than 5% of parents did not grant permission for their children to participate in the study. The questionnaires were filled out in school classes, supervised by a teacher. The students were given manilla envelopes in which to seal their questionnaires to inspire confidence that their responses would remain anonymous.

## The Instruments

The questionnaires contained approximately 50 questions about alcohol use, drug use, and sexual activity, in addition to background variables. Most of the questions regarding sexual activity and attitudes had been used earlier in the original Howard and McCabe (1990) evaluation of the PSI curriculum in Atlanta. The alcohol and drug use questions were patterned closely on widely used national surveys. The primary measure of sexual activity, the dependent variable, was the following question: "Have you ever had consenting sex with anyone (when you *chose* to have sex, not if anyone forced you to)?" The response alternatives were "No" or "Yes." (The previous question had defined "having sex" by saying "People refer to sexual intercourse in many ways—'making love,' 'having sex,' or 'going all the way.'")

## The Model

The statistical model to be tested incorporates variables on three levels that, taken together, are expected to contribute to the explanation of whether an eighth grader in our sample reports having had consensual sex. The first level, *background variables*, includes the respondent's sex, whether or not two biological parents are living in the home, and socioeconomic status. The second level, *associated risk behaviors*, includes drinking behavior, marijuana use, and having a boyfriend or girlfriend. For the last wave of survey data only (June 1998), reported use of physical punishment by parents was measured as a possible risk factor. The third level of variables incorporated into the model consists of *beliefs* about the level of sexual activity by their friends and *perceptions* of their friends' and mother's attitudes about learning if they were sexually active. Table I presents the model variables with the actual questions and responses on which each of the variables' measures are based.

**Table I.** Prediction Model Variables: Abbreviations and Operational Definitions**Background variables****Sex (SEX):** "Female" or "Male" (circle one)**Two parent home (TWOPRNT):** "Circle below the people who live with you." (Both natural parents living in the home coded as "Yes.")**SES (SES):** "Which of the following best describes where you live?" *House (one family only): House (more than one family); Apartment; Mobile home or trailer; Hotel or motel; Other* (Combined in an index with parents' education level.)**Associated risk behaviors****Ever drink alcohol (EVRALCH):** "Have you ever had alcohol to drink (not counting religious uses)?" *No; Yes***Ever drunk (EVRDRNK):** "Have you ever gotten drunk?" *No; Yes***Ever use marijuana (USEMJR):** "Have you ever used marijuana (pot, grass, hash, etc.)?" *No; Yes***Boy/girl friend (BGFRD):** "Do you presently have a boyfriend or girlfriend?" *No; Yes***Physical punishment score (PPSCR):** "During the last year, about how often would you say that your mother or stepmother (father or stepfather) used physical punishment on you, like spanking, slapping, ear twisting, or hitting in some way?" *Never to More than 20 times* (in seven categories)**Beliefs/perceptions****Estimate of friends having sex (FRHVSX):** "People refer to sexual intercourse in many ways—'making love,' 'having sex,' or 'going all the way.' As far as you know, how many of your friends have done this?" *None; Just a few; Several; Most of them; All of them***How friends feel about you having sex (FRFLSX):** "If your friends found out that you were having sex, how do you think they would feel?" *They would disapprove and stop being my friends; They would disapprove but still be my friends; They wouldn't care; They would approve***How mother would feel about you having sex (MTHFLSX):** "If your mother found out that you were having sex, how do you think she would feel?" *Very upset; Pretty upset; A little upset; Not at all upset; She wouldn't care***How father would feel about you having sex (FTHFLSX):** (Same as MFLSX)**How parents would feel about you having sex (PNTSFLSX):** (Score of the parent feeling most upset.)**Dependent variable****You have sex (YOUHVSX):** "Have you ever had consenting sex with anyone (when you chose to have sex, not if anyone forced you to)?" *No; Yes*

## FINDINGS

### The Samples

The background indicators on all four samples over 2 years are, as expected, nearly identical, indicating a high degree of response reliability. Overall, the respondents' mean age was 14 years, about 90% were White/not Hispanics,<sup>5</sup> between 55 and 60% lived with both parents, about 75% lived in a single-family house and about one-half of the parents had completed high school plus some college. In addition, as reported in Table II, where they are to be expected, the differences between the January and June responses

<sup>5</sup> According to census data, the county is more than 95% White.

**Table II.** Model Variable Responses: January–June 1996 and January–June 1998

Variable	Jan. '96 ( <i>N</i> = 247)	June '96 ( <i>N</i> = 242)	Jan. '98 ( <i>N</i> = 231)	June '98 ( <i>N</i> = 233)
Sex				
Male	53	54	52	48
Female	47	46	48	52
TWOPRNT <sup>a</sup>	56	56	58	59
SES <sup>b</sup>				
Mean	7.6	7.6	7.8	8.2
SD	2.4	2.5	2.4	2.2
EVRALCH <sup>a</sup>	72	73	72	72
EVRDRNK <sup>a</sup>	30	33	34	40
USEMJR <sup>a</sup>	28	34	28	36
BGFRD <sup>a</sup>	33	38	35	35
FRHVSX				
None	35	27	38	35
A few or more	65	73	62	65
FRFLSX				
Would disapprove	49	46	50	48
Would not care/approve	51	54	50	52
MTHFLSX				
Very upset	75	70	73	68
Pretty upset to not care	25	30	27	32
PPSCR <sup>c</sup>				
Mean	—	—	—	1.4
SD	—	—	—	3.2
YOUHVSX	25	26	18	19

<sup>a</sup>Percent responding "Yes."

<sup>b</sup>The Socioeconomic Status Index (SES) comprises of the highest education of the parent living in the household combined with the respondent's dwelling (ranging from single family home to a hotel or motel).

<sup>c</sup>The respondent's experience of physical punishment at the hands of parents in the last year (PPSCR) was measured only in the June 1998 survey.

within each year of the questionnaire administrations are in the directions one would predict given the increasing age, experience, and social development of the respondents. For example, the percent report of ever having drunk alcohol, having been drunk, having used marijuana, having a boy/girl friend, or the estimate of the number of friends having sex either remains the same or increases between January and June in every case. Likewise, the percentages on these measures are highly consistent with indicators from comparable national surveys. For example, in January 1996, 25% of our respondents reported having had consensual sex. This figure is quite consistent with reported sexual activity by 13–15-year-olds in numerous national surveys.<sup>6</sup> Our data are also in accord with the finding nationally, and in every previous

<sup>6</sup>Data compiled in 1988 indicated that 23% of 14-year-olds in the United States had "ever had intercourse" (Alan Guttmacher Institute, 1994:19). That overall figure remains the same for 1996 data with the rate of sexual intercourse rising to 30% for 15-year-olds and 74% for those 18 (Donovan, 1998).

study of teen sexual activity, that males report higher rates of intercourse than females. It has also been reported that both teen pregnancy and teen sexual activity rates began to decline nationally in the mid-1990s (Alan Guttmacher Institute, 1998), and our data also reveal a drop between 1996 and 1998. Thus, various internal checks within the survey and the ability to test the stability or expected shifts of results across the four waves of surveys provide strong evidence for confidence in the validity and reliability of the data.

### The Regression Modeling

Table III reports the results of simple logistic regression models in which the respondent's self-report of having had consensual sex is regressed on each independent variable by itself. Most of the variables are significantly related to the report of having had sex in all four samples. Exceptions for all of the samples are the respondents' sex, their participation in the PSI program, or the physical punishment they have experienced from their parents. While having two biological parents and socioeconomic status are both significant in the 1996 samples, they are not in 1998. The most consistently strong predictors of having had sex across the four samples are the use of marijuana, ever having been drunk, having a boyfriend or girlfriend, how their mother would feel about them having sex, and how their friends would feel about them having sex.

With most of the model's independent variables significantly related to the dependent variable, our obvious task is to establish how well the variables in our proposed model, together, are able to account for eighth graders' reports of having initiated sexual activity. To do this, the model's

**Table III.** Independent Variables Regressed on "You Have Sex"

Variable	Jan. '96	June '96	Jan. '98	June '98
Sex	0.00	0.00	0.00	0.00
Two parents	-0.20***	-0.15**	-0.05	0.00
SES	-0.19***	-0.25***	0.00	0.00
Ever drink	0.21***	0.19***	0.17**	-0.17**
Ever drunk	0.36***	0.38***	0.41***	0.35***
Use marijuana	0.44***	0.45***	0.35***	0.36***
Boy/girl friend	0.30***	0.42***	0.20**	0.33***
Friends have sex	0.25***	0.21***	0.22***	0.21***
Friends feel you sex	0.33***	0.30***	0.21***	0.30***
Mother feel sex	0.35***	0.30***	0.36***	0.24***
Father feel sex	0.33***	0.17**	0.37***	0.20**
Parents feel sex	0.31***	0.21***	0.37***	0.18**
PSI participation	0.00	0.00	—	—
Physical punishment	—	—	—	0.07

\*\* $p < 0.01$ ; \*\*\* $p < 0.001$ .

variables were analyzed using logistic regression, a technique that is especially appropriate when the dependent variable has two categories (e.g., No/Yes). Because high correlations amongst the independent variables in a model, called multicollinearity, are a potential problem in such analyses, tests for multicollinearity were performed. No problems emerged from these tests that would adversely affect interpretation of the modeling results.<sup>7</sup>

For all four models, the 10 independent variables were introduced in three blocks (see Table I) with forward, stepwise selection of the variables based on the Wald statistic for variables within the blocks.<sup>8</sup> The Wald statistic is the square of the ratio of the regression coefficient ( $B$ ) to its standard error (SE). The value of Wald for each model variable and its level of statistical significance are reported in Table IV.

The large goodness-of-fit statistics and significant chi-square values reported in Table IV indicate that the models with the covariates fit significantly better than models with just the intercept terms (Menard, 1995). Overall, the January 1996 model predicts 86% of the 229 cases analyzed correctly. Eighteen cases from the original 247 cases in the total sample were lost in the analysis due to missing data on one or more of the variables. Thus, 229 cases were usable in the January 1996 test of the model.

Table IV also shows which variables contribute significantly to the explanatory power of the model, and how much so. The four statistically significant variables for the January 1996 model, in order of importance, are (1) whether the respondent thinks his/her friends are having sex (FRHVSX), (2) ever having used marijuana (USEMJR), (3) how the respondent thinks friends would feel if they knew he or she was having sex (FRFLSX), and (4) the report of how mother would feel about the respondent having sex (MTHFLSX). These are the statistically significant factors to know if one wants to predict, with about 86% accuracy, whether one of the eighth graders in our sample reports having initiated sex.

The column labeled "Exp( $B$ )" reports the odds ratios of the variables. The larger the odds ratio, the stronger the relationship between that independent variable and the likelihood of the respondent reporting having had

<sup>7</sup>The tests for multicollinearity included checks of the Variance Inflation Factors (VIF) and Condition Indexes of each of the models. Likewise, when the variables are run in corresponding multiple regression models, the eigenvalues and Condition Indexes do not indicate any significant problems with multicollinearity.

<sup>8</sup>How *each* parent—mother and father—would feel about the respondent having sex was asked. The two variables are very highly correlated (0.67). However, we tested multiple statistical models, including separately in each case mother's feeling, father's feelings, and a "parents' feelings" variable consisting of the strongest level of upset expressed by either parent. In each case below, we report the model including whichever of these three variables improves the models' predictability the best. The physical punishment variable was measured only in June 1998.

**Table IV.** Logistic Regression Model Results: January and June, 1996 and January and June, 1998—Total Samples

Variable	B	SE	Wald	Exp(B)	95% CI for exp(B)		Model chi-square	df	PCC <sup>a</sup>	n
					Lower	Upper				
Model: January 1996										
TWOPRNT	-0.5989	0.4292	1.9476	0.5494	0.2369	1.2741	103.483	7	86.46%	229
EVRALCH	0.9554	0.7360	1.6849	2.5997	0.6143	11.0014				
USEMJR	1.2776	0.4548	7.8912**	3.5879	1.4714	8.7491				
BGFRD	0.8111	0.4312	3.5384	2.2503	0.9665	5.3292				
FRHVSX	2.5128	0.7955	9.9794**	12.3400	2.5955	58.6684				
FRELSX	1.1371	0.5078	5.0139*	3.1177	1.1523	8.4350				
MTHFLSX	0.9227	0.4514	4.1782*	2.5162	1.0387	6.0952				
Model: June 1996										
SES	-0.2349	0.0939	6.2569*	0.7906	0.6577	0.9504	122.123	4	86.94%	222
EVRALCH	2.7007	1.2003	5.0629*	14.8904	1.4166	156.5227				
USEMJR	1.8741	0.4504	17.3102***	6.5150	2.2946	15.7520				
BGFRD	2.6044	0.4615	31.8518***	13.5237	5.4738	33.4122				
Model: January 1998										
EVDRNK	2.6031	0.4962	27.5263***	13.5060	5.1073	35.7159	67.696	2	88.24%	221
PNTSFLSX	1.7573	0.4441	15.6557***	5.7968	2.4274	13.8430				
Model: June 1998										
EVDRNK	0.9293	0.6093	2.3843	2.5327	0.7786	8.2385	79.74	4	86.61%	224
USEMJR	1.7614	0.5857	9.0433*	5.8205	1.8467	18.3453				
BGFRD	1.9452	0.4823	16.2654***	6.9950	2.7179	18.0028				
FRELSX	2.2638	0.6278	13.0044***	9.6199	2.8107	32.9254				

<sup>a</sup>PCC refers to percent classified correctly.  
\*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ .

consensual sex. For instance, in the January 1996 model the odds ratio of 12.34 for friends having had sex (FRHV SX) means that for each unit increase in that variable the odds are 12.34 times greater that one of these eight graders will report having engaged in sex. Likewise, those who report having used marijuana (USEMJR) are 3.59 times more likely to report having had sex than those who do not report having used marijuana. The 95% CI for  $\exp(B)$  reports the lower and upper limits of the odds ratios within which we can be 95% certain that the true  $\exp(B)$  falls.

The results of the same logistic regression modeling are reported for the other samples (June 1996; January 1998 and June 1998) in the remainder of Table IV. The significant variables in each of the models are summarized in Table VI.

### Differences by Sex

Although the respondent's sex is *not* a significant predictor in the overall model, it is important to see if there are differences between boys and girls when applying the model. These results are presented in Table V.<sup>9</sup> The classification tables reveal a 90% successful prediction rate for the males' model and an 82% rate for the females' model. In order, the significant variables in January 1996 for males are (1) the estimate of friends having sex (FRHV SX), (2) socioeconomic status (SES), (3) how mother would feel about the respondent having sex (MTHFLSX), (4) whether or not both natural parents are in the home (TWOPRNT), and (5) ever having used marijuana (USEMJR). For females, they are (1) how friends would feel about you having sex (FRFLSX), (2) ever having used marijuana (USEMJR), and (3) having a boyfriend (BGFRD).

For the January 1996 sample, how these eighth grade students see themselves in relationship to their peers is most important in predicting whether they report having had sex. This is true overall, and for both males and females separately. For males, the belief about *how many* of their friends are having sex is most important. For females, it is *how they think their friends would feel* if the friends found out they were having sex. These data are consistent with previous findings (e.g., Benda and DiBlasio, 1991, 1994; Billy *et al.*, 1984; and others previously cited) that peers have a powerful influence on adolescent sexual behavior. In February 1997, focus-group interviews were conducted with volunteers from this community aged 15–22. Two of the questions asked by the groups' adult facilitators were "What do you think

<sup>9</sup>The detailed logistic regression results by sex are reported only for January 1996 in Table V. Table VI reports summaries for both years. Detailed results by sex for both years may be obtained by writing the first author.

Table V. Logistic Regression Model Results, By Sex, January 1996

Variable	B	SE	Wald	Exp(B)	95% CI for exp(B)		Model chi-square	df	PCC <sup>a</sup>	n
					Lower	Upper				
Model: Males										
TWOPRNT	-1.3229	0.6408	4.2619*	0.2664	0.0759	0.9352	67.258	6	89.83%	118
SES	-0.3154	0.1427	4.8830*	0.7295	0.5514	0.9650				
USEMJR	1.3420	0.6512	4.2473*	3.8268	1.0679	13.7125				
BGFRD	0.3027	0.6473	0.2186	1.3535	0.3806	4.8133				
FRDHVX	32.2373	1.1786	8.6831**	32.2373	3.1996	324.8039				
MTHFLSX	1.3553	0.6562	4.2652*	3.8779	1.0715	14.0342				
Model: Females										
USEMJR	1.5395	0.5969	6.6524**	4.6623	1.4472	15.0202	36.979	3	81.98%	111
BGFRD	1.3795	0.5855	5.5506*	3.9728	1.2610	12.5171				
FRFLSX	1.5964	0.5915	7.2840**	4.9353	1.5482	15.7330				

<sup>a</sup>PPC refers to percent classified correctly.

\*  $p < 0.05$ ; \*\*  $p < 0.01$ .

is the main reason why girls have sex for the first time? How about boys?" Peer pressure and answers that could be interpreted as being related to peer pressures (e.g., "embarrassed to be a virgin" and "wants a reputation") were, by far, the most frequently mentioned reasons for the initiation of sexual intercourse given in focus groups. The focus-group results and those from the regression models are also consistent with a hypothesized generalization that boys tend to seek status while girls tend to seek approval.<sup>10</sup> Note also that use of marijuana is the only other statistically significant predictor variable shared by both males and females. Other than that specific risk behavior, the significant variables for males are SES, how mother would feel about the respondent having sex, and whether or not both biological parents live in the home. In contrast, for females, having a boyfriend is the *only* other significant predictor—a factor that can be interpreted as consistent with the hypothesis that girls' initiation of sex at this age may frequently be associated with approval-seeking in a relationship. This suggests that girls more frequently initiate sex in the context of what they see as a socially intimate relationship than boys (DeGaston *et al.*, 1996). This hypothesis is also supported by the focus-group findings that being "in love" was a reason frequently mentioned for girls initiating sex, but it was not mentioned as a reason for boys.

### The Results Over Time

Table VI presents logistic regression model variables significantly predicting the report of having had consensual sex by two groups of eighth grade students—the first group surveyed in January and June of 1996 and the second in January and June of 1998. First note that from January of 1996 to June of 1996, the use of marijuana remains a significant predictor variable overall, and for both sexes (although much more strongly for males). An important change, however, is that for the total, and for males, the estimate of how many friends are having sex (FRHVSX) drops out as a predictor and having a boyfriend or a girlfriend becomes a strong statistically significant predictor overall, and for *both* sexes. This suggests that at this stage of their sexual development and activity, the "pairing" of boys and girls in dating relationships becomes an important factor in the likelihood that they will have engaged in sex. It is also important to note that for girls, how they think their friends would feel about them having sex remains a powerful predictor.

The 1998 replication of the 1996 surveys reveals both similarities and differences that we will interpret in the context of developments in the community over that time. First, the efforts of the ZAP program continued and

<sup>10</sup>We are grateful to Beth Hess for first advancing this interpretation of our data. For further discussion of differential peer influences on male and females, see Billy and Udry (1985b).

**Table VI.** Logistic Regression Model Variables Predicting Report of Consenting Sex Among Eighth Graders<sup>a</sup>

Date	Total	Males	Females
1/96	1. FRHVSX** 2. USEMJR** 3. FRFLSX 4. MTHFLSX  (N = 229, 86.5%) <sup>b</sup>	1. FRHVSX** 2. SES 3. MTHFLSX 4. USEMJR 5. TWOPRNT  (N = 118, 89.8%) <sup>b</sup>	1. FRFLSX** 2. USEMJR** 3. BGFRD     (N = 111, 82.0%) <sup>b</sup>
6/96	1. BGFRD*** 2. USEMJR*** 3. SES 4. EVRALCH  (N = 222, 86.9%) <sup>b</sup>	1. USEMJR*** 2. BGFRD*** 3. SES    (N = 119, 88.2%) <sup>b</sup>	1. BGFRD*** 2. FRFLSX** 3. USEMJR     (N = 103, 90.3%) <sup>b</sup>
1/98	1. EVRDRNK*** 2. PNTSFLSX***  (N = 221, 88.2%) <sup>b</sup>	1. EVRDRNK*** 2. PNTSFLSX**   (N = 116, 87.1%) <sup>b</sup>	1. EVRDRNK*** 2. PNTSFLSX    (N = 105, 85.7%) <sup>b</sup>
6/98	1. BGFRD*** 2. FRFLSX*** 3. USEMJR  (N = 224, 86.6%) <sup>b</sup>	1. USEMJR**     (N = 108, 83.3%) <sup>b</sup>	1. BGFRD*** 2. USEMJR**     (N = 116, 88.8%) <sup>b</sup>

<sup>a</sup>The logistic regression modeling was in three blocks, within blocks using the forward-Wald, stepwise criteria.

<sup>b</sup>N is the number of cases included in the analysis for that model followed by the percent correctly classified by the model.

\*\* p < 0.01; \*\*\* p < 0.001.

intensified. The program’s leaders extended their community education campaign in cooperation with area businesses, churches, schools, parents, and the media. The county’s health education teachers underwent additional ZAP-sponsored training and further developed their curricula. Moreover, with rising interest in preventing teen pregnancy at both the national and local levels, there is evidence that during this time rates of teen sexual activity and teen pregnancies for those aged 15–19 had crested and were beginning to decline. Indeed, the data from our county’s study show that between 1996 and 1998, the eighth graders reporting having had consensual sex dropped about 27% (see Table II).

In January of 1998, ever having been drunk (EVRDRNK) and how the respondents think that their parents would feel about them having sex (PNTSFLSX) are the *only* statistically significant variables predicting sexual activity. This is in sharp contrast to January 1996, when how mother would feel was a relatively weak significant predictor overall and for males. Kandel’s review of the literature states that “parents are more influential at younger ages; peers at older ones” (Kandel, 1996:292). We speculate that eighth graders may typically be at a developmental point where for many this transition of relative influence is occurring. That would explain why at

least some parental influence shows up in January of both years, but not in June of either year. It is, however, the case that the influence of perceived parental attitudes related to sexual activity is far stronger and consistent for both boys and girls in 1998 than it was in 1996.

Harris (1998) has stimulated the question "Do parents matter?" in respect to child development, especially in contrast to the relative influence of peers. While she argues that parents matter less than we have typically thought in the past, and peers matter more, our findings specifically in reference to the question of early teen sexual behavior suggest that "It depends"—even in the same community over a fairly short time depending on the changing normative context, especially if the community is undergoing a concerted campaign to change social norms.

Finally, note that consistent with June 1996, in June 1998 the use of marijuana persists as a significant sexual activity predictor overall, and for both sexes. Also, having a boyfriend is a very statistically significant predictor for girls in June of each year. Regardless of the other differences over time discussed above, by the end of eighth grade, whether the young person has used marijuana and, if a girl, whether she has a boyfriend are consistently significant predictors of the likelihood of having engaged in consensual sex.

### **Study Limitations**

This study has a number of strengths. The data were very carefully collected with extraordinarily high participation and response rates. Particular attention was paid to procedures that guaranteed respondents' anonymity; the replicating design allowed for thorough tests of the instruments' validity and reliability; and the analytical techniques have yielded clear, convincing results. There are, of course, limitations as well. The data come from a restricted geographic region that is overwhelmingly White and middle-to-working class. It would certainly be worth replicating our study sampling from a more heterogeneous population. Although data were collected at two points in time from the first group in 1996 and twice from another group in 1998, this is not a true panel study because we are not able to match individual questionnaires from one time to the next. Thus, our data do not permit us to specify optimally the causal ordering of the variables in our models (Campbell and Stanley, 1963:64ff; Rubin and Babble, 1997:274ff). In addition, because our findings are based only on the self-reports of the eighth graders themselves without connecting evidence from their parents and friends, it is possible that the influence of peers is inflated while the influence of parents is underestimated. Kandel (1996) finds that such a bias is particularly apt to occur in cross-sectional designs. We need to be clear also

that our measures tap only the respondents' reported *perceptions* of their friends' attitudes and behaviors which may or may not accurately reflect reality (Wilcox and Udry, 1986). Finally, there is strong evidence that pubertal development is an important variable in explaining both male and female sexual behavior (Halpern *et al.*, 1997; Udry, 1988). Although the difficulties of collecting blood-sample data to measure this variable made it impossible in our research, such measurements should be included in future studies whenever possible.

## DISCUSSION AND CONCLUSIONS

Our data collection from eighth grade public school students during two school years, 1996 and 1998, and statistical modeling over four points in time within those two years, have provided a unique opportunity to add to our knowledge about why early-teens initiate consensual sexual activity. The most important findings have to do with risk behaviors, differences between boys and girls, when respondents are surveyed, the weight of parental versus peer influence on early-teen sexual activity, and community context.

### Risk Behaviors

Marijuana use or having been drunk are regular, statistically significant predictors of reported early-teen consensual sexual activity. At least one of these risk behaviors appears as a significant variable in all four waves of our surveys, in the samples overall, and separately for males and females. By the end of the eighth grade, having used marijuana is a significant variable in all of our models, overall and for boys and girls separately. Our results coincide with previous findings interpreted as evidence of a "problem behavior syndrome" characteristic of some adolescents that includes smoking, drinking, drug use, and sexual activity (Devine *et al.*, 1993; Donovan and Jessor, 1985; Elliott and Morse, 1989; Jessor and Jessor, 1977).

### Differences by Sex

At the eighth grade level, our findings strongly suggest that the social setting of consensual sexual activity tends to be different for boys and girls. Having a boyfriend is a more consistent, significant predictor variable for girls than having a girlfriend is for boys, across all of our surveys. In addition, our January 1996 results showed that boys' estimates of whether their friends

were having sex was clearly the most statistically significant predictor of their sexual activity while for girls it was how their friends would feel about them having sex, followed by marijuana use. Based on these results, combined with our findings from teen focus groups in the community, we have hypothesized that boys may be inclined to initiate sex as a mechanism of status-seeking while girls do so more as a way of attaining approval and love in an intimate, dating (boyfriend) relationship. We believe that this hypothesis is certainly in accord with our data, that some recent work points in the same direction (Beutel and Marini, 1995; Billy and Udry, 1985a; Kless, 1992), and that it is worth pursuing in future research.

Even at its present level of verification, this hypothesis suggests that educational interventions intended to delay sexual involvement might be improved by tailoring different messages to young adolescent boys and girls. For boys it would be important to emphasize that they should not overestimate the number of their peers who are having sex along with an attempt to delegitimize sexual conquest as a measure of status attainment. For girls, and to a lesser but important extent for boys, emphasis should be on the potential social costs levied by peers who disapprove of sexual activity in addition to learning the communications skills to maintain a romantic relationship without sexual intercourse. Moore and Sugland (1997) classify various possible behavioral theories supporting the design of abstinence programs. Our findings imply that the *social and cognitive skills model* (Gilchrist and Schinke, 1983) and *utility maximization perspectives* (Hingson *et al.*, 1990; Moore *et al.*, 1986) may be particularly fruitful as theoretical foundations for the development of abstinence interventions.

### **When Respondents Are Surveyed**

It matters exactly when respondents are asked about their sexual activity. For example, when comparing our modeling results between January and June of both years, 1996 and 1998, the power of having a boyfriend or girlfriend as a predictor of sexual activity increases. It is possible, of course, that having had consensual sex increases a girl's likelihood of subsequently having a boyfriend. Because our data do not permit us to unravel this question of causal direction, we offer this issue as a promising target for subsequent research.

### **Parents and Peers**

Our findings do not give clear primacy to parents or peers as an influence on early-teen consensual sexual activity. "Parental" variables such as

family structure and perceived parental norms that can be taken as “control theory” variables do turn up as significant predictors in our model. “Peer” variables such as the perceptions of friends’ behavior and perceptions about how friends would feel that can be interpreted as “differential association” indicators are powerful predictors as well. Our finding of at least some support for both the control and differential association theories agrees with previous studies of teen sexual behavior (Benda and DiBlasio, 1991, 1994; DiBlasio and Benda, 1994). In addition, however, our study contributes some apparent specification as it relates to community context.

### Community Context

This study provides evidence that community context matters. During the 2 years between the first two waves of our data collection and the second two waves, many people in the community—health educators, teachers, religious leaders, and those in the media—worked on helping parents and youngsters communicate more effectively about sex. Our data showed that in January 1996 “peer” variables were very important predictors of the eighth graders’ sexual activity, overall, and for boys and girls separately (although the specific peer variables were different for each sex). In January 1998, how parents would feel about learning that the teen was having sex emerged as a very strong predictor overall, and as a significant predictor for boys and girls separately. At least three things happened simultaneously during this 2-year period: (1) The community intensified its ZAP program activities. (2) Among eighth grade students at mid-academic-year, parental attitudes became far more important in explaining whether a teen reports having had consensual sexual intercourse. (3) The reported teen sexual activity among eighth graders declined 27%.<sup>11</sup> While only a true experiment could unequivocally establish the causal relationships among these variables, our findings do suggest that the community context created by a coordinated, concentrated effort might make a difference in how early-teens think about their sexual activity and how they behave.

<sup>11</sup>This substantively important decline from 1996 to 1998 just fails to reach the level of statistical significance. However, preliminary data collected in January 2000 reveal that 251 eighth grade respondents from the same two schools in the county now have 10% reporting ever having engaged in consensual sex. Thus, between 1996, 1998, and 2000, the rate has dropped from 25% to 18% to 10%. The difference between 1996 and 2000 is statistically significant ( $p < 0.001$ ), as is the difference between the 1998 and 2000 rates ( $p < 0.01$ ).

## ACKNOWLEDGMENTS

We are grateful to Jamie Dangler, Herb Haines, Beth Hess, Lisa Hoeschel, Tim Prenzler, and Murray Straus for their helpful comments on our paper.

## REFERENCES

- Akers, Ronald L., Marvin D. Krohn, Lonn Lanza-Kaduce, and Marcia Radosevich**  
1979 "Social learning and deviant behavior: A specific test of a general theory." *American Sociological Review* 44:635-655.
- Alan Guttmacher Institute**  
1994 *Sex and American Teenagers*. New York: AGE.  
1998 *Facts in Brief: Teen Sex and Pregnancy*. [http://www.agi-org/pubs/fb\\_teen\\_sex.html](http://www.agi-org/pubs/fb_teen_sex.html)
- Baker, Sharon A., Stanton P. Thalberg, and Diane M. Morrison**  
1988 "Parents' behavioral norms as predictors of adolescent sexual activity and contraceptive use." *Adolescence* 23:265-282.
- Benda, Brent B., and Robert Flynn Corwyn**  
1998 "Adolescent deviant behavior: Multiple contingency table analyses of overlap between behaviors." *Journal of Social Service Research* 24:29-59.
- Benda, Brent B., and Frederick A. DiBlasio**  
1991 "Comparison of four theories of adolescent sexual exploration." *Deviant Behavior* 12:235-257.  
1994 "An integration of theory: Adolescent sexual contacts." *Journal of Youth and Adolescence* 23:403-420.
- Benda, Brent B., Frederick A. DiBlasio, and Michael T. Kashner**  
1994 "Adolescent sexual behavior: A path analysis." *Journal of Social Service Research* 19:49-69.
- Beutel, Ann M., and Margaret Mooney Marini**  
1995 "Gender and values." *American Sociological Review* 60:436-448.
- Billy, John O. G., Joseph Lee Rodgers, and J. Richard Udry**  
1984 "Adolescent sexual behavior and friendship choice." *Social Forces* 62:653-678.
- Billy, John O., and J. Richard Udry**  
1985a "The influence of male and female best friends on adolescent sexual behavior." *Adolescence* 20:21-32.  
1985b "Patterns of adolescent friendship and effects on sexual behavior." *Social Psychology Quarterly* 48:27-41.
- Brewster, Karin L., John O. Billy, and William R. Grady**  
1993 "Social context and adolescent behavior: The impact of community on the transition to sexual activity." *Social Forces* 71:713-740.
- Campbell, Donald T., and Julian C. Stanley**  
1963 *Experimental and Quasi-Experimental Design for Research*. Chicago: Rand McNally.
- Carroll, J. L., K. D. Volk, and J. S. Hyde**  
1985 "Differences between males and females in motives for engaging in sexual intercourse." *Archives of Sexual Behavior* 14:131-139.
- Center for Disease Control**  
1998 "Trends in sexual behavior among high school students—United States, 1991-1997." *Morbidity and Mortality Weekly Report* 47:749-752.
- Cooksey, Elizabeth C., Ronald R. Rindfuss, and David K. Guilkey**  
1996 "The initiation of adolescent sexual contraceptive behavior during changing times." *Journal of Health and Social Behavior* 37:59-74.
- DeGaston, Jacqueline F., Larry Jensen, and Stan Weed**  
1995 "A closer look at adolescent sexual activity." *Journal of Youth and Adolescence* 24:465-479.
- DeGaston, Jacqueline F., Stan Weed, and Larry Jensen**  
1996 "Understanding gender differences in adolescent sexuality." *Adolescence* 31:217-231.

**Devine, Danielle, Patricia Long, and Rex Forehand**

1993 "A prospective study of adolescent sexual activity: Description, correlates and predictors." *Advances in Behavior Research and Therapy* 15:185-209.

**DiBlasio, Frederick A., and Brent B. Benda**

1990 "Adolescent sexual behavior: Multivariate analysis of a social learning model." *Journal of Adolescent Research* 5:449-466.

1992 "Gender differences in theories of adolescent sexual activity." *Sex Roles* 27:221-239.

1993 "Adolescent sexual intercourse: Family and peer influences." *School Social Work Journal* 18:17-31.

1994 "A conceptual model of sexually active peer association." *Youth and Society* 25:351-367.

**Donovan, Patricia**

1998 "Falling teen pregnancy, birthrates: What's behind the declines?" *The Guttmacher Report on Public Policy* 1:6-9. <http://206.215.210.5/pubs/journals/gr010506.html>

**Donovan, John E., and R. Jessor**

1985 "Structure of problem behavior in adolescence and young adulthood." *Journal of Consulting and Clinical Psychology* 53:890-904.

**Dornbusch, Sanford M., J. Merrill Carlsmith, Steven J. Bushwall, Philip L. Ritter, Herbert Leiderman, Albert H. Hastorf, and Ruth T. Gross**

1985 "Single parents, extended households, and the control of adolescents." *Child Development* 56:326-341.

**Elliott, Delbert S., and Barbara J. Morse**

1989 "Delinquency and drug use as risk factors in teenage sexual activity." *Youth and Society* 21:32-60.

**Flewelling, Robert L., and Karl E. Bauman**

1990 "Family structure as a predictor of initial substance use and sexual intercourse in early adolescence." *Journal of Marriage and the Family* 52:171-180.

**Forste, Renata T., and Tim B. Heaton**

1988 "Initiation of sexual activity among female adolescents." *Youth and Society* 19:250-268.

**Gilchrist, Lewayne D., and Steven P. Schinke**

1983 "Coping with contraception: Cognitive and behavioral methods with ado-

lescents." *Cognitive Therapy and Research* 7:379-388.

**Gottfredson, Michael, and Travis Hirschi**

1990 *A General Theory of Crime*. Stanford, CA: Stanford University Press.

**Halpern, Carolyn Tucker, J. Richard Udry, and Chrayath Schindran**

1997 "Testosterone predicts initiation of coitus in adolescent females." *Psychosomatic Medicine* 59:161-171.

**Harris, Judith Rich**

1998 *The Nurture Assumption: Why Children Turn Out the Way They Do*. New York: Free Press.

**Hayes, Cheryl (ed.)**

1987 *Risking the Future: Adolescent Sexuality, Pregnancy, and Childbearing*. Vol. 1. Washington, DC: National Academy Press.

**Henry, Andrew F., and James F. Short**

1954 *Suicide and Homicide*. Glencoe, IL: Free Press.

**Hingson, Ralph W., L. Strunin, Beth M. Berlin, and Timothy Heeren**

1990 "Beliefs about AIDS, use of alcohol, drugs and unprotected sex among Massachusetts adolescents." *American Journal of Public Health* 80:295-299.

**Hirschi, Travis**

1969 *Causes of Delinquency*. Berkeley, CA: University of California Press.

**Hogan, Dennis, and Evelyn Kitagawa**

1985 "The impact of social status, family structure, and neighborhood on the fertility of Black adolescents." *American Journal of Sociology* 90:825-836.

**Howard, Marion, and Judith Blamey McCabe**

1990 "Helping teenagers postpone sexual involvement." *Family Planning Perspectives* 29:21-26.

**Huizinga, David, Rolf Loeber, and Terrence P. Thornberry**

1993 "Longitudinal study of delinquency, drug use, sexual activity, and pregnancy among children and youth in three cities." *Public Health Reports* 108:90-96.

**Janus, Samuel S., and Cynthia L. Janus**

1985 "Children, sex, peers and culture: 1973-1983." *Journal of Psychotherapy* 12:363-369.

**Jessor, Richard, and Sirley L. Jessor**

1977 *Problem Behavior and Psychosocial Development: A Longitudinal Study*

of Youth. New York: Academic Press.

**Kandel, Denise B.**

1996 "The parental and peer contexts of adolescent deviance: An algebra of interpersonal influences." *Journal of Drug Issues* 26:289-315.

**Kids Count**

1998 "When teens have sex: Issues and trends." A Kids Count Special Report, The Annie E. Casey Foundation. <http://www.aecf.org/acepub/teen/overview/overview.htm>

**Kirby, Douglas, and Karin Coyle**

1997 "School-based programs to reduce sexual risk-taking behavior." *Children and Youth Services Review* 19:415-436.

**Kirby, Douglas, Meg Korpi, Richard P. Barth, and Helen H. Cagampang**

1997 "The impact of the postponing sexual involvement curriculum among youths in California." *Family Planning Perspectives* 29:100-108.

**Kless, Steven J.**

1992 "The attainment of peer status: Gender and power relationships in the elementary school." *Sociological Studies of Child Development* 5:115.

**Koch, Kathy**

1998 "Encouraging teen abstinence." *The CQ Researcher* 8:577-600.

**Lords, K. K.**

1991 *Gender, Age, and Virgin/Nonvirgin Differences on the Reasons Adolescents Choose Not to Become Sexually Active*. Masters Thesis, Brigham Young University.

**Luker, Kristin**

1996 *Dubious Conceptions: The Politics of Teenage Pregnancy*. Cambridge, MA: Harvard University Press.

**Menard, Scott**

1995 *Applied Logistic Regression Analysis*. Thousand Oaks, CA: Sage.

**Miller, Brent C., and C. Raymond Bingham**

1989 "Family configuration in relation to the sexual behavior of female adolescents." *Journal of Marriage and the Family* 51:499-506.

**Miller, Brent C., Kelly J. McCoy, and Terrence D. Olsen**

1986 "Parental discipline and control attempts in relation to adolescent sexual attitudes and behavior." *Journal*

*of Marriage and the Family* 48:503-512.

**Miller, Brent C., and Kristin A. Moore**

1990 "Adolescent sexual behavior, pregnancy, and parenting: Research through the 1980s." *Journal of Marriage and the Family* 52:1025-1044.

**Moore, Kristin A., B. C. Miller, B. W. Sugland, D. R. Morrison, D. Gleit, and C. Blumenthal**

1995 *Beginning Too Soon: Adolescent Sexual Behavior, Pregnancy, and Parenthood*. Washington, DC: Child Trends.

**Moore, Kristin A., Margaret C. Simms, and Charles L. Betsey**

1986 *Choice and Circumstance: Racial Differences in Adolescent Sexuality*. New Brunswick, NJ: Transaction Books.

**Moore, Kristin, and Barbara W. Sugland**

1997 "Using behavioral theories to design abstinence programs." *Children and Youth Services Review* 19:485-500.

**Mott, Frank L., and R. Jean Haurin**

1988 "Linkages between sexual activity and alcohol and drug use among American adolescents." *Family Planning Perspectives* 20:128-136.

**Newcomer, Susan F., M. Gilbert, and J. Richard Udry**

1980 "Perceived and actual same sex peer behavior as determinants of adolescent Sexual behavior." Paper Presented at the Annual Meeting of the American Psychological Association.

**Newcomer, Susan F., and J. Richard Udry**

1987 "Parental marital status effects on adolescent sexual behavior." *Journal of Marriage and the Family* 49:235-240.

**Parker, Douglas A., Thomas C. Harford, and Irwin M. Rosenstock**

1994 "Alcohol, other drugs, and sexual risk-taking among young adults." *Journal of Substance Abuse* 6:87-93.

**Rogers, Joseph Lee, and David C. Rowe**

1990 "Adolescent sexual activity and mildly deviant behavior: Sibling and friendship effects." *Journal of Family Issues* 11:274-293.

**Rosenbaum, Emily, and Denise B. Kandel**

1990 "Early onset of adolescent sexual behavior." *Journal of Marriage and the Family* 52:783-798.

**Rubin, Allen, and Earl Babbie**

1997 *Research Methods for Social Work*, 3rd edn. Albany, NY: Brooks/Cole.

**Small, Stephen A., and Tom Luster**

1994 "Adolescent sexual activity: An ecological risk-factor approach." *Journal of Marriage and the Family* 56:181-192.

**Smith, Carolyn A.**

1997 "Factors associated with early sexual activity among urban adolescents." *Social Work* 42:334-346.

**Smith, D. A., and C. A. Visher**

1980 "Sex and involvement in deviance/crime: A quantitative review of the empirical literature." *American Sociological Review* 45:691-701.

**Straus, Murray**

1998 "Theoretical model of links between corporal punishment and early pregnancy." Unpublished draft.

**Sutherland, Edwin H.**

1939 *Criminology*. New York: Lippincott.

**Thornton, Arland**

1990 "The courtship process and adolescent sexuality." *Journal of Family Issues* 11:239-273.

**Thornton, Arland D., and D. Camburn**

1987 "The influence of the family on premarital sexual attitudes and behavior." *Demography* 24:323-340.

**Udry, J. Richard**

1988 "Biological predispositions and social control in adolescent sexual behavior." *American Sociological Review* 53:709-722.

**Upchurch, Dawn M., Lene Levy-Storms, Clea A. Sucoff, and Carol S. Aneshensel**

1998 "Gender and ethnic differences in the timing of first sexual intercourse." *Family Planning Perspectives* 30:121-126.

**Whitbeck, Les B., Rand D. Conger, and Meei-Ying Kao**

1993 "The influence of parental support, depressed affect, and peers on the sexual behaviors of adolescent girls." *Journal of Family Issues* 14:261-278.

**Whitbeck, Les B., Ronald L. Simons, and Elizabeth Goldberg**

1996 "Adolescent sexual intercourse." In Ronald L. Simons (ed.), *Understanding Differences Between Divorced and Intact Families: Stress, Interaction and Child Outcome*: 144-156. Thousand Oaks, CA: Sage.

**Whitley, B. E.**

1988 "The relation of gender-role orientation to sexual experience among college students." *Sex Roles* 19:619-635.

**Wilcox, Steven, and J. Richard Udry**

1986 "Autism and accuracy in adolescent perceptions of friends' sexual attitudes and behavior." *Journal of Applied Social Psychology* 16:361-374.

**Yamaguchi, Kazuo, and Denise Kandel**

1987 "Drug use and other determinants of premarital pregnancy and its outcome: A dynamic analysis of competing life events." *Journal of Marriage and the Family* 49:257-270.

