

Demographic, Biological, Psychological, and Social Predictors of the Timing of First Intercourse

Laurie L. Meschke

University of Minnesota

Janine M. Zweig

Urban Institute

Bonnie L. Barber

University of Arizona

Jacquelynne S. Eccles

University of Michigan

This study applied a biopsychosocial approach to examine the predictors of the initiation of sexual intercourse during adolescence. The sample included 157 boys and 268 girls, of whom 85.4% reported having had sexual intercourse by age 21 to 22. Participants were surveyed at 3 time points; once when they were 13 to 14 years old, again at ages 16 to 17 years, and again 6 years later. Proportional hazards regression was used to examine the relation of demographic, biological, psychological, and social predictors to the timing of first intercourse. In the biopsychosocial model, different factors significantly predicted timing of first intercourse for girls and boys. For girls, always-married parents and less dating alone predicted later timing of first intercourse. Earlier timing of first intercourse for boys was related to associating with peers with lower achievement orientation and greater importance of popularity.

Adolescence is a key time to study the development of sexuality and sexual behavior patterns because this is when most individuals first experience sexual intercourse. In 1992, for example, over 60% of never-married youth, ages 14 to 21, reported having had sexual intercourse (U.S. Department of Health and Human Services, 1995). However, despite being a normative event during adolescence, the exact timing of first intercourse raises a variety of issues for individuals. For example, girls who have first intercourse earlier than average (between the ages of 10 and 14) tend to have more sex partners, a higher likelihood of having sex with high-risk men (e.g., HIV positive), and a greater risk for sexually transmitted infections (STIs; Greenberg, Magder, & Aral, 1992). In contrast, girls who have first intercourse later than average tend to have lower self-esteem and poorer social relationships than their peers (Crockett, Bingham, Chopak, & Vicary, 1996). Thus, the timing of first sexual intercourse warrants particular attention when examining sexual development.

Sexual behavior, like any other behavior, is a result of multiple domains of influence, including biological, psychological, and social influences. The idea that behavior is a result of multiple domains of influence has been discussed by many scholars who examine how these domains relate to one another and to individual behaviors (Ford & Lerner, 1992; Magnusson, 1988; Petersen, 1987). Individuals exist in a social context with which they interact in a reciprocal process, both influencing and being influenced by social factors. Social processes often interact with biological and psychological factors to produce subsequent behavior of individuals (see review by Susman, 1997). Thus, incorporating biological, social, and psychological domains in a single model of development should provide a more comprehensive explanation of a particular behavior.

In her influential discussion of sexuality and adolescence, Chilman (1983) argued that the development of sexual behavior needs to be understood from a holistic perspective including physical, psychological, and social influences. Although many factors are being studied in current research on adolescent sexuality (e.g., demographic factors, Heaton & Jacobson, 1994; biological factors, Rowe, Rodgers, & Meseck-Bushey, 1989; and social factors, DiBlasio & Benda, 1992), few studies are comprehensive and include factors from each domain of influence. Researchers of sexual behavior have often focused on one or two domains of influence at one time (e.g., demographic factors, Miller & Bingham, 1989; or biological and social factors, Smith, 1989). The few studies using comprehensive, multidimensional models (Bingham, Miller, & Adams, 1990; Crockett et al., 1996) have demonstrated the importance of incorporating each domain of influence into models predicting sexual behavior. Thus, in this article we use a biopsychosocial perspective to examine the timing of first sexual inter-

course during adolescence, in addition to biosocial and biopsychological models.

The models are tested using proportional hazards regression. This method addresses two limitations that exist for much of the body of research on timing of first intercourse. With only a few exceptions (Capaldi, Crosby, & Stoolmiller, 1996; Costa, Jessor, Donovan, & Fortenberry, 1995; Heaton & Jacobson, 1994; Meschke & Silbereisen, 1997), most researchers examining the timing of adolescents' sexual behavior have used undifferentiated categories based on the relative timing of first intercourse as the dependent variable, that is, early versus late (e.g., Crockett et al., 1996; Tubman, Windle, & Windle, 1996). This approach has two major problems: (a) It artificially reduces the variance available to be explained, and (b) it makes it difficult to include those adolescents who are sexually inexperienced. Proportional hazards regression allows for both the use of the actual age of first intercourse as the dependent variable and the inclusion of persons who have not yet experienced intercourse (Allison, 1984). To allow readers to compare the two approaches, both are presented in this article; however, the primary focus is on the results of the proportional hazards regression. The following discussion highlights important predictors of sexual behavior from within the biological, psychological, and social domains.

PREDICTORS OF FIRST SEXUAL INTERCOURSE

Biological Influences

Biological maturation, or pubertal change, initiates the adolescent phase of life (Petersen, 1987). Pubertal development begins with the production of hormones that have a direct influence on sexual motivation by increasing libido (Smith, 1989; Udry & Billy, 1987) and also an indirect influence on sexual involvement by initiating change in physical appearance through the development of secondary sex characteristics (Brooks-Gunn & Graber, 1994; Smith 1989). Given both of these types of influence, one would expect individuals who reach puberty at younger ages to also participate in sexual behavior (including intercourse) at younger ages.

The influence of pubertal changes on sexual behavior have been found to vary by gender, with pubertal development emerging as a better predictor of sexual behavior for boys than girls (Crockett et al., 1996; Udry & Billy, 1987). Social factors, such as parental control and gender role expectations, could explain these differences. For example, although adult physical appearance, such as breast or beard growth, may indicate to potential

partners that an individual is sexually mature despite his or her chronological age, greater social constraints on female sexual behavior may decrease the predictive power of such biological development for girls (Petersen, 1987). Social mores regarding the appropriate age to participate in sexual activity and an individual's value system may limit sexual behavior regardless of the person's physical maturation. Thus, pubertal timing precedes psychological and social factors in the models. When the social measures are significant predictors of first intercourse, the moderation of the relation between pubertal timing and first intercourse by social factors is also considered.

Psychological Influences

Psychological factors have been included in models predicting the timing of first intercourse via a variety of ways, including attitudes, values, and emotional adjustment (Miller, Norton, Fan, & Christopherson, 1998; Tubman et al., 1996). Stack (1994) implied that premarital sexual behavior may be used as an aid when developing friendships, particularly when adolescents move repeatedly, as sex may serve as a way to combat loneliness. Evidence also suggests that both girls and boys have sex even when they do not want to in response to peer pressure or desires to be popular (Erickson & Rapkin, 1991; Muehlenhard & Cook, 1988). Thus, values placed on popularity appear to encourage decisions to participate in sexual behavior. If adolescents hold these values and perceive sexual behavior as an important way to become popular, they may participate in sexual activity earlier than adolescents who hold alternative values.

Emotional adjustment may also influence whether or not an individual participates in sexual activity. For example, higher levels of depression have been found to predict earlier initiation of sexual intercourse (Tubman et al., 1996). Sexual activity may serve as a coping mechanism, or a way for adolescents to temporarily "feel better" about themselves or situations. Thus, the importance of popularity to the adolescent and depressed mood are included as psychological factors in the models.

Social Influences

Social factors have also been emphasized in studies of the timing of first intercourse. Several researchers (Petersen, 1987; Smith, 1989; Udry, 1990) have suggested that sexual behavior may be influenced more by social constraints than biological influences. A person may experience an increase in

libido, but not act on it due to established norms of sexual behavior. Of particular interest are the social realms of family and peers.

The nature of family processes during adolescence may increase or decrease an adolescent's likelihood of participating in sexual activity. Parental control and regulation has been quite consistently related to adolescent sexual behavior (see review by Miller, 1998). Higher levels of parental supervision and control have been associated with a later age of first intercourse for both boys and girls (Hogan & Kitagawa, 1985; Ku, Sonenstein, & Pleck, 1993). In addition to adolescents' perceptions of overall parental control in their lives, curfews provide a more specific avenue by which parents may attempt to better supervise their adolescent's dating behavior. Although having a curfew in and of itself will not prevent sexual activity, it may limit the opportunity adolescents have for sexual activity.

Peers are another source of information and influence particularly regarding sexual behavior. Zelnik (1983) found that most 15- to 17-year-old sexually experienced girls (68.7%) had their first intercourse in an engaged or steady relationship. As expected, having a boyfriend or girlfriend is a significant predictor of adolescent sexual activity (Scott-Jones & White, 1990). Indeed, persons who date at an earlier age also have steady relationships at an earlier age and report being more sexually active during their late teen years (Thornton, 1990). With these findings in mind, the frequency with which an adolescent is dating alone in 7th grade (unchaperoned and without other peers) may also be related to an earlier age of first intercourse.

Peer groups also furnish information about sexual attitudes, act as role models of sexual behavior, and provide opportunities for adolescents to participate in sexual activity (Smith, 1989). Peers have been shown to be more influential than parents in predicting earlier initiation of sexual intercourse (Costa et al., 1995; Wyatt, 1989). School is a context in which adolescents develop and maintain friendships and peer groups. When students are tracked at a certain academic level, they spend a great deal of time in classes with the same students during a particular school day. Peer group associations may develop during classes as a result of this.

Fuligni, Eccles, and Barber (1995), examining the data used in this article, reported that ability groupings were significantly related to an individual's association with achievement-oriented peers. Persons in higher ability tracks reported having higher achievement-oriented peers. This was true despite the fact that neither the individual's ability level alone nor the interaction between ability and ability tracks had a significant effect on peer achievement orientation. In other words, school track, independent of one's ability, was strongly associated with the characteristics of one's peers, particularly achievement orientation, which, in turn, has been

shown to influence adolescent sexual behavior (Grunbaum & Basen-Engquist, 1993; Scott-Jones & White, 1990). Therefore, school educational track reflects the extent to which one affiliates with achievement-oriented peers. The social measures in the models include parental control, having a weekend curfew, dating alone (vs. group dating), and peer achievement.

Demographic Variables

Additionally, we are interested in the predictive power of a biopsychosocial model above and beyond the contribution of those demographic factors shown to predict the onset of adolescent sexual behavior (DiBlasio & Benda, 1992). Therefore, demographic factors (married parents and maternal education) were included in all models. Adolescents growing up in intact families (Newcomer & Udry, 1987) and having highly educated mothers (Heaton & Jacobson, 1994) have reported later timing of first sexual activity. Finally, in recognition of gender differences and influences on behavior, such as the association between pubertal development and timing of first intercourse, each model is examined separately by gender.

Goals of this study. This study has two goals. First, differences in biological, psychological, and social factors are examined by groups based on the timing of first intercourse. Second, the timing of first sexual intercourse is examined by applying a variety of models. Specifically, four different models were tested: biological, biopsychological, biosocial, and biopsychosocial. It was expected that the full biopsychosocial model would significantly predict the timing of first intercourse above and beyond the prediction of the other three models.

METHOD

Sample

The data used in this study come from Waves 4, 5, and 7 of the Michigan Study of Adolescent Life Transitions (MSALT; for full sample details, see Eccles et al., 1989). MSALT began in 1983 when the respondents were in 6th grade in 10 school districts in southeastern Michigan. Wave 4 data were collected in 1985 when the respondents were in Grade 7, ages 13 to 14. Wave 5 data were collected in 1988 when the respondents were approximately 16

and 17 years old. Wave 7 data were collected in 1992 and 1993 when the respondents were about 21 and 22 years old.

Data from Waves 4 and 5 were used to examine the proximal correlates of first sexual intercourse. In this sample, one person (less than 1% of the sample) reported having sexual intercourse prior to Wave 4 and approximately 11.5% of the respondents reported having first intercourse prior to Wave 5. Retrospective reports from Wave 7 data were used to estimate the age at which first sexual intercourse occurred. Requiring that respondents participated in Waves 4, 5, and 7 yielded a subsample of 170 boys and 299 girls. The sample is primarily middle or working class, from small urban or suburban communities, and White (over 90%). Race has been found to be a significant correlate of the timing of first intercourse (The Alan Guttmacher Institute [AGI], 1994); however, the unequal distribution of the respondents by race does not allow comparisons by race to be made.¹ Thus, only White respondents were included in the analyses. This restriction limited the sample to 157 boys and 268 girls. Of this subsample, 85.4% reported having had voluntary sexual intercourse at Wave 7.

Analyses of Sample Bias

Two issues are likely to have contributed to a biased study sample: (a) Respondents were required to have data for each of the measures for three waves of data collection, and (b) sample bias often occurs in longitudinal samples. Specifically, there was a concern that those persons included in this study may have differed from the excluded (nonstudy) respondents on factors associated with this study. A base sample was created to determine whether there was a difference between the participants who had responded to the surveys at Waves 4, 5, and 7 (study sample) and those persons who reported about pubertal timing at Wave 5 but were missing data from Waves 4, 7, or both. Wave 5 was chosen as the base sample because the funding for MSALT was restricted during this wave of data collection, making it impossible to collect data for all original school districts. Thus, some earlier respondents were excluded without any choice on their part. The Wave 5 base sample included 1,124 persons (628 girls and 496 boys), of which 37.8% (425) were in the study sample. From the nonstudy portion of

¹The breakdown of the sample by race follows: 425 respondents (90.6%) are White, not of Hispanic background; 24 (5.1%) are African American; 5 (1.1%) are Asian American; 1 is Latino (.2%); 2 are Native American (.4%); 1 is other (.2%); 1 is mixed, unspecified (.2%); 3 are White/Black (.6%); 3 are White/Latino (.6%); 1 (.2%) is White/Native American; and 3 (.6%) did not report race.

the base sample, 178 persons (92 girls and 86 boys) were missing at Wave 4. An additional 467 (230 girls and 237 boys) were missing data at Wave 7. Ten of the respondents were excluded from the study sample, as they did not report the educational status of their mother and 44 were excluded due to the race variable. Specifically, 17 girls and 7 boys were not White and 20 respondents did not report their race.

The analyses were divided into two parts, depending on whether the variables examined were categorical or continuous. The measures included in the analyses reflect those used in the study. These measures are described in the "Measures" section. The categorical variables included gender, maternal education, and married parents. The continuous variables included pubertal timing (grade), importance of popularity, depressed mood, alone on a date, curfew on weekend, parental control, peer achievement, and age of first intercourse (if experienced).

In examining the categorical set of variables, the study sample was comprised of a higher percentage of girls, 63.1%, $\chi^2(1, N = 1,124) = 14.32, p < .001$ than the attrition sample (51.5% female). No significant differences were found in the distribution of college-educated mothers or married parents by sample membership. *T* tests were used to examine potential differences in the mean levels of continuous measures by sample. The study sample had significantly higher levels of depressed mood ($M = 2.80$), $t = -2.46, p < .05$, and peer achievement ($M = 2.75$), $t = -5.96, p < .001$, than the nonstudy sample ($M = 2.66$ and $M = 2.37$, respectively). The study sample also reported less dating alone ($M = 1.66$), $t = 4.36, p < .001$, than the nonstudy sample ($M = 1.90$). No differences between the groups were found for pubertal timing, parental control, importance of popularity, weekend curfew, or age of first intercourse.

In sum, 4 of the 10 variables of interest differed significantly between the attrition and the study samples. It appears that the study sample may have had advantages over the attrition sample that would delay their timing of intercourse: higher percentage of girls, more association with high-achieving peers, and less dating alone. Yet the study sample also reported higher levels of depressed mood, which has been associated with earlier initiation. However, despite the differences for these predictors, it is important to note that no mean differences were found for the critical variable of interest: the age of first intercourse.

Measures

The dependent variable was age of first voluntary sexual intercourse. This construct was measured by the question, "Have you ever voluntarily had sexual intercourse? If yes, how old were you the first time (in years)?"

Mixed findings exist about using retrospective reports of the timing of first intercourse. Newcomer and Udry (1988) found that only 7% gave a false report of first intercourse when they were asked initially. Alexander, Somerfield, Ensminger, Johnson, and Kim (1993) found that 67% of their respondents were inconsistent in reports of first sexual intercourse. Both studies focused on junior high and early high school reports. Further MSALT data are not available to test the reliability of the dependent measure.

Two versions of the timing of first intercourse were used in the analyses. The first, Sex Group (a three-level categorical variable) was used for descriptive analyses: *Earlier* (intercourse before age 16), *Later* (intercourse at or after age 16), and *Inexperienced*. The second was designed for proportional hazards regression: If the person had had voluntary intercourse, then the variable value was the age at which first intercourse occurred; if the person was sexually inexperienced, then the variable was the respondent's age at the time he or she filled out the Wave 7 questionnaire. Of the persons who reported being sexually experienced at Wave 7 ($n = 371$), no difference was found in the age of first voluntary intercourse between boys ($M = 16.27$, $SD = 1.96$) and girls ($M = 16.24$, $SD = 1.75$), $t(363) = -.15$, $p > .10$.

The predictors, taken primarily from the Wave 4 data, represent four categories: demographic, biological, psychological, and social predictors. The two demographic predictors were parental marital status and maternal education. Parental marital status from Wave 7 was based on the question, "Are your parents currently married and living together?" (1 = *yes*, 0 = *no*). Of the 285 respondents stating "yes," over 95% reported that this status was true for 15 years or longer. Thus, a value of 1 refers to currently married parents and 0 is other. Maternal education (Wave 5) was the educational level reported by the adolescent for his or her mother. The education measure was restructured into three levels: 1 (*less than high school*), 2 (*high school graduate*), and 3 (*some college*). Over 55% of the sample reported that their mothers had some college education at Wave 5. No difference emerged by gender: girls ($M = 2.38$, $SD = .72$); boys ($M = 2.51$, $SD = .72$), $t(425) = -1.73$, $p < .10$.

The biological predictor, measured at Wave 5, was a retrospective report of pubertal status. Boys responded to the question, "Kids your age grow at different rates, but usually everyone has a time when they grew faster than at other ages. Has this happened to you yet? If yes, what grade were you in when this happened?" and girls answered, "Have you had your first period yet? If yes, when did you get it?" The answers ranged from Grades 5 to 10, with a mean response value of 6.82 ($n = 268$) for girls and 7.64 ($n = 157$) for boys. Two of the girls had not experienced menarche by Wave 5 and were dropped from the analyses.

Given the retrospective nature of this measure, steps were taken to support its reliability. Respondents had reported on identical measures of pubertal timing in both Waves 5 (10th grade) and 6 (12th grade). Correlation analyses confirmed that a significant correlation between the two waves of data occurred for both boys ($\alpha = .72; r = .56; p < .001; n = 62$) and girls ($\alpha = .57; r = .42; p < .001; n = 119$). Furthermore, almost half of the respondents (48.6%) reported the same grade of pubertal development for both years, and an additional 32.0% were within 1 year when comparing the measures from Waves 5 and 6.

Two predictors were included as psychological measures. Alpha levels reported refer to the subsample of MSALT participants used in this study. The scale score for each respondent was the unit-weight mean value of all the items included in the scale. Each item was commonly answered on a 7-point Likert-type scale.

Importance of Popularity, Wave 4 ($\alpha = .72$), included two items: "For me, being popular is _____" and "How important is it to you to be popular with girls (boys)?" ; 1 (*not at all important*) to 7 (*very important*).

Depressed Mood, Wave 4 ($\alpha = .75$), was measured with three items: "How often do you lose your appetite or eat a lot when upset?" "How often do you feel unhappy, sad, or depressed?" and "How often do you feel lonely?" ; 1 (*never*) to 5 (*very often*).

Four social context predictors were examined. Again, the respondent's scale score was the mean value for the variables comprising each scale and each item was answered on a 4- or 7-point Likert-type scale.

Alone on a Date, Wave 4, was based on one question: "How often do you go out with a boy (girl) alone?" ; 1 (*never*) to 4 (*very often*).

Curfew on Weekend, Wave 4, was also based on one question: "When you're out with your friends on a weekend night do your parents set a time you have to be home?" ; 1 (*never*) to 7 (*always*).

Parental Control, Wave 4 ($\alpha = .73$), included seven items: "My parents want me to follow their directions even if I disagree with their reasons," "My parents worry that I am up to something they won't like," "I have to ask my parents for permission to do most things," "My parents get upset if I disagree with them when their friends are around," "I do not know *why* I am supposed to do what my parents tell me to do," "I have a lot of fights with my parents about their rules and decisions for me," and "My parents treat me more like a little kid than like an adult" ; 1 (*never true*) to 4 (*always true*).

Peer Achievement, Wave 5, was based on ninth-grade school records of enrollment in 4 levels of mathematics courses: 1 (*low*), 2 (*regular*), 3 (*college prep*), and 4 (*honors track*). (For further explanation of this measure, see Updegraff, Eccles, Barber, & O'Brien, 1996.)

RESULTS

Descriptive Analyses

All analyses were conducted using the SPSS statistical package. Prior to conducting the primary analyses, correlation matrices of the predictors and dependent variable (whether or not the person had had sex) by gender were analyzed. In examining the correlation matrix, particular attention was given to the correlation values between the various predictors. A high correlation value between the predictors increases the likelihood of multicollinearity. The correlation coefficients ranged from $-.33$ to $.37$, thus issues of multicollinearity were dismissed (Affifi & Clark, 1990).

An analysis of variance (ANOVA) was used to determine whether the mean level of the demographic, biological, psychological, and social predictors differed depending on if and when the persons reported first intercourse. The three-level variable, Sex Group (*Inexperienced*; *Later*, 16 or older; and *Earlier*, before age 16) was used in these analyses. If significant, follow-up Tukey tests were used to determine which of the Sex Groups differed on the various characteristics. The ANOVAs were analyzed separately by gender.

Table 1 summarizes the differences between the female sex groups in mean levels of the demographic, biological, psychological, and sociological predictors: multivariate analysis of variance (MANOVA), $\eta^2 = .75$; $F = 4.49$, $p < .001$. Regarding the demographic variables, the inexperienced group reported a higher mean level of living with married parents than the earlier group. In other words, a greater proportion of the inexperienced group had married parents compared to their earlier timing peers. The later initiating and inexperienced groups also reported higher levels of maternal education than the earlier timing group. Female early initiators reported earlier menarche than the later initiating and inexperienced groups.

The earlier experienced group placed greater value on popularity than the inexperienced group. The level of depressed mood was found to be significantly higher for the early initiators than the later initiators. In reference to the social context variables, the early initiators reported higher frequencies of being alone on a date than the later initiators, who in turn reported more frequent dating alone than the sexually inexperienced group. The sexually inexperienced group reported more association with high-achieving peers than the early and late initiators. No significant contrasts for the girls were found for curfew or parental control.

The overall model was significant for boys: MANOVA, $\eta^2 = .76$, $F = 2.41$, $p < .01$. Compared to the girls, fewer significant contrasts emerged for the

TABLE 1
ANOVA Results for Female Adolescents: Sex Group and Biological, Psychological, and Social Characteristics

| Characteristic | #1 Earlier ^a (< Age 16) | | #2 Later ^b (Age 16 +) | | #3 Inexperienced ^c | | F | Contrasts |
|------------------------------|---------------------------------------|------|-------------------------------------|------|----------------------------------|------|----------|-----------|
| | M | SD | M | SD | M | SD | | |
| Married Parents Wave 7 | 0.55 | 0.50 | 0.63 | 0.48 | 0.83 | 0.38 | 4.50* | 3 > 1 |
| Maternal Education Wave 5 | 2.18 | 0.78 | 2.48 | 0.67 | 2.53 | 0.65 | 5.69** | 2, 3 > 1 |
| Menarche Wave 5 | 6.30 | 0.98 | 7.05 | 1.15 | 7.03 | 0.91 | 11.43*** | 2, 3 > 1 |
| Popularity Wave 4 | 5.25 | 1.48 | 4.89 | 1.44 | 4.36 | 1.67 | 4.71* | 1 > 3 |
| Depressed Mood Wave 4 | 3.17 | 0.95 | 2.85 | 0.86 | 2.87 | 1.05 | 3.59* | 1 > 2 |
| Date Alone Wave 4 | 1.84 | 0.86 | 1.50 | 0.72 | 1.11 | 0.32 | 13.84*** | 1 > 2 > 3 |
| Curfew Wave 4 | 5.01 | 1.95 | 5.11 | 1.80 | 4.94 | 1.80 | 0.16 | |
| Parental Control Wave 4 | 2.75 | 0.57 | 2.83 | 0.60 | 2.71 | 0.46 | 0.96 | |
| Peer Achieve Wave 5 | 2.53 | 0.95 | 2.66 | 0.97 | 3.14 | 0.99 | 5.17** | 3 > 1, 2 |

Note. ANOVA = analysis of variance.

^an = 89. ^bn = 143. ^cn = 36.

*p < .05. **p < .01. ***p < .001.

boys (see Table 2). The model for growth spurt was significant, but the contrast between the early initiators and the inexperienced groups was only approaching significance, $p < .10$. Regarding the importance of popularity, both sexually experienced groups reported greater importance than the sexually inexperienced group. The early initiators reported dating alone significantly more than the later initiators and the inexperienced group. Finally, the inexperienced group reported greater association with high-achieving peers than did the early initiators. No significant contrast emerged for parental marital status, maternal education, depressed mood, weekend curfew, or parental control for boys.

Analysis of Age at First Voluntary Intercourse

Event history analysis was utilized to examine the timing of intercourse and its association with the demographic, biological, psychological, and social predictors. Specifically, Cox's (1972) proportional hazards regression, which allows the inclusion of categorical and continuous predictors, was used to address this issue.

A hazard rate, or the instantaneous risk that the event (first intercourse) will occur at a given moment if the event has not occurred before this time (Yamaguchi, 1991), is calculated in event history analysis. The results of proportional hazards regression are interpreted using risk ratios based on

the parameter estimates. A risk ratio exceeding 1.0 means that as the unit value of the predictor increases, the hazard rate also increases, that is, earlier timing of the event. If the risk ratio is less than 1.0, then an increase in the predictor value would be related to later timing of the event, or a decrease in the hazard rate (SAS Institute, 1990). For example, if the importance of friends has a risk ratio of 1.75 regarding the timing of intercourse, for each unit of increase in the importance of friends, persons who have not yet experienced sexual intercourse would increase their hazard rate, or likelihood of having sex, by 75%.

Using proportional hazards regression, four models predicting the timing of first sexual intercourse were analyzed. All four models were examined separately for boys and girls. The first model included two demographic predictors (parental marital status and maternal education) and the biological predictor (pubertal timing). In comparing this model to the subsequent models, we determined if the inclusion of the biological, psychological, and social predictors resulted in a decrease in the effect of the demographic predictors on the timing of first intercourse and whether an increase in the prediction power of the model occurred. The latter was detected by calculating whether there was a significant increase in the chi-squared value of the expanded model.

The second model included psychological predictors (popularity and depressed mood), in addition to the demographic and biological predic-

TABLE 2
ANOVA Results for Male Adolescents: Sex Group and Biological, Psychological, and Social Characteristics

| Characteristic | #1 Earlier ^a (<i>< Age 16</i>) | | #2 Later ^b (<i>Age 16 +</i>) | | #3 <i>Inexperienced^c</i> | | F | Contrasts |
|------------------------------|---|------|--|------|--|------|--------|-----------|
| | M | SD | M | SD | M | SD | | |
| Married Parents Wave 7 | 0.73 | 0.45 | 0.73 | 0.45 | 0.77 | 0.43 | 0.07 | |
| Maternal Education Wave 5 | 2.49 | 0.69 | 2.48 | 0.76 | 2.65 | 0.63 | 0.62 | |
| Growth Spurt Wave 5 | 7.24 | 1.35 | 7.73 | 1.31 | 8.00 | 1.39 | 3.12* | 3 > 1+ |
| Popularity Wave 4 | 5.12 | 1.43 | 5.01 | 1.45 | 3.96 | 1.47 | 6.19** | 1, 2 > 3 |
| Depressed Mood Wave 4 | 2.61 | 0.77 | 2.43 | 0.88 | 2.71 | 0.95 | 1.25 | |
| Date Alone Wave 4 | 2.20 | 0.89 | 1.69 | 0.79 | 1.69 | 0.79 | 6.29** | 1 > 2, 3 |
| Curfew Wave 4 | 4.51 | 1.85 | 4.33 | 1.97 | 4.65 | 1.79 | 0.35 | |
| Parental Control Wave 4 | 2.65 | 0.52 | 2.74 | 0.54 | 2.85 | 0.49 | 1.28 | |
| Peer Achieve Wave 5 | 2.60 | 1.12 | 2.91 | 0.88 | 3.23 | 0.95 | 3.66* | 3 > 1 |

Note. ANOVA = analysis of variance.

^a*n* = 45. ^b*n* = 86. ^c*n* = 26.

p* < .05. *p* < .01. ****p* < .001.

tors. The third model considered the effects of demographic, biological, and social predictors (e.g., curfew and dating) on timing of first intercourse. The final model included demographic, biological, psychological, and social predictors of first intercourse. All of these models are summarized in Table 3. ^x

^x The first regression model included demographic and biological predictors and was significant only for girls. Having married parents, a more educated mother, and later pubertal timing delayed the girls' first intercourse.

^x The second model included demographic, biological, and psychological predictors. The overall model was significant for boys and girls. Compared to the first model, a significant increase in the chi-squared value for this model emerged for the girls, $\chi^2(2, N = 268) = 6.5, p < .05$, and the boys, $\chi^2(2, N = 157) = 8.49, p < .01$. Married parents and pubertal timing remained significant predictors for the girls. More importance placed on popularity predicted earlier intercourse for both girls and boys. Later pubertal timing also predicted a delay in first intercourse for the boys.

The third model (biosocial) was significant for boys and girls. Compared to the first model, a significant increase in this model's chi-squared value was found for girls $\chi^2(4, N = 268) = 25.50, p < .001$, and was approaching significance for the boys, $\chi^2(4, N = 157) = 9.36, p < .10$. In this model, having married parents remained a significant demographic predictor for the girls. Pubertal timing approached significance for the boys. Higher frequency of dating alone predicted earlier timing of intercourse for girls. For the boys, associating with higher achieving peers predicted later timing.

Social factors included in the model may be working in conjunction with biological factors to produce sexual behavior (Katchadourian, 1990). To test this idea, the moderating effects of social characteristics on the relation between pubertal development and the timing of first intercourse were tested using interaction terms in the regression. None of the social predictors were found to moderate the relation between pubertal timing and first intercourse.

The final model included demographic, biological, psychological, and social contextual factors. Compared to the biopsychological model, the biopsychosocial model resulted in a significant increase in the model's chi-squared value for girls, $\chi^2(4, N = 268) = 23.54, p < .001$, and approached significance for the boys, $\chi^2(4, N = 157) = 8.46, p < .10$. For boys, a significant increase in the chi-squared value was found in comparing the biosocial and the biopsychosocial models, $\chi^2(2, N = 157) = 7.59, p < .05$. No significant differences between the chi-squared values of the biosocial and biopsychosocial models emerged for girls. A comparison was also made

TABLE 3
 Proportional Hazards Regression to Predict Timing of First Intercourse: Biological, Biopsychological, Biosocial, and
 Biopsychosocial Models of Timing of First Intercourse for Female and Male Risk Ratios

| Predictor | Female | Female | Female | Female | Female | Male | Male | Male | Male |
|---------------------------------|-----------|-----------|-----------|-----------|--------|---------|---------|----------|----------|
| Demographics | | | | | | | | | |
| Married Parents Wave 7 | 0.71** | 0.72** | 0.71** | 0.72** | 1.04 | 0.95 | 1.04 | 0.93 | 0.93 |
| Maternal Education Wave 5 | 0.83** | 0.84* | 0.88 | 0.89 | 0.92 | 0.96 | 1.00 | 1.01 | 1.01 |
| Biological | | | | | | | | | |
| Pubertal Timing Wave 5 | 0.87** | 0.87** | 0.89* | 0.89* | 0.87** | 0.85** | 0.89* | 0.88* | 0.88* |
| Psychological | | | | | | | | | |
| Importance of Popularity Wave 4 | | 1.11** | | 1.07 | | 1.20*** | | 1.17** | 1.17** |
| Depressed Mood Wave 4 | | 1.06 | | 1.13 | | 0.98 | | 0.93 | 0.93 |
| Social Context | | | | | | | | | |
| Date Alone Wave 4 | | | 1.51**** | 1.46**** | | | 1.22* | 1.12 | 1.12 |
| Weekend Curfew Wave 4 | | | 1.03 | 1.02 | | | 1.00 | 0.97 | 0.97 |
| Parental Control Wave 4 | | | 1.08 | 1.19 | | | 0.92 | 0.88 | 0.88 |
| Peer Achievement Wave 5 | | | 0.96 | 0.95 | | | 0.82** | 0.82** | 0.82** |
| Total participants | 268 | 268 | 268 | 268 | 157 | 157 | 157 | 157 | 157 |
| Number who have had sex | 232 | 232 | 232 | 232 | 131 | 131 | 131 | 131 | 131 |
| Number censored | 36 | 36 | 36 | 36 | 26 | 26 | 26 | 26 | 26 |
| Percentage censored | 13.40 | 13.50 | 13.50 | 13.50 | 16.60 | 16.60 | 16.60 | 16.60 | 16.60 |
| Chi-squared | 16.79**** | 23.29**** | 42.29**** | 46.83**** | 5.87 | 14.36** | 15.23** | 22.82*** | 22.82*** |

* $p < .10$. ** $p < .05$. *** $p < .01$. **** $p < .001$.

between the biopsychosocial model and the initial biological model. Here, the model chi-squared value increased significantly for both boys, $\chi^2(7, N = 157) = 16.95, p < .01$, and girls, $\chi^2(7, N = 268) = 30.04, p < .001$.

In the biopsychosocial model, girls with always-married parents reported later timing of intercourse. Dating alone remained a significant predictor for the girls. For the boys, less importance placed on popularity with peers and having higher achieving peers continued to be significantly related to a delay of first intercourse.

DISCUSSION

This study has examined the association of demographic, biological, psychological, and social predictors with the timing of initiation of sexual intercourse. Varying patterns of predictors emerged for boys and girls across the different models. For example, although the biopsychosocial model of first intercourse was significant for both boys and girls, pubertal timing and dating alone were significant predictors for the girls, whereas for the boys, the importance of popularity and achievement level of peers were significant. This study also examined biological, biopsychological, and biosocial models. This discussion focuses on the varying impact of demographic, biological, psychological, and social predictors across models and offers possible explanations for these contrasts.

The demographic measures emerged as an important set of predictors for the girls. In the biological model, having married parents and more highly educated mothers were related to later first intercourse for girls. The effect of having married parents on adolescent female sexual behavior is similar to that found by Newcomer and Udry (1987), who also reported this effect only for girls. Having fewer than two parents has been associated with different levels of various family processes (Barber & Eccles, 1992). However, despite the inclusion of parental control in the later models, having married parents remained a significant predictor for the girls. It would appear that the relevant family processes (like communication or monitoring) that might moderate or mediate the relation between parental marital status and first intercourse are not represented in the selected predictors.

Regarding the other demographic predictor, having a highly educated mother also has been associated with a delay in adolescent sexual behavior (Heaton & Jacobson, 1994; Leigh Weddle, & Loewen, 1988). Mothers who have prioritized education for themselves could be particularly salient role models for daughters. This form of support could lead these daughters to prioritize education and delay intercourse. However, this predictor was

no longer significant with the addition of the psychological and social factors.

Similar to previous studies (Flannery, Rowe, & Gully, 1993; Udry, 1979; Westney, Jenkins, & Benjamin, 1983), the biological predictor, pubertal timing, was influential for both boys and girls. Earlier research (Udry & Billy, 1987) has concluded that for girls but not boys, social controls play a more important role than biological factors in the initiation of sexual activity. In this study, however, the addition of social predictors (biosocial and biopsychosocial models) decreased the contribution of pubertal timing in predicting first coitus for both boys and girls. Analyses were conducted to examine the possible moderating effects of the social factors on the relation between pubertal timing and first intercourse. No significant moderating effects were found. However, this does not preclude the possibility that together the social predictors might buffer the effect of pubertal timing on first intercourse. Alternately, it is also possible that this study is only partially addressing influential social factors. Future studies could examine social predictors other than those included in this article. The fact that pubertal timing was measured differently by gender might also be affecting the results. Given the data limitations, potential differences could not be tested.

The psychological predictors emerged as a strong set of predictors. Compared to the biological model, the biopsychological model produced a significant increase in the model's chi-square value for boys and girls. As predicted, placing greater importance on popularity was related to earlier timing. Sexual behavior was hypothesized to serve as a potential tool to increase popularity. However, in the biopsychosocial model, although the importance of popularity was approaching significance as a predictor of earlier intercourse for the boys, it was no longer significant for the girls. This difference in the significance of popularity as a predictor by gender could be due to the social perceptions of sex that vary by gender. One female adolescent in Orenstein's book, *School Girls* (1994), stated, "If a girl does it with a guy just because she thinks he's cute, she's a ho', but if men do it with young women 'cause they think the girl is cute, then they're cool" (p. 220). In other words, compared to girls, social stigmas allow sex to serve boys as a more viable and effective method by which to gain social status.

Social predictors appeared to be especially relevant for girls, whose models resulted in a significant increase in the chi-squared value between the biological and the biosocial model. Dating alone predicted earlier first intercourse for girls; however, this measure only approached significance for the boys. This lack of a significant effect for boys was possibly due to the smaller sample size for the boys, resulting in a model with less power.

With potentially lower statistical power, it is quite striking that only boys associating with high achieving peers reported a delay in intercourse

and that this predictor remained significant even after the psychological predictors were added to the biosocial model to form the biopsychosocial model. Three post hoc explanations may aid in clarifying this finding. First, the respondents' associations with high-achieving peers are likely to reflect their values of achievement. Placing a higher value on education has been shown to deter timing of first intercourse (Miller & Sneesby, 1988; Moore, Peterson, & Furstenburg, 1985; Scott-Jones & White, 1990). Second, being in a group of higher achieving peers may buffer one from the problems of declining self-esteem associated with school transition (Lord, Eccles, & McCarthy, 1994). Low levels of self-esteem, in turn, have been associated with earlier timing of first intercourse (Miller & Fox, 1987). Focusing on academic achievement may serve as a distraction from the many changes associated with a school transition, thus decreasing the risk of a decline in self-esteem and delaying first intercourse. Third, association with achievement-oriented peers could reinforce a focus on educational goals rather than hetero-social goals. This could lead students with higher achieving peers to initiate intercourse later than their peers with less achievement-oriented classmates. All three are likely to occur and may actually serve to reinforce one another.

The lack of significance of the relation between peer achievement and timing of first intercourse for girls may be related to gender differences reported in previous studies. Specifically, girls are found to develop larger social networks than those formed by boys (Coates, 1987; Pollard, 1993). Perhaps girls are more likely than boys to have peers and other support providers beyond the students found in their academic circle determined via tracking. Such an extended network would decrease the importance of the peer group acquired through school tracking programs.

Despite the contributions of this study, four precautions must be brought to the readers' attention. First, the data used in this article were not collected with the express purpose of predicting sexual experience, thus the measures were not exclusively tailored for this article. Although we argue for the inclusion of certain measures in our model, this does not mean that these measures are optimal.

The second issue is related to the timing of first intercourse measure. Retrospective reports of age of first intercourse were used. We relied on young adults' reports of first intercourse, assuming that their memories were accurate and truthful. Also, some respondents were already sexually experienced prior to age 13 (1% of girls and 4% of boys).² Therefore, some

²The analyses were rerun without those respondents reporting first intercourse before age 13. These results were similar to those of the overall sample.

persons had sex prior to when the predictors were measured. Future studies should attempt to describe biological, psychological, and social characteristics of individuals and their sexual behavior prospectively, and then follow these individuals across the adolescent and young adult years. By doing this, we could begin to describe the development of sexual behavior across time and examine potential variability of influences across the life span. Predictors may differ in influence across adolescence, as individuals develop into young adults. Additionally, asking persons directly about their reasons for participating in sexual activity may shed some light on potential sources of influence.

Third, the study sample represented less than 40% of the overall MSALT sample. The attrition sample and the study sample differed considerably. Four of the nine predictors used in the models varied significantly between the samples. Two of these four measures, association with high-achieving peers and dating alone, were significant predictors of first intercourse. On this count, great care must be applied to the generalizability of these findings. Although the study sample appears to have had an edge in delaying intercourse compared to the larger attrition sample, no mean differences were found for the age of first intercourse when comparing the study sample to the attrition sample. Limiting the sample to White adolescents also reduces the generalizability of the study. The final precaution relates to the fact that the early initiating group may include individuals who experienced early coercive sexual situations. According to the AGI (1994), 74% of women who had sex before the age of 14 did so due to coercion. In addition, in the National Health and Social Life Survey (Laumann, Gagnon, Michael, & Michaels, 1994), about 25% of the female respondents reported they had not wanted their first sexual experience to occur. Despite our focus on "voluntary sexual intercourse," some participants in this study may have had coercive experiences their first time. The early initiators are the most likely to have had a sexually coercive experience prior to their first voluntary intercourse (Miller, Monson, & Norton, 1995). In this sample, 4.4% of the girls and 5.3% of the boys reported first intercourse before age 14.

In spite of these precautions, this study provides a great deal of information regarding the predictors of timing of first intercourse. Sexual behavior can be influenced by biological, social, and psychological factors, depending on the model of focus. This multidimensional set of factors has implications for program and policy intervention, particularly given that the predictors are primarily from data collected when the respondents were in the seventh grade. The significance of these early predictors encourages creating developmentally appropriate prevention programs that target early adolescents (Bogenschneider, 1996). Indeed, the majority of

adolescent sexuality programs available at the national level target early adolescents (Meschke, Bartholomae, & Zentall, 2000).

Based on the significant predictors that emerged from this study, potential programs to delay the timing of first intercourse need not be overtly associated with sexual behaviors. The final model in which all three types of predictors were considered supports intervention efforts in both the psychological and the social area of the adolescent's life. For example, early adolescent prevention programs that serve to delay dating alone for girls or to enhance the expansion of social networks of boys may delay the timing of first intercourse. Attempts to intervene on the significant predictors would be an excellent test of the models put forth in this article (Bronfenbrenner, 1979).

Differences in the patterns of significant predictors by gender indicate that programs targeting particular issues by gender in early adolescence may be more effective. The normative nature of adolescent sexual behavior, current rates of adolescent pregnancy, and contraction of STIs, including HIV, warrant that the factors of adolescent sexuality be further examined. Currently, very few adolescent sexuality programs are tailored specifically for boys or girls (Meschke, et al., 2000).

More basic research is also needed regarding the prediction of the timing of first intercourse. The relation between additional biological and social predictors of first intercourse requires further examination, including the interactional effects. In addition to better understanding the precursors associated with early intercourse, it is equally beneficial to further examine those individuals who are sexually inexperienced as young adults. In general, the latter group has received very little attention from researchers.

In sum, each of the models, except the biological model for the boys, were predictive of the timing of first intercourse. It was hypothesized that the biopsychosocial model would prove to be the most effective model. The biopsychosocial model was a stronger model than the biological models, the girls' biopsychological model, and the boys' biosocial model. Although no significant increase in the biopsychosocial model's prediction was found when compared to the girls' biosocial model and the boys' biopsychological model, a psychological predictor (importance of popularity) did remain significant in the biopsychosocial model for the girls and a social factor (peer achievement) remained significant in the boys' biopsychosocial model. Thus, the importance of incorporating measures from the biological, psychological, and social arenas in predicting the timing of first intercourse has been demonstrated.

ACKNOWLEDGMENTS

This research was supported by Grant DBS9215008 from the National Science Foundation, Grant 92-1459-92 from the William T. Grant Foundation, and a grant from the Spencer Foundation to Bonnie L. Barber and Jacquelynne S. Eccles. This article was presented at the biennial meeting of the Society for Research on Adolescence, March 7, 1996, Boston. Writing of this article was accomplished while Laurie L. Meschke had a fellowship from the Deutschen Akademischer Austausch-dienst at the Friedrich Schiller University of Jena, Germany. Special thanks to Kim Updegraff for her time and efforts in coding the math track variable.

REFERENCES

- Afffi, A. A., & Clark, V. (1990). *Computer-aided multivariate analysis* (2nd ed.). New York: Van Nostrand Reinhold.
- The Alan Guttmacher Institute. (1994). *Sex and America's teenagers*. New York: Author.
- Alexander, C. S., Somerfield, M. R., Ensminger, M. E., Johnson, K. E., & Kim, Y. J. (1993). Consistency of adolescents' self-report of sexual behavior in a longitudinal study. *Journal of Youth and Adolescence*, 22(5), 455-471.
- Allison, P. D. (1984). *Event history analysis: Regression for longitudinal event data*. Newbury Park, CA: Sage.
- Barber, B. L., & Eccles, J. S. (1992). Long-term influence of divorce and single parenting on adolescent family- and work-related values, behaviors, and aspirations. *Psychological Bulletin*, 111, 108-126.
- Bingham, C. R., Miller, B. C., & Adams, G. R. (1990). Correlates of age of first sexual intercourse in a national sample of young women. *Journal of Adolescent Research*, 5, 18-33.
- Bogenschneider, K. (1996). An ecological risk/protective theory for building prevention programs, policies, and community capacity to support youth. *Family Relations*, 45, 127-138.
- Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and by design*. Cambridge, MA: Harvard University Press.
- Brooks-Gunn, J., & Graber, J. (1994). Puberty as a biological and social event: Implications for research and pharmacology. *Journal of Adolescent Health*, 15, 663-671.
- Capaldi, D. M., Crosby, L., & Stoolmiller, M. (1996). Predicting the timing of first intercourse for at-risk adolescent males. *Child Development*, 67, 344-359.
- Chilman, C. S. (1983). *Adolescent sexuality in a changing American society*. New York: Wiley-Interscience.
- Coates, D. L. (1987). Gender differences in the structure and support characteristics of Black adolescents' social networks. *Sex Roles*, 17, 667-687.
- Costa, F. M., Jessor, R., Donovan, J. E., & Fortenberry, J. D. (1995). Early initiation of sexual intercourse: The influence of psychosocial unconventionality. *Journal of Research on Adolescence*, 5, 93-121.
- Cox, D. R. (1972). Regression models and life tables. *Journal of the Royal Statistical Society, Series B*, 34, 187-202.

- Crockett, L. J., Bingham, C. R., Chopak, J. S., & Vicary, J. R. (1996). Timing of first sexual intercourse: The role of social control, social learning, and problem behavior. *Journal of Youth and Adolescence, 25*(1), 89–111.
- DiBlasio, F. A., & Benda, B. B. (1992). Gender differences in theories of adolescent sexual activity. *Sex Roles, 27*, 221–239.
- Eccles, J. S., Wigfield, A., Flanagan, C. A., Miller, C., Reuman, D. A., & Yee, D. (1989). Self-concepts, domain values, and self-esteem: Relations and changes at early adolescence. *Journal of Personality, 57*, 283–310.
- Erickson, P. I., & Rapkin, A. J. (1991). Unwanted sexual experiences among middle and high school youth. *Journal of Adolescent Health, 12*, 319–325.
- Flannery, D. J., Rowe, D. C., & Gully, B. L. (1993). Impact of pubertal status, timing, and age on adolescent sexual experience and delinquency. *Journal of Adolescent Research, 8*, 21–40.
- Ford, D., & Lerner, R. (1992). *Developmental systems theories, an integrative approach*. Newbury Park, CA: Sage.
- Fulgini, A. J., Eccles, J. S., & Barber, B. L. (1995). The long term effects of 7th grade ability groupings in mathematics. *Journal of Early Adolescence, 15*, 58–89.
- Greenberg, J., Magder, L., & Aral, S. (1992). Age at first coitus: A marker for risky sexual behavior in women. *Sexually Transmitted Diseases, 19*, 331–334.
- Grunbaum, J., & Basen-Engquist, K. (1993). Comparison of health risk behaviors between students in a regular high school and students in an alternative high school. *Journal of School Health, 63*, 421–425.
- Heaton, T. B., & Jacobson, C. K. (1994). Race differences in changing family demographics in the 1980's. *Journal of Family Issues, 15*, 290–308.
- Hogan, D. P., & Kitagawa, E. M. (1985). The impact of social status, family structure, and neighborhood on the fertility of Black adolescents. *American Journal of Sociology, 90*, 825–855.
- Jessor, R., Costa, F., Jessor, L., & Donovan, J. E. (1983). Time of first intercourse: A prospective study. *Journal of Personality and Social Psychology, 44*, 608–626.
- Katchadourian, H. (1990). Sexuality. In S. S. Feldman & G. R. Elliot (Eds.), *At the threshold: The developing adolescent* (pp. 330–351). Cambridge, MA: Harvard University Press.
- Ku, L., Sonenstein, F. L., & Pleck, J. H. (1993). Neighborhood, family and work: Influences on the premarital behaviors of adolescent males. *Social Forces, 72*, 479–503.
- Laumann, E. O., Gagnon, J. H., Michael, R. T., & Michaels, S. (1994). *The social organization of sexuality: Sexual practices in the United States*. Chicago: The University of Chicago Press.
- Leigh, G. K., Weddle, K. D., & Loewen, I. R. (1988). Analysis of the timing of transition to sexual intercourse for Black adolescent females. *Journal of Adolescent Research, 3*, 333–344.
- Lord, S. E., Eccles, J. S., & McCarthy, K. A. (1994). Surviving the junior high school transition: Family processes and self-perceptions of protective and risk factors. *Journal of Early Adolescence, 14*, 162–199.
- Magnusson, D. (1988). *Individual development from an interactional perspective: A longitudinal study*. Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Meschke, L. L., Bartholomae, S., & Zentall, S. (2000). Adolescent sexuality and parent-adolescent processes: Promoting healthy teen choices. *Family Relations, 49*, 143–154.
- Meschke, L. L., & Silbereisen, R. K. (1997). The influence of puberty, family processes, and leisure activities on the timing of first sexual experience. *Journal of Adolescence, 20*, 403–418.
- Miller, B. C. (1998). *Families matter: A research synthesis of family influences on adolescent pregnancy*. Washington, DC: National Campaign to Prevent Teen Pregnancy.

- Miller, B. C. & Bingham, C. R. (1989). Family configuration in relation to the sexual behavior of female adolescents. *Journal of Marriage and the Family*, 51, 499–506.
- Miller, B. C. & Fox, G. L. (1987). Theories of adolescent heterosexual behavior. *Journal of Adolescent Research*, 2, 269–282.
- Miller, B. C., McCoy, K. J., Olson, T. D., & Wallace, C. M. (1986). Parental discipline and control attempts in relation to adolescent sexual attitudes and behavior. *Journal of Marriage and the Family*, 48, 503–512.
- Miller, B. C., Monson, B. H., & Norton, M. C. (1995). The effects of forced sexual intercourse on White female adolescents. *Child Abuse and Neglect*, 19, 1289–1301.
- Miller, B. C., & Sneesby, K. R. (1988). Educational correlates of adolescents' sexual attitudes and behavior. *Journal of Youth and Adolescence*, 17, 521–530.
- Moore, K. A., Peterson, J. L., & Furstenberg, F. F. (1985). Parental attitudes and behavior of early sexual activity. *Journal of Marriage and the Family*, 48, 777–782.
- Muehlenhard, C. L., & Cook, S. W. (1988). Men's self-reports of unwanted sexual activity. *The Journal of Sex Research*, 24, 58–72.
- Newcomer, S., & Udry, J. R. (1987). Parent marital status effects on adolescent sexual behavior. *Journal of Marriage and the Family*, 49, 235–240.
- Newcomer, S., & Udry, J. R. (1988). Adolescents' honesty in a survey of sexual behavior. *Journal of Adolescent Research*, 3, 419–423.
- Orenstein, P. (1994). *School girls: Young women, self-esteem, and the confidence gap*. New York: Anchor.
- Petersen, A. C. (1987). The nature of biological–psychosocial interactions: The sample case of early adolescence. In R. M. Lerner & T. T. Foch (Eds.), *Biological–psychological interactions in early adolescence* (pp. 35–61). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Pollard, D. S. (1993). Gender, achievement, and African-American student's perceptions of their school experience. *Educational Psychologist*, 28, 341–356.
- Rowe, D. C., Rodgers, J. L., & Meseck-Bushey (1989). An "epidemic" model of sexual intercourse prevalences for Black and White adolescents. *Social Biology*, 36, 127–145.
- SAS Institute. (1990). *SAS Technical report P-217 SAS/STAT Software: The PHREG Procedure, Version 6*. Cary, NC: Author.
- Scott-Jones, D., & White, A. B. (1990). Correlates of sexual activity in early adolescence. *Journal of Early Adolescence*, 10, 221–238.
- Smith, E. (1989). A biosocial model of adolescent sexual behavior. In G. R. Adams & T. P. Gullota (Eds.), *Biology of adolescent behavior and development* (pp. 143–163). Newbury Park, CA: Sage.
- Stack, S. (1994). The effect of geographic mobility on premarital sex. *Journal of Marriage and the Family*, 56, 204–208.
- Susman, E. J. (1997). Modeling developmental complexity in adolescence: Hormones and behavior in context. *Journal of Research on Adolescence*, 7, 283–306.
- Thornton, A. (1990). The courtship process and adolescent sexuality. *Journal of Family Issues*, 11, 239–273.
- Tubman, J. G., Windle, M., & Windle, R. C. (1996). The onset and cross-temporal patterning of sexual intercourse in middle adolescence: Prospective relations with behavioral and emotional problems. *Child Development*, 67, 327–343.
- Udry, J. R. (1979). Age at menarche, at first intercourse, and at first pregnancy. *Journal of Biological Science*, 11, 411–433.
- Udry, J. R. (1990). Hormonal and social determinants of adolescent sexual initiation. In J. Bancroft & J. M. Reinsich (Eds.), *Adolescence and puberty* (pp. 70–87). New York: Oxford University Press.

- Udry, J. R., & Billy, J. O. G. (1987). Initiation of coitus in early adolescence. *American Sociological Review*, 52, 841-855.
- Updegraff, K. A., Eccles, J. S., Barber, B. L., & O'Brien, K. M. (1996). Course enrollment as self-regulatory behavior: Who takes optional high school math courses? *Learning and Individual Differences*, 8.
- U. S. Department of Health and Human Services. (1995, June). *Vital and health statistics. Health-risk behaviors among our nation's youth: United States, 1992* (Series 10, No. 192). Hyattsville, MD: Author.
- Westney, O. E., Jenkins, R. R., & Benjamin, C. (1983). Sociosexual development of preadolescents. In J. Brooks-Gunn & J. Peterson (Eds.), *Girls at puberty* (pp. 273-300). New York: Plenum.
- Wyatt, G. E. (1989). Reexamining factors predicting Afro-American and White American women's age at first coitus. *Archives of Sexual Behavior*, 18, 271-298.
- Yamaguchi, K. (1991). *Event history analysis*. Newbury Park, CA: Sage.
- Zelnik, M. (1983). Sexual activity among adolescents: Perspectives of a decade. In E. R. McAnarney (Ed.), *Premature adolescent pregnancy and parenthood* (pp. 29-52). New York: Grune & Stratton.



Session for UMAA guest

Current database: PsycINFO [about...](#) | **Search Query:** (kw: domestic violence) and kw: academic achievement | **Results:** 4 | **Record:** 4



Title Out of darkness: Contemporary perspectives on family violence.

Author(s)/Editor(s) [Kantor, Glenda Kaufman](#)
[Jasinski, Jana L.](#)

Paper Number 19970101

Source/Citation Thousand Oaks, CA, US: Sage Publications, Inc; 1997, (xi, 332)

Description/Edition Info. Edited Book; 140

Abstract/Review/Citation This volume addresses new developments in knowledge and proposes new solutions to some of the most complex questions related to the field of family violence. Professionals and researchers in child welfare, mental health, and criminal justice fields will want to read this book to keep up with the latest controversial topics: international studies; theory, methods, assessment, and interventions; and ethical and cultural issues related to both child and partner abuse. Chapters address pressing questions such as: Is wife abuse declining? Are child homicides increasing? Does couple treatment work in violent marriages? From this volume several noteworthy findings emerge, including the wide variations in the forms, types, and consequences of abuse; the need for support and change in both victim and batterer behaviors; the overdue move toward expertise and sensitivity when dealing with affected populations; and much more. This is a book for advanced students, researchers, practitioners, activists, and policymakers concerned with any or all aspects of family violence. (PsycINFO Database Record (c) 2000 APA, all rights reserved)

Subject Descriptors Child Abuse
Child Neglect
Family Violence
Partner Abuse
Treatment
Ethics
Evaluation
Racial and Ethnic Differences
Sociocultural Factors
Behavior Disorders & Antisocial Behavior--3230

Class. Code/Usage Psychology: Professional & Research PS

Notes/Comments Print (Paper) Human 10 Introduction [by] Glenda Kaufman Kantor and Jana L. Jasinski Part I: The prevalence of family violence Change in cultural norms approving marital violence from 1968 to 1994 Murray A. Straus, Glenda Kaufman Kantor and David W. Moore The homicides of children and youth: A developmental perspective David Finkelhor An examination of physical assault and childhood victimization histories within a national probability sample of women Terri L. Weaver, Dean G. Kilpatrick, Heidi S. Resnick, Connie L. Best and Benjamin E. Saunders Part II: Child abuse and neglect Pandemic outcomes: The intimacy variable Evvie Becker-Lausen and Sharon Mallon-Kraft Pornography and the organization of intra- and extrafamilial child sexual abuse: A conceptual model Catherine Itzin Black mothers' emotional and behavioral responses to the sexual abuse of their children Claudia Bernard Children's exposure to marital aggression: Direct and mediated effects Gayla Margolin and Richard S. John The effects of neglect on academic achievement and disciplinary problems: A developmental perspective Kathleen A. Kendall-Tackett and John Eckenrode The Traumatic Events Screening Inventory: Assessing trauma in children Jason H. Edwards and Karen C. Rogers Measuring physical and psychological maltreatment of children with the Conflict Tactics Scales Murray A. Straus and Sherry L. Hamby Methodological issues in classifying maltreatment: An examination of "protective issue" children Heather N. Taussig and Alan J. Litrownik Part III: Wife abuse Attitudes as explanations for aggression against family members Sharon D. Herzberger and Quentin H. Rueckert Woman battering: A comparative analysis of Black and White women Janice Joseph Surviving abuse dating relationships: Processes of leaving, healing, and moving on Karen H. Rosen and Sandra M. Stith Social predictors of wife assault cessation Etiony Aldarondo and Glenda Kaufman Kantor Wife abuse in intact couples: A review of couples treatment programs Pamela D. Brown and K. Daniel O'Leary Expanding batterer program evaluation Edward W. Gondolf Feminist therapy for battered women: An assessment Maryse Rinfret-Raynor and Solange Cantin Controlling domestic violence: Victim resources and police intervention JoAnn L. Miller and Amy C. Krull Collaboration between researchers and advocates Edward W. Gondolf, Kersti Yllo and Jacquelyn Campbell Part IV: Ethical and cultural issues in family violence Ethical issues in

trauma research: The evolution of an empirical model for decision making Elana Newman, Danny G. Kaloupek, Terence M. Keane and Susan F. Folstein Ethical dimensions of intervention with violent partners: Priorities in the values and beliefs of practitioners Gilles Rondeau, Jocelyn Lindsay, Ginette Beaudoin and Normand Brodeur Conducting ethical cross-cultural research on family violence Lisa Aronson Fontes Name index Subject index About the editors About the contributors prevalence & evaluation & treatment of & ethical & cultural issues in family violence & wife & child abuse & neglect Empirical Study 0800

ISBN 0-7619-0775-0

Vendor Numbers 1997-09085-000

Associated local holdings in UM Library (MCAT):

Title Out of the darkness : contemporary perspectives on family violence /

Full Title Out of the darkness : contemporary perspectives on family violence / Glenda Kaufman Kantor, Jana L. Jasinski, editors.

Published Thousand Oaks, Calif. : Sage Publications, c1997.

Description xi, 332 p. : ill., charts ; 26 cm.

Subjects Family violence--Congresses.

Family violence--Research--Methodology--Congresses.

Subjects (Medical) Domestic Violence--congresses.

Contributors Kantor, Glenda Kaufman.

Jasinski, Jana L.

International Family Violence Research Conference (4th : University of New Hampshire)

Other Titles Contemporary perspectives on family violence

Contents Change in cultural norms approving marital violence from 1968 to 1994 / Murray A. Straus, Glenda Kaufman Kantor, and David W. Moore -- The homicides of children and youth : a developmental perspective / David Finkelhor -- An examination of physical assault and childhood victimization histories within a national probability sample of women / Terri L. Weaver ... [et al.] -- Pandemic outcomes : the intimacy variable / Evvie Becker-Lausen and Sharon Mallon-Kraft -- Pornography and the organization of intra- and extrafamilial child sexual abuse : a conceptual model / Catherine Itzin -- Black mothers' emotional and behavioral responses to the sexual abuse of their children / Claudia Bernard -- Children's exposure to marital aggression : direct and mediated effects / Gayla Margolian and Richard S. John -- The effects of neglect on academic achievement and disciplinary problems : a developmental perspective / Kathleen A. Kendall-Tackett and John Eckenrode -- The traumatic events screening inventory : assessing trauma in children / Jason H. Edwards and Karen C. Rogers -- Measuring physical and psychological maltreatment of children with the conflict tactics scales / Murray A. Straus and Sherry L. Hamby -- Methodological issues in classifying maltreatment : an examination of "protective issue" children / Heather N. Taussig and Alan J. Litrownik -- Attitudes as explanations for aggression against family members / Sharon D. Herzberger and Quentin H. Rueckert -- Woman battering : a comparative analysis of black and white women

/ Janice Joseph -- Surviving abuse dating relationships : processes of leaving, healing, and moving on / Karen H. Rosen and Sandra M. Stith -- Social predictors of wife assault cessation / Etiony Aldarondo and Glenda Kaufman Kantor -- Wife abuse in intact couples : a review of couples treatment programs / Pamela D. Brown and K. Daniel O'Leary -- Expanding batterer program evaluation / Edward W. Gondolf -- Feminist therapy for battered women : an assessment / Maryse Rinfret-Raynor and Solange Cantin -- Controlling domestic violence : victim resources and police intervention / JoAnn L. Miller and Amy C. Krull -- Collaboration between researchers and advocates / Edward W. Gondolf, Kersti Yllö, and Jacquelyn Campbell -- Ethical issues in trauma research : the evolution of an empirical model for decision making / Elana Newman ... [et al.] -- Ethical dimensions of intervention with violent partners : priorities in the values and beliefs of practitioners / Gilles Rondeau ... [et al.] -- Conducting ethical cross-cultural research on family violence / Lisa Aronson Fontes. .

Notes A collection of 23 articles, a majority of which were first presented at the 4th International Family Violence Research Conference, at the University of New Hampshire in Durham, New Hampshire.

Bibliography/Index Includes bibliographical references and indexes.

ISBN 0761907750 (cloth : acid-free paper)
0761907769 (pbk. : acid-free paper)

Holdings **Location:** SOCIAL WORK
Call No: HV 6626 .O871 1997

Location: SOCIAL WORK
Call No: HV 6626 .O871 1997

[<< PREVIOUS](#)

  
BACK TO LIST **NEW SEARCH** **REVISE SEARCH**

