Published in final edited form as:

AIDS Educ Prev. 2002 April ; 14(2): 138–157.

HOLDING THE LINE WITH A WATCHFUL EYE: THE IMPACT OF PERCEIVED PARENTAL PERMISSIVENESS AND PARENTAL MONITORING ON RISKY SEXUAL BEHAVIOR AMONG ADOLESCENTS IN PSYCHIATRIC CARE

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Abstract

Adolescents in psychiatric care are at increased risk of HIV, yet little is known about the family factors related to sexual risk taking among these youth. We explored whether perceived parental monitoring and perceived parental permissiveness were linked to high-risk sexual behavior in 169 ethnically diverse urban youth seeking mental health services in Chicago, and we tested whether adolescent gender moderated these associations. We evaluated sexual risk taking at a global level and for specific risk behaviors (e.g., sex without a condom, sex while using drugs and alcohol). Girls reported more risky sex overall than boys, and girls were more likely than boys to report having sex without a condom. At low levels of parental permissiveness, rates of risky sex among boys and girls' did not differ, but at high levels of permissiveness girls reported more sexual risk taking than boys, and girls were more likely than boys to report having sex while using drugs and alcohol and having sex without a condom. Findings highlight the complexity of adolescent sexual behavior and the need for multilevel assessment of risk taking. Results suggest that parental monitoring and permissiveness are more strongly associated with sexual risk taking in troubled girls than troubled boys, and they underscore a need for gender-sensitive, family-focused HIV-prevention programs.

Adolescents engage in high rates of unsafe sexual behavior, exposing themselves to an array of negative health outcomes, including sexually transmitted diseases (STDs) and HIV (aCenters for Disease Control and Prevention [CDC], 2000a). Teenagers account for 25% of new STDs reported annually, and every 14 months, the number of HIV-infected adolescents doubles (CDC, 1998, 2000a). HIV risk in youth occurs mainly through unprotected sexual intercourse and other high-risk sexual behavior, such as sex with multiple partners and frequent sexual activity (DiClemente, 1996; Pequegnat & Szapocznik, 2000), but risk is not uniform across gender and is higher among teens in psychiatric care. Girls are at greater HIV risk than boys, accounting for 58% of new AIDS cases reported by young people 13–19 years old (CDC, 2000a). Compared with their male peers, girls report higher rates of risky sexual behavior, less condom use, and lower perceived HIV/AIDS risk (CDC, 2000a; DiClemente et al., 1996; Newman & Zimmerman, 2000). Adolescents in psychiatric care are at especially high risk of HIV, because they engage in the same risky behaviors as their school age peers but at higher rates (Brown, Danovsky, Lourie, DiClemente, & Ponton, 1997; DiScipio, 1994; Donenberg, Emerson, Bryant, Wilson, & Weber-Shifrin, 2001). In a recent study, youth in psychiatric care

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This research was supported by the National Institutes of Mental Health (Grant R01 MH 58545), the Warren Wright Adolescent Center at Northwestern Memorial Hospital, and Northwestern Memorial Hospital's Intramural Grants Program.

reported high rates of sexual intercourse (54.7%), sexual activity in the previous 3 months (45.2%), and having been pregnant (8.3%). Among sexually active teens, 12.8% reported having had an STD, 48.9% reported using drugs and alcohol while having sex, 42.6% indicated they had sex with a high-risk partner, and 55.3% said they had sex without a condom (Donenberg et al., 2001). A number of factors associated with psychiatric illness place troubled teens at increased risk for HIV infection, including cognitive deficits, poor decisionmaking, low self-esteem, impulsivity, and low self-efficacy (). Despite their high-risk status, little is known about the mechanisms underlying risky sexual behavior among these youth.

Most theories (e.g., theory of reasoned action, health belief model, information-motivation-behavior) implicate cognitive determinants of HIV-risk behavior and do not consider other potentially more salient factors for teenagers, including relationship concerns, adolescent developmental processes (e.g., perceptions of invulnerability and mortality), or gender and power dynamics that influence sexual decisionmaking (Amaro, 1995; O'Leary & Wingood, 2000). These theories require a level of intellectual maturity and stability yet to develop in many youth, especially teens in psychiatric care. Adolescents' sexual behavior is often impulsive, spontaneous, and not the result of careful decision making (Kirby et al., 1994), particularly for troubled teens who tend to be impulsive and self-destructive (). Furthermore, most teens, and especially troubled youth, do not understand how to avoid risky situations nor do they possess the necessary skills to practice preventive behavior (e.g., sexual communication skills, assertiveness, refusal skills) (Kipke, Boyer, & Hein, 1993).

Ecodevelopmental theory (Szapocznik & Coatsworth, 1999) offers an alternative framework for understanding risky sexual behavior and mental health problems in youth. This theory proposes that adolescent risk taking occurs as part of normal developmental processes and is influenced by the social context (e.g., family, peers, neighborhood). The complex interplay among these social contexts (e.g., the teen and the family) heightens or diminishes the risk of psychopathology and sexual risk taking over time (Perrino, Gonzalez-Soldevilla, Pantin, & Szapocznik, 2000). Risk processes are created and then intensify when essential interactions or connections between systems (e.g., parents and teens) are absent, insufficient, or dysfunctional (Szapocznik & Coatsworth, 1999). According to ecodevelopmental theory, the absence of parental monitoring or the presence of parental permissiveness would increase the likelihood of risky behavior and psychopathology in youth. The family is the most proximal and fundamental context that influences adolescent behavior (Perrino et al., 2000), because parents influence other social contexts that affect adolescents' development of risky behavior (e.g., peers). Thus, the family is the ideal entry point for adolescent risk prevention and intervention.

Evidence supports this framework; adolescent sexuality and mental health problems are shaped in part by families, peers and partners (Dadds, Sanders, Morrison, & Rebgetz, 1992; Graber, Brooks-Gunn, & Galen, 1998; Perrino et al., 2000). The family is a critical influence on adolescents' sexual socialization, including sexual values, attitudes and behaviors, sex roles, and contraceptive use (Fisher & Feldman, 1998; Miller & Fox, 1987; Perrino et al., 2000). Parental behavior and family interaction patterns are models for behavior with peers and partners (Bandura, 1977), and peers and partners influence teens' sexual behavior (Brooks-Gunn & Paikoff, 1993; Hofferth & Hayes, 1987). Likewise, parental factors and family functioning are associated with child and adolescent conduct problems, aggression, and depression (Donenberg & Weisz, 1997; McCabe, Clark, & Barnett, 1999; Slesnick & Waldron, 1997). Thus, research derived from relational models of adolescent sexual behavior and psychopathology will likely yield important data about the determinants of sexual risk taking in troubled youth. In this study, we evaluated how two parental behaviors, monitoring and permissiveness, help to shape troubled girls' and boys' risky sexual behavior.

Parental monitoring and permissiveness are consistently linked to high-risk sexual behavior among nonclinic samples, and preliminary evidence suggests that these relationships may hold for adolescents in psychiatric care (Wilson, Weber-Shifrin, & Donenberg, 2000). Greater monitoring and less permissiveness are associated with delays in sexual debut, less frequent sexual intercourse, less risky sexual behavior, fewer sexual partners, and increased condom use among adolescents (Li, Feigelman, & Stanton, 2000; Miller, Forehand, & Kotchick, 1999; Miller, Levin, Whitaker, & Xu, 1998; Romer et al., 1999). Parental monitoring reduces teenagers' opportunities for sexual behavior (Paikoff, 1995), predicts less risky sex (Metzler, Noell, Biglan, Ary, & Smolkowski, 1994), and is linked to reductions in other high-risk behaviors that often co-occur with risky sex, such as drug and alcohol use (Bahr, Maughan, Marcos, & Li, 1998; Li et al., 2000) and delinquency (Ary et al., 1999). Increased parental permissiveness is also associated with high-risk behavior in youth, including more frequent sexual activity and elevated rates of pregnancy (Hogan & Kitagawa, 1985; Miller, McCoy, Olson, & Wallace, 1986). Permissive parental attitudes, an indicator of parental behavior, are related to early sexual debut (Small & Luster, 1994), and early sexual debut is associated with greater risk of infection because of added opportunities for more sexual encounters, multiple partners, and high-risk partners (Durbin et al., 1993; Miller et al., 1997).

There is little evidence that findings differ across ethnic and socioeconomic groups (Blum et al., 2000; Miller et al., 1999), but levels of parental monitoring and parental permissiveness differ for boys and girls, and these gender differences may qualify the linkages between parenting behaviors and teenagers' risky sexual behavior noted in the literature. Parents monitor girls more than boys (Black, Ricardo, and Stanton, 1997; Li et al., 2000; Romer et al., 1999), and compared with boys, girls perceive their parents as less permissive, liberal, or approving of sexual expression (Small and Luster, 1994). However, whether gender qualifies the relation between risky sex and parental monitoring and permissiveness is unknown, particularly for urban teens in psychiatric care.

Gender may indeed moderate such linkages. Developmental theory and research underscore the significance of interpersonal relationships in girls' identity development and sense of self (Chodorow, 1974; Gilligan, 1982; Josselson, 1987; Taylor, Gilligan, & Sullivan, 1995). Social processes are especially important predictors of girls' sexual behavior (Miller & Fox, 1987; Udry, Talbert, & Moms, 1986). Girls, therefore, may be more influenced by parents than are boys because they place a high value on maintaining important relationships, and girls may be more responsive to parental monitoring or permissiveness in order to protect the parent-adolescent relationship. Parenting behaviors related to teens' high-risk sexual behavior and the gender differences in sexual risk taking are not well understood, particularly among ethnically diverse urban youth receiving mental health services. Given the high rates of HIV-risk behavior among psychiatrically disturbed adolescents (; DiClemente & Ponton, 1993; Donenberg et al., 2001), and among girls in particular, identifying gender-specific risk mechanisms will reveal important targets for HIV prevention programs. This study explores two parenting behaviors, parental monitoring and parental permissiveness, that are theoretically linked to high-risk sexual behavior and psychopathology among urban youth in psychiatric care, and tests whether adolescent gender moderates the relationships between (a) perceived parental monitoring and youth' risky sexual behavior and (b) perceived parental permissiveness and youth' risky sexual behavior.

The study extends previous research in several important ways. First, we focus on youth receiving psychiatric services, a population at high risk of exposure to HIV, but whose risk behavior is poorly understood. Second, we examine gender-specific risk factors within a family context in order to obtain a more complete picture of the mechanisms associated with HIV-risk behavior in girls versus boys and to guide the design and implementation of family-based, gender-sensitive interventions. Third, by studying parental behavior among ethnically diverse

inner-city youth, this study expands on research conducted with Caucasian samples (Stanton & Galbraith, 2000) and targets minority teens, whom are disproportionately affected by the AIDS virus (CDC, 2000a). Fourth, we go beyond many of the individual-oriented theories by placing adolescent sexual behavior in a broader social context (i.e., drawing on ecodevelopmental theory). Finally, despite evidence in favor of carefully defining risk outcomes (Donenberg et al., 2001), there is also value in measuring overall sexual risk taking (Metzler et al., 1994). Diverse sexual risk behaviors have been shown to interrelate, justifying the use of a composite score (Metzler, Noell, & Biglan, 1992). However, analyzing individual behaviors enhances conceptual precision (i.e., strengthens the construct validity of the effect) (Cook & Campbell, 1979), by pinpointing the specific types of sexual risk taking associated with HIV-risk determinants. We evaluated risky sexual behavior using both methods. We used a global index to permit comparisons with previous research, and we tested individual risk behaviors (i.e., sex without a condom, sex while using drugs/alcohol, sex with multiple partners, sex with a high-risk partner) to identify specific relationships. However, there are too few studies on which to base hypotheses linking parental monitoring and parental permissiveness to specific types of sexual risk taking. Thus, our hypotheses are limited to patterns associated with global risky sexual behavior.

We hypothesized that girls would report more risky sexual behavior than boys and that risky sex would increase with age (Black et al., 1997). We expected higher perceived parental monitoring and lower perceived parental permissiveness among girls than boys and among younger youth than older youth, and we predicted that greater parental monitoring and less parental permissiveness would be related to less risky sexual behavior. Consistent with developmental theory describing the importance of interpersonal relationships to girls (Chodorow, 1974; Gilligan, 1982), we expected the relationships between risky sexual behavior and parental monitoring and between risky sexual behavior and parental permissiveness to be stronger for girls than for boys.

METHOD

OVERVIEW OF PROCEDURES

This study is part of a larger longitudinal project of HIV risk behavior among youth receiving outpatient psychiatric services. Participants were youth and caregivers (hereafter referred to as “parents”) who sought mental health services at three hospitals in Chicago. Subject recruitment at two clinics entailed a clinic staff member calling eligible families to inform them of the study and inviting them to participate. At the third clinic, data were collected from parents and adolescents at the beginning of treatment as part of the hospital’s routine clinical procedure. Research staff asked teenagers and parents for permission to use the clinical data for research. In all three clinics, parents and youth were reassured that participation was completely voluntary and their decision to participate would have no impact on their medical or psychiatric care. Interested families reviewed the assent/consent forms, and 63.4% of adolescents’ and parents’ agreed to participate ($N = 194/306$).¹

Parents and adolescents separately completed well-known measures of adolescent psychopathology, family context, personal attributes, relationship attitudes, HIV/AIDS knowledge, attitudes and beliefs, and HIV risk behavior. The current study analyzed adolescent reports of parental monitoring and parental permissiveness and their associations to high-risk sexual behavior in girls and boys. Upon completion of the interview, we gave parents and teenagers each an informational pamphlet about AIDS transmission and prevention published by the CDC. Total testing time was approximately 3 hours.

¹Consenters and refusers did not differ significantly by gender ($p = .064$) or by child age ($p = .550$).

PARTICIPANTS

Participants ($N = 169$) are a subset of the larger sample for whom complete data were available. Youth ranged in age from 12 to 20 years ($M = 15.45$; $SD = 1.76$) and 45% were female. Teens were ethnically diverse (40% Caucasian, 40% African/African American, 8% Latino, 7% biracial, 3% other, 2% Asian), and 45% scored in the first three levels of the Hollingshead (1975) index, indicating that slightly less than half of the subjects were from low- to middle-income families.

Based on structured clinical interviews with parents and youth using the Computerized Diagnostic Interview Schedule for Children 4.0 (CDISC; Costello, Edelbrock, Dulcan, Kalas, & Klaric, 1984; Shaffer, Fisher, Piacentini, Schwab-Stone, & Wiks, 1991), adolescents qualified for a range of psychiatric disorders. Diagnoses were based on a smaller sample because 40 adolescents (23.6%) and 48 caregivers (28.4%) did not complete the diagnostic interview. Of the adolescents who completed at least one section of the CDISC, 30% reported symptoms that qualified for a mood disorder, 34% met criteria for an anxiety disorder, 16% qualified for a conduct disorder, and 45% met criteria for at least one disorder. According to parents who completed at least one section of the CDISC, 28% of teenagers qualified for a mood disorder, 39% met criteria for an anxiety disorder, 43% qualified for a disruptive behavior disorder, and 66% met criteria for at least one disorder. Symptom ratings by parents (Child Behavior Checklist; Achenbach, 1991) and youth (Youth Self-Report; Achenbach, 1991) were consistent with diagnoses; 31% and 38% of youth reported clinically significant levels of internalizing and externalizing symptoms respectively, whereas 53% and 49% of parents reported that their teen had internalizing and externalizing symptoms in the clinical range. Rates of psychiatric illness in this sample are similar to rates in other clinic-based adolescent samples. Like earlier findings (; DiClemente & Ponton, 1993; Donenberg et al., 2001), teens in this study reported high rates of risky sexual behavior, including ever having sexual intercourse (39.6%), having sex with a high risk partner (41.8%), having sex while using drugs/alcohol (48%), having sex without a condom (61.2%), and having been pregnant (4%).

Youth were excluded from the study if they (a) were identified by the clinic as mentally retarded or as having known organic impairment that might limit their ability to understand the questions or the consent process ($n = 35$), (b) were wards of the Department of Child and Family Services because their institutional review board denied approval ($n = 45$), (c) did not speak English (measures are normed for English speakers) ($n = 17$), and (d) did not live with a guardian or caretaker ($n = 5$).

MEASURES

Family Demographics.—Caregivers provided information about the adolescent's age, gender, and ethnicity, and the family's socioeconomic status.

AIDS-Risk Behavior Assessment.—The AIDS-Risk Behavior Assessment (ARBA) is a structured interview designed specifically for use with adolescents to assess their self-reported sexual behavior, drug/alcohol use, and needle use associated with HIV infection. It was derived from four well-established measures of sexual behavior and drug/alcohol use (see Donenberg et al., 2001) and assesses alcohol and drug use (e.g., lifetime use, method of use, frequency), needle use (e.g., sharing, tattooing), and sexual behavior (e.g., lifetime sexual intercourse, contraceptive use, high-risk sexual behavior) within the past 30 days and the past 3 months. This study focuses on adolescents' self-reported sexual behavior.

The ARBA uses a skip structure so that initial screening questions answered in the negative are not followed by more detailed items. Youth self-administered the ARBA using a voice directed computer ($N = 57$) or a portable cassette tape player and they recorded their responses

on a questionnaire ($N = 112$). In both cases, an interviewer remained in the room to answer questions and ensure item comprehension. Both procedures worked well, were acceptable to youth, and elicited relevant information.²

Based on responses to the ARBA, we derived two different sets of dependent variables as outcome measures of risky sexual behavior. The first was a global composite index of broad-band risk comprising of the sum of four separate risk behaviors: (a) the number of sexual partners in the past 3 months, (b) whether (1) or not (0) participants had sex while using drugs/alcohol, (c) whether (1) or not (0) participants had sex without a condom, and (d) whether (1) or not (0) participants had sex with a high-risk partner (i.e., whose sexual history was unknown). To avoid weighting the first of these indicators more strongly than the others, we standardized each of the four separate measures before summing them. Analyses indicated that this four-item composite index had an acceptable internal-consistency reliability (Cronbach's $\alpha = .79$). The second set of dependent variables consisted of each of the four individual items from the composite index. Analyzing each item separately provided a narrow-band assessment of adolescent risky sexual behavior, and enabled us to evaluate the generality versus specificity of observed broad-band effects. This approach enhanced the construct validity of our conclusions, by helping us label the effects more precisely in specific theory-relevant terms (Cook & Campbell, 1979).

Parenting Style Questionnaire (PSQ).—The PSQ (Oregon Social Learning Center, 1990) measures the degree of youth-reported parental supervision and monitoring, and the types of caregiver discipline used with teens. Its reliability and validity are well established, and the instrument has been used extensively with deviant preteens and teens (see technical reports from the Oregon Social Learning Center, 1990). Two subscales were used in the current data analyses, perceived parental monitoring and perceived parental permissiveness.³

Sample items from the 5-point monitoring scale are “How often do you check in with your parents/caretakers or an adult after school/work before going out?” and “How often, before you go out, do you tell your parents/caretakers when you’ll be back?” Sample items on the permissiveness scale are “Your parents/caretakers let you go any place you please without asking” and “Your parents/caretakers are less strict than most parents/caretakers in letting you have fun with your friends.” Higher scores represent higher levels of monitoring and permissiveness. Internal consistency reliability was .73 for both scales.

RESULTS

PRELIMINARY ANALYSES

In each analysis, we evaluated statistical significance and gauged the magnitude of relationships using d , which expresses the strength of an effect in terms of the equivalent difference between an experimental group's mean and a control group's mean divided by a pooled standard deviation. An effect size (d) of .20 is considered small, .50 is moderate, and .80 is large (Cohen, 1988). Before testing our theoretical predictions, we evaluated possible

²A copy of the measure may be obtained from the first author.

³Although it would help to interpret the generalizability of our results, there are no established clinical or non-clinical norms to which to contrast the distributions of permissiveness and monitoring scores observed in our study. In lieu of this comparison data, however, we assessed where our sample means on the permissiveness and monitoring scales fall in an absolute terms (i.e., in relation to the range of possible scores on these scales). Each scale is based on four constituent items measured on a 1–5 scale. Thus, possible scores for each scale range from 4 to 20. For the permissiveness scale, the mean for our sample ($n = 169$) was 10.34 ($SD = 3.76$). This value lies at the 40th percentile on an absolute scale, where 4 equals the zero percentile and 20 equals the 100th percentile. For the monitoring scale, the mean for our sample ($n = 169$) was 14.28 ($SD = 4.14$). This value lies at the 64th percentile on an absolute scale, where 4 equals the zero percentile and 20 equals the 100th percentile. These results suggest that, in an absolute sense, adolescents in our sample perceived their parents to be somewhat less than moderately permissive and somewhat more than moderately high in monitoring.

gender differences in mean levels of the predictor variables. Females tended to report higher perceived levels of parental monitoring than did males, $t(167) = 1.84, p > .067$, two-tailed, $d = .28$, but there was no significant gender difference in perceived levels of parental permissiveness, $t(167) = 1.16, p > .24$, two-tailed, $d = .18$. There was no significant gender difference in family socioeconomic status, $t(167) = 1.60, p > .11$, two-tailed, $d = .25$, but females were older than males, $t(167) = 2.70, p < .008$, two-tailed, $d = .42$. Thus, we included age as a predictor in all of the regression analyses in order to control for its effects.

TESTING MAIN EFFECTS AND INTERACTIONS

Main Effects.—Based on previous research, we hypothesized that risky sexual behavior would be positively associated with age and perceived levels of parental permissiveness but negatively associated with perceived levels of parental monitoring (Li et al., 2000; Romer et al., 1999). To test these hypotheses, we conducted five separate multiple regression analyses regressing the global, composite index of risky sexual behavior as well as each of its four constituent items on age, perceived level of parental monitoring, and perceived level of parental permissiveness. Although we had a priori directional hypotheses for these variables, we evaluated their regression coefficients using two-tailed tests so as to be more conservative in our statistical inferences. Table 1 presents the intercorrelations, means, and standard deviations for these study variables. We also entered gender as an additional predictor in the regression models, in order to control for its potential effects on risky sexual behavior. Based on previous research, we hypothesized that adolescent girls would exhibit higher rates of risky sexual behavior than boys (CDC, 2000a; Newman & Zimmerman, 2000). All four predictors were entered simultaneously, to examine their unique relationships with each dependent variable.

Interactions with Gender.—Based on our a priori reasoning, we also expected the effects of monitoring and permissiveness to vary as a function of gender. Accordingly, we made specific directional predictions about the hypothesized interactions of Gender $\times$ Monitoring and Gender $\times$ Permissiveness in predicting risky sexual behavior. Specifically, we predicted that the negative relationship between risky sexual behavior and parental monitoring and the positive relationship between risky sexual behavior and parental permissiveness would be stronger for females than for males.

To test these hypothesized interactions, we first created multiplicative product terms to represent the two-way interactions of gender with adolescent-reported parental monitoring and with adolescent-reported parental permissiveness (Cohen & Cohen, 1983; Jaccard, Turisi, & Wan, 1990; Pedhazur, 1997). We followed the guidelines of Aiken and West (1991) to produce these multiplicative interaction terms, first centering the main effects and then computing the products of these centered variables for use as predictors in multiple regression. Centering variables reduces the problem of collinearity between interaction terms and their constituent main effects in multiple regression models (Cronbach, 1987; Jaccard et al., 1990), and it facilitates the graphing and interpretation of interaction effects (Aiken & West, 1991). Centered main effects had only small to moderate correlations with product terms ($r_s = -.12$ to $-.03$, median $r = -.01$), and the two interaction terms were only modestly intercorrelated ($r = -.17, p < .03, d = .35$).

Besides entering the four main effects in the regression models (i.e., gender, age, perceived level of parental monitoring, and perceived level of parental permissiveness), we also entered the two interaction terms of Gender $\times$ Monitoring and Gender $\times$ Permissiveness to test their statistical significance. To interpret a significant regression coefficient for an interaction term, we examined the slopes of the regression lines separately for males and females and then probed and plotted the specific interaction using procedures outlined by Aiken and West (1991).

Analyzing Continents And Dichotomous Outcome Measures.—We used two different types of regression models to analyze the broad-band and narrow-band measures of risky sexual behavior, depending on whether the particular outcome measure provided continuous interval-scale data or dichotomous categorical-scale data. To analyze the continuous outcome measures—that is, the global index of risky sexual behavior and the number of sexual partners—we used linear multiple regression (Cohen & Cohen, 1983; Pedhauzer, 1997). To analyze the dichotomous outcome measures—that is, having sex while using drugs or alcohol, having sex without a condom, and having sex with a high-risk partner—we used logistic regression (Hosmer & Lemeshow, 1989; Wright, 1995).⁴

Logistic regression models, in contrast, use a maximum-likelihood criterion to analyze the nonlinear effects of a set of predictors, as well as of each predictor in the model, in predicting the odds that an observation belongs to one or the other category in a dichotomous outcome measure. Statistically significant logistic regression coefficients represent unique predictive effects controlling for the other predictors in the model, expressed as the expected change in the natural logarithm of the odds of membership in a particular target category for a one-unit increase in the predictor. To facilitate comparison of predictive effects of variables in different metrics, we examined each predictor's *eb*, which estimates the change in odds of membership in the target category for a one-unit increase in a given predictor, controlling for the other predictors in the logistic model. In logistic regression, product terms reflect the interactive effects of multiple predictors, a significant two-way interaction signifying that the expected change in the odds of group membership as a function of one predictor depends on the level of the other predictor. To interpret a significant interaction in logistic regression, one can examine the change in odds associated with increases in one variable across levels of the other (Hosmer & Lemeshow, 1989).

RESULTS OF REGRESSION ANALYSES

Risky Sexual Behavior Index.—Table 2 presents the results of the multiple regression analysis predicting the composite index of risky sexual behavior. Together the set of predictors explained 24% of the variance in global risky sexual behavior, $F(6,162) = 8.63, p < .00001, d = .63$. Overall, females engaged in higher rates of global risky sexual behavior than did males, $\beta = -.20, p < .007, d = .30$; and older adolescents reported higher levels of global risky sexual behavior, $\beta = .28, p < .001, d = .42$. As hypothesized, perceived parental monitoring had a negative relationship with global risky sexual behavior, $\beta = -.17, p < .016, d = .26$, but there was no main effect of parental permissiveness on risky sexual behavior for the pooled sample, $\beta = .11, p > .12, d = .17$.

Partially confirming our predictions, the interaction of gender $\times$ permissiveness was statistically significant in predicting global risky sexual behavior, $\beta = -.17, p < .016, d = .26$, whereas the interaction of gender $\times$ monitoring was not, $\beta = .01, p > .96, d = .01$. As hypothesized, the regression coefficient relating parental permissiveness to global risky sex (also entering age and monitoring as predictors) was not significant for boys, $\beta = -.06, p > .53, d = .07$, but was positive and statistically significant for girls, $\beta = .32, p < .004, d = .32$. Controlling for the other predictors in the model, parental permissiveness explained roughly

⁴Multiple regression models use a least-squares criterion to analyze the linear effects of a set of predictors, as well as of each individual predictor in the model, in explaining the variance in a continuous-scale outcome measure. Statistically significant linear regression coefficients represent unique relationships controlling for the other predictors in the model, expressed as the amount of change in the outcome measure associated with a one-unit increase in the predictor. Product terms capture the interactive effects of multiple predictors, a significant two-way interaction signifying that the predictive effect of one variable (e.g., parental permissiveness) depends on the level of the other (e.g., gender). To interpret a significant interaction in multiple regression, one can examine the simple slope of one predictor regressed on the continuous outcome measure at given levels of the other predictor, and then plot the resulting regression lines individually (Aiken & West, 1991).

11% of the variance in girls' rates of risky sexual behavior (partial $r = .33$), but explained less than 1% of the variance in boys' rates of risky sexual behavior (partial $r = .07$).

Figure 1 displays level of risky sexual behavior as a function of gender and perceived parental permissiveness. We used scores one standard deviation above (high permissiveness) and one standard deviation below (low permissiveness) the mean of parental permissiveness to plot the Gender $\times$ Permissiveness interaction (Aiken & West, 1991; Cohen & Cohen, 1983). As seen in this figure, when perceived parental permissiveness was low, there was no gender difference in rates of risky sexual behavior, but when perceived parental permissiveness was high, females engaged in higher rates of risky sexual behavior than males.⁵

Number of Sexual Partners.—Table 2 shows the results of the regression analysis of the specific, narrow-band outcome measure of the reported number of sexual partners in the past 3 months. Together the set of predictors explained 14% of the variance in the reported number of sexual partners, $F(6,162) = 4.33$, $p < .0005$, $d = .39$. Girls tended to report more sexual partners than did boys, $\beta = -.14$, $p > .061$, $d = .20$; but age was unrelated to reported number of sexual partners, $\beta = .12$, $p > .14$, $d = .16$. As hypothesized, higher levels of perceived parental monitoring predicted fewer reported sexual partners, $\beta = -.20$, $p < .008$, $d = .29$. However, the main effect of parental permissiveness was only a marginally significant predictor of the number of sexual partners for the pooled sample, $\beta = .15$, $p > .055$, $d = .21$. Contrary to results for the global index of risky sexual behavior, neither the gender $\times$ permissiveness, $\beta = .06$, $p > .45$, $d = .08$, nor the gender $\times$ monitoring, $\beta = -.10$, $p > .19$, $d = .14$, interaction terms were statistically significant predictors of reported number of sexual partners.

Sex While Using Drugs/Alcohol.—Table 2 also displays the results of the logistic regression analysis predicting whether or not adolescents reported having sex while using drugs or alcohol. Together, the set of predictors correctly classified 78.7% of participants for this dichotomous outcome, $\chi^2(6, n = 169) = 36.27$, $p < .0001$, $d = .53$. Gender was unrelated to the odds of having sex while using drugs, $p > .18$, $d = .14$, but each year of age significantly increased the odds of having sex while using drugs by a factor of 1.64, $p < .0006$, $d = .38$. Higher perceived parental monitoring was associated with marginally lower odds of having sex while using drugs, $p > .054$, $d = .21$. However, perceived parental permissiveness had a nonsignificant relationship with the odds of having sex while using drugs, $p > .44$, $d = .08$. Like the results for global risky sexual behavior, the interaction of Gender $\times$ Permissiveness was significantly related to the odds of having sex while using drugs, $p < .022$, $d = .25$, whereas the interaction of Gender $\times$ Monitoring was not, $p > .94$, $d = .01$. As hypothesized, the logistic regression coefficient relating parental permissiveness to having sex while using drugs (also entering age and monitoring as predictors) was not significant for boys, $B = -.15$, $p > .17$, $d = .20$, but was positive and statistically significant for girls, $B = .22$, $p < .0062$, $d = .46$. Controlling for the other predictors in the model, a one-unit increase on the parental permissiveness scale increased the odds of girls using drugs while having sex by a factor of 1.25, but did not reliably change the odds of boys using drugs while having sex.

Sex Without A Condom.—Table 2 shows the results of the logistic regression analysis predicting whether or not adolescents reported having sex without a condom. Together, the set of predictors correctly classified 76.9% of participants for this dichotomous outcome, $\chi^2(6, n = 169) = 45.64$, $p < .0001$, $d = .63$. Being female increased the odds of having sex without a condom by a factor of 2.48, $p < .03$, $d = .24$, and each year of age increased the odds of having

⁵Although we did not hypothesize any effects associated with different ethnic groups, we tested whether ethnicity (i.e., Caucasian vs. African American) moderated the effect of perceived parental monitoring and perceived parental permissiveness on risky sexual behavior via multiplicative product terms using multiple regression. Results revealed statistically nonsignificant interactions with ethnicity for the composite index of risky sexual behavior, as well as for each of its four constituent risk behavior measures.

sex without a condom by a factor of 1.72, $p < .0001$, $d = .44$. Neither perceived parental permissiveness, $p > .40$, $d = .09$, nor perceived parental monitoring, $p > .24$, $d = .13$, was significantly associated with the odds of having sex without a condom. Similar to findings for global risky sexual behavior, the interaction of Gender $\times$ Permissiveness was significantly related to the odds of having sex without a condom, $p < .009$, $d = .29$, whereas the interaction of Gender $\times$ Monitoring was not, $p > .29$, $d = .12$. As predicted, the logistic regression coefficient relating parental permissiveness to having sex without a condom (also entering age and monitoring as predictors) was not significant for males, $B = -.10$, $p > .29$, $d = .15$, but was positive and statistically significant for females, $B = .22$, $p < .0047$, $d = .47$. Controlling for the other predictors in the model, a one-unit increase on the parental permissiveness scale increased the odds of females having sex without a condom by a factor of 1.24, but did not reliably change the odds of males having sex without a condom.

Sex With a High-Risk Partner.—Finally, Table 2 displays the results of the logistic regression analysis predicting whether or not adolescents reported having sex with a high-risk partner. Together, the set of predictors correctly classified 78.1% of subjects for this dichotomous outcome, $\chi^2(6, n = 169) = 13.93$, $p < .03$, $d = .24$. Each year of age increased the odds of having sex with a high-risk partner by a factor of 1.31, $p < .033$, $d = .23$, but gender was not associated with it. Contrary to hypotheses, neither perceived parental monitoring, $p > .063$, $d = .20$, perceived parental permissiveness, $p > .94$, $d = .01$, the interaction of gender $\times$ monitoring, $p > .36$, $d = .10$, nor the interaction of Gender $\times$ Permissiveness, $p > .97$, $d < .01$, was significantly associated with the odds of having sex with a high-risk partner.

DISCUSSION

This study augments growing evidence that youth in psychiatric care risk exposure to HIV through sexual risk taking. Findings shed new light on the role of parents in troubled teenagers' risky sexual behavior, and they reveal potentially different risk mechanisms for troubled boys and girls and for different sexual risk behaviors. Results uncover unique links between different types of sexual risk taking and parenting styles, especially for girls, thereby underscoring the need for gender-sensitive, risk specific, family-focused HIV prevention programs.

Youth in this study reported high rates of sexual risk taking, and risky sexual behavior (i.e., sex while using drugs and alcohol, sex without a condom, and sex with a high risk partner) increased with age. These findings support earlier research (; DiClemente & Ponton, 1993; Kotchick, Shaffer, Miller, & Forehand, 2001), but extend the literature to youth in outpatient psychiatric care. Consistent with our hypothesis and with earlier research, girls reported more risky sex than boys at a global level (CDC, 2000a; DiClemente et al., 1996; Newman & Zimmerman, 2000), but gender differences were not uniform across specific risk behaviors; whereas being female was associated with a greater likelihood of having sex without a condom, being female was not statistically associated with the other narrow-band behaviors (i.e., more sexual partners, sex with a high-risk partner, or sex while using drugs). These findings partially support data on normally developing adolescents that suggest boys are more likely to have multiple partners and girls are less likely to use condoms (CDC, 2000b; Kotchick et al., 2001). These data underscore the importance of identifying gender-specific risk mechanisms in order to appropriately tailor HIV prevention programs for boys and girls.

Findings partially supported our predictions about gender differences in parenting behaviors. Although not statistically significant, girls tended to perceive more parental monitoring than boys ($p = .067$), but girls and boys did not differ significantly in their perceptions of parental permissiveness, although means were in the expected direction ($M = 9.97$ and $SD = 4.00$ for girls, and $M = 10.65$ and $SD = 3.54$ for boys). Gender differences in relation to parental monitoring are widely reported in the literature (Black et al., 1997; Li et al., 2000; Romer et

al., 1999), but there is less evidence to support gender differences in relation to parental strictness or permissiveness. Parents may monitor their daughters more than their sons to protect them from more damaging long-term consequences of high-risk behavior for girls, such as pregnancy. On the other hand, the uniformly strained parent-adolescent relationships of girls and boys in psychiatric care may make parents equally permissive with their daughters and sons to avoid further family conflict. In any case, our data suggest that it is important to distinguish parental monitoring from parental permissiveness because they may be differentially related to risk processes in girls and boys.

Consistent with our expectations, gender moderated the link between sexual risk taking and perceived parental permissiveness for global and specific risk taking behavior. When parental permissiveness was high, girls but not boys reported increased sexual risk taking, a greater likelihood of using drugs and alcohol while having sex, and a decreased likelihood of using a condom during sex. However, rates of risky sexual behavior among girls and boys did not differ when parental permissiveness was low. Contrary to our predictions, gender did not influence the relationship between perceived parental monitoring and risky sexual behavior at either a global or specific level, after controlling for age. Taken together, these findings indicate that adolescent perceptions of parental monitoring and parental permissiveness are more strongly associated with sexual risk taking in troubled girls than troubled boys.

One reason for the gender difference observed in this study may be the strong emphasis girls place on maintaining relationships, especially with parents (Chodorow, 1974; Gilligan, 1982; Taylor et al., 1995). Perceptions of permissiveness could reflect greater family dysfunction in general, which may be especially salient for girls because of their high need for interpersonal connection. In addition, less parental permissiveness (i.e., more strict parenting) may be experienced by girls as an act of concern for their safety, health, and well-being, whereas they may interpret permissive parental attitudes as a lack of concern or connectedness. When girls feel that their parents are concerned and involved, they may be less likely to engage in risky sexual behavior in order to sustain close family ties and avoid parental disapproval and family conflict.

Moreover, highly permissive parent-child relationships may lack intimacy and responsiveness (Minuchin, 1974), and girls may view their parents as detached, disengaged, and unconcerned. This perception may diminish girls' motivation to sustain a strong parent-adolescent bond. They may be less likely to anticipate family conflict and parental disapproval resulting from their risky behavior and, therefore, more likely to seek closeness and intimacy with peers and partners. Many girls convey a reluctance to assert themselves in the context of intimate relationships and a tendency to sacrifice their own needs, feelings and beliefs to please others or avoid conflict and disconnection (Gilligan, 1991; Spinazzola, Wilson, & Stocking, 2001). Responsible sexual behavior, such as abstaining from sex or insisting on condom use, is a potential source of conflict with and even rejection by romantic partners. Engaging in risky behavior may be viewed as a way of gaining acceptance from peers and/or securing a partner's love and commitment. For girls in psychiatric care whose family and interpersonal relationships are already strained, practicing preventive behaviors may be a low priority if it means risking rejection or disapproval from partners and peers. Thus, girls who do not perceive clear limits and expectations from parents may be less motivated to maintain a connection with their parents. By attempting to ensure interpersonal connection in other relationships, they may place needs for intimacy and acceptance with sexual partners or peers above safe behavior thereby compromising their own health.

Alternatively, it is possible that girls who perceive their parents as more permissive also obtain less parental guidance in how to negotiate sexual relationships, and thus, rely on cultural stereotypes of female submissiveness in partner relationships. Girls often have sexual

relationships with older boys/men (Ford, Sohn, & Lepkowski, 2001), and they may be more vulnerable to pressure by older partners not to practice safe sex, especially troubled girls who are seeking reassurance and intimacy through these encounters. Research suggests that teens are less likely to use contraception at first intercourse when their partner is significantly older (Abma, Driscoll, & Moore, 1998). Girls in psychiatric care may be especially unlikely to assert themselves in sexual relationships and more vulnerable to partner pressure to engage in high-risk sexual activity. Boys, on the other hand, may receive less attention regarding sexual education from parents than girls (Miller & Fox, 1987), and therefore may be less influenced by a lack of parental involvement.

This study revealed an important connection between adolescent perceptions of parenting and risky sexual behavior in troubled adolescents, particularly for girls, but further research is needed to clarify the role of other parent-adolescent relationship factors such as warmth, rejection, and communication, in teenagers' sexual risk taking. Research suggests that adolescents are better able to take on adult responsibilities like planning for HIV prevention when they are encouraged to rely on themselves but have parents clearly available for support and advice (Grotevant & Cooper, 1986; Peterson & Leigh, 1990). Thus, in conjunction with adequate parental monitoring and strictness, other aspects of the parent-teen relationship, such as open communication about sexuality, may foster autonomy and responsible sexual decisionmaking. Likewise, research on other important adolescent relationships that influence sexual behavior, such as peer and partner relationships, is also vital to understanding the social-interpersonal context in which clinically disturbed adolescents' sexual behavior takes place and to clarify the mechanisms through which parenting may influence teenagers' sexual behavior.

This study found a somewhat weaker and less compelling connection between parenting and risky sexual behavior in boys. Some research suggests that hormones may be more important than social influences in boys' sexual behavior (Miller & Fox, 1987; Udry, Billy, Moms, Groff, & Raj, 1985), but other intrapsychic factors or parenting behaviors likely play an important role in reducing boys' risk taking (Jaccard, Dittus, & Gordon, 1996; Resnick et al., 1997). Parenting practices (e.g., encouragement to take AIDS precautions) or risk behaviors (e.g., drug use) not studied here may be more salient for boys than for girls' risk behavior. Additional research is needed to identify the intrapsychic factors, parenting practices and parent-adolescent relationship characteristics related to reduced risk behavior among troubled boys.

Like many studies of sexual risk taking (Li et al., 2000; Millstein & Moscicki, 1995), we used a global index of risky sex. However, we also went beyond a global score by analyzing specific forms of risk taking, and in doing so, we were able to pinpoint unique patterns for which adolescent perceived parental permissiveness does (i.e., sex while using drugs/alcohol and sex without a condom) and does not (i.e., number of sexual partners and sex with a high-risk partner) predict greater risk among girls than among boys. This study underscores the importance of assessing global and specific types of risk behavior in order to obtain the most informative patterns.

Study limitations warrant cautious interpretation of these results. This study tested adolescent *perceptions* of parenting styles, and their reports do not necessarily reflect true parental behavior. However, these data suggest that adolescent perceptions play an important role in their sexual behavior, and in the same way that HIV prevention has emphasized changing adolescent perceptions of peer norms regarding sexual behavior, these data support changing adolescent perceptions of parental behavior in order to alter sexual risk taking. We assessed adolescent, rather than parent, perceptions of parental monitoring and permissiveness. Adolescent perceptions are only one indication of parental monitoring and permissiveness, and parent reports of these behaviors may have direct or indirect effects on adolescents' risk

behavior. To test this possibility, we reran our analyses of all dependent measures substituting parent-reported levels of monitoring (the study did not include a measure of parent-reported permissiveness) instead of adolescent-reported levels of monitoring. Parent-reported monitoring had nonsignificant effects for the pooled sample, as well as for males and females when analyzed separately. Indeed, parent and adolescent reports of parental monitoring correlated only .26 ($p < .002$, two-tailed, $d = .54$) in the pooled sample, indicating that the two measures are largely independent ($r^2 = .07$). In any case, our findings suggest that adolescent perceptions of parental behavior are related to adolescents' sexual risk taking, and, thus, prevention programs that change these perceptions have the potential to reduce risky sex in these teens.

The parenting scales used in this study do not assess monitoring and permissiveness in relation to adolescent sexuality or sexual experiences specifically. It is possible that measures of parental monitoring and permissiveness focused on sexual behavior might yield different patterns in relation to teens' sexual risk taking. Nonetheless, these results underscore the important role of adolescent perceptions of parental monitoring and permissiveness in their sexual risk behavior. These data are cross-sectional, and without longitudinal follow-up, the direction of cause-and-effect cannot be established. It is conceivable that adolescents who engage in risky sexual behavior might perceive their parents as more permissive as a means of justifying or rationalizing their behavior. It is also possible that this tendency is stronger among girls than among boys because it is especially important for girls to feel connected with parents. In either case, patterns identified in this study can inform family-based, gender-sensitive prevention programming.

Findings are restricted to adolescents in psychiatric care and may not generalize to other youth. However, this group has shown itself to be at especially high risk for HIV (; Donenberg et al., 2001), and the results provide insight into the links between parenting styles and HIV risk in this group. Data are desperately needed to guide targeted HIV prevention programs for teens in psychiatric care, and findings from the present study offer initial directions for this purpose. Results do not apply to wards of the state, a high-risk teenage subgroup deserving of careful study because of their extensive abuse histories and the evidence that abuse increases HIV risk (Brown, Kessel, Lourie, Ford, & Lipsitt, 1997). The parenting practices of foster parents toward youth who are wards of the state may be related to teenagers' sexual risk taking in different ways than those found here and should be examined. This study focused exclusively on risky sexual behavior despite evidence that these teenagers engage in high rates of other HIV risk behaviors (Donenberg et al., 2001). However, for youth, HIV is mainly transmitted through unprotected sexual intercourse and other high-risk sexual behavior (DiClemente, 1996; Pequagnat & Szapocznik, 2000), and, thus, understanding and preventing sexual risk taking in this group is the most effective way to curb the spread of HIV in this population.

This is one of the first investigations to identify parenting styles associated with treatment seeking teenagers' high-risk sexual behavior. The findings support ecological theories of risk behavior and justify HIV prevention programs that target a broader social context (Bronfenbrenner, 1986; Perrino et al., 2000). Our data underscore the importance of gender-sensitive, family-focused HIV prevention programs that include key family members and strengthen parental supervision and strictness to reduce troubled youth' risky sexual behavior, especially among girls for whom the effects were strongest and who are fast becoming one of the groups at greatest risk of HIV/AIDS.

Acknowledgements

The authors gratefully acknowledge Keryn Pasch, Stacy Clark, Eryn Weber-Shifrin, Jo-Ann Finkelstein, and numerous others who assisted in data collection for this study. They also thank the administrators and clinical staff at all three hospitals, and the participating parents and adolescents, without whose help this study would not have been possible.

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FIGURE 1.

Adolescent risky sexual behavior for males ($n = 93$) and females ($n = 76$) as a function of adolescent-reported parental permissiveness. Scores on the global index of risky sexual behavior ranged from -2.18 to $+10.71$, with a mean of zero ($SD = 3.13$). We used scores 1 standard deviation above (high permissiveness) and 1 standard deviation below (low permissiveness) the mean on parental permissiveness to plot the interaction (Aiken & West, 1991; Cohen & Cohen, 1983).

TABLE 1
Intercorrelations, Means, and Standard Deviations (SDs) for Study Variables

Pooled Sample (<i>n</i> = 169)	R	NP	DA	C	HP	A	M	Mean	SD
Risky sexual behavior (R)	—							0.00	3.13
Number of partners (NP)	.75***	—						0.56	1.05
Sex with drugs/alcohol (DA)	.80***	.47***	—					0.21	0.41
Sex without a condom (C)	.82***	.51***	.56***	—				0.29	0.46
Sex with high-risk partner (HP)	.75***	.37***	.47***	.51***	—			0.20	0.40
Age (A)	.38***	.22**	.35***	.40***	.22**	—		15.45	1.76
Monitoring (M)	-.20**	-.22**	-.17*	-.09	-.14	-.12	—	17.66	4.74
Permissiveness	.23**	.22**	.21**	.22**	.07	.30***	-.18*	10.49	3.84
Males (<i>n</i> = 93)									
Risky sexual behavior (R)	—							-0.61	2.82
Number of partners (NP)	.76***	—						0.44	0.90
Sex with drugs/alcohol (DA)	.78***	.43***	—					0.15	0.36
Sex without a condom (C)	.86***	.55***	.56***	—				0.19	0.40
Sex with high-risk partner (HP)	.83***	.49***	.52***	.67***	—			0.14	0.35
Age (A)	.38***	.24*	.41***	.34***	.23*	—		15.13	1.75
Monitoring (M)	-.21*	-.20	-.13	-.15	-.20	-.10	—	13.75	4.09
Permissiveness	.10	.15	.03	.04	.09	.33***	-.19	10.65	3.54
Females (<i>n</i> = 76)									
Risky sexual behavior (R)	—							0.75	3.34
Number of partners (NP)	.74***	—						0.70	1.19
Sex with drugs/alcohol (DA)	.81***	.48***	—					0.29	0.46
Sex without a condom (C)	.78***	.46***	.53***	—				0.41	0.49
Sex with high-risk partner (HP)	.67***	.25*	.41***	.36**	—			0.26	0.44
Age (A)	.32**	.17	.26*	.40***	.15	—		15.85	1.69
Monitoring (M)	-.27*	-.29**	-.27*	-.12	-.13	-.23*	—	14.92	4.13
Permissiveness	.41***	.31**	.40***	.43***	.08	.32**	-.16	9.97	4.00

* $p < .05$, two-tailed;

** $p < .01$, two-tailed;

*** $p < .001$, two-tailed.

TABLE 2
Results of Multiple Regression Analyses Predicting Global Index of Risky Sexual Behavior and Its Four Specific Components (n = 169)

Predictors	Global Risky Sexual Behavior			Number of Sexual Partners			Sex While Using Drugs or Alcohol			Sex Without a Condom			Sex With a High-Risk Partner		
	β	P<	r ² partial	β	P<	r ² partial	B	P<	e ^b	B	P<	e ^b	B	P<	e ^b
Age	.28	.001	.08	.12	.15	.01	.49	.0006	1.64	.54	.0001	1.72	.27	.033	1.31
Gender	—	.007	.04	—	.062	.02	—	.19	1.83	-.91	.029	2.48	—	.064	2.30
	20			14			60						83		
Monitoring	—	.016	.03	—	.008	.04	—	.055	0.90	-.06	.24	0.94	—	.064	0.91
	17			20			10						09		
Permissiveness	.11	.128	.01	.15	.056	.02	.05	.45	1.05	.05	.40	1.05	.01	.95	1.00
Gender × Monitoring	.01	.97	<.01	.06	.45	<.01	.01	.94	1.01	-.11	.29	0.90	—	.37	0.91
Gender × Permissiveness	—	.016	.03	—	.19	.01	—	.022	0.75	-1.56	.009	0.74	.01	.98	1.00
	17			10			29								
R ² (explained variance)		R ² = .24			R ² = .14			R ² = .19			R ² = .24			R ² = .08	

Note. β = standardized linear regression coefficient; r² partial = proportion of unique variance in the outcome measure that each predictor explains, after statistically removing the variance explained by other predictors in the linear regression model. B = unstandardized logistic regression coefficient; e^b = estimated change in odds of membership in the target category for a one-unit increase in the predictor, controlling for the other predictors in the logistic regression model. R² for linear regression models is the proportion of the total variance in the outcome measure that the entire set of predictors explains. R² for logistic regression models is Cox and Snell's R², analogous to R² in multiple regression. Gender was coded as 1 = female and 2 = male. All p values are two-tailed.