Predictors of Risky Sexual Behavior in African American Adolescent Girls: Implications for Prevention Interventions

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Objective: To describe empirically the risky sexual behavior of an at-risk sample of adolescent girls, to assess psychosocial correlates of risky behavior, and to examine the utility of applying a risk and protective model to predicting teens’ risky sexual behavior.

Method: Participants included 158 African American girls, ages 12 to 19, who were receiving medical care in an adolescent primary care clinic. Teens completed measures of depression, conduct problems, substance use, peer norms, social support, HIV knowledge, sexual self-efficacy, and sexual behavior.

Results: Teens in this sample reported high rates of risky sexual behaviors, including early sexual debuts and frequent unprotected sexual encounters with multiple partners. African American girls who reported high rates of substance use and who reported that their peers engaged in risky behaviors also reported engaging in high rates of risky sexual behaviors. Little support was obtained for protective factors (HIV knowledge, social support, sexual self-efficacy) moderating the relations between risk factors and adolescents’ risky sexual behavior in this sample.

Conclusions: Teens presenting in primary care settings in urban environments seem to be at high risk for HIV, STDs, and substance abuse, and risk reduction strategies should be introduced during the preteen years. An interdisciplinary model of care in primary care settings serving adolescents is clearly indicated, and prevention-oriented interventions aimed at reducing risky behaviors and preventing the development of more significant health, mental health, or substance abuse disorders are needed.

Key words: adolescents; HIV; STDs; risky behavior; prevention.

Guided by a theoretical model, this study assessed psychosocial factors associated with risky sexual behavior in a sample of African American adolescent girls at high risk for pregnancy, sexually transmitted diseases (STDs), and human immunodeficiency virus (HIV). In the United States, the average age for first sexual intercourse among adolescents is 16; however, the mean age for sexual debut among inner-city youths is 13 (Centers for Disease Control and Preven-
tion [CDC, 2000]. African American adolescent girls tend to initiate sex earlier than Caucasian or Latina teens, and they are more likely to initiate sexual activity prior to age 13 than Caucasian teens (CDC, 1999). African American girls who initiate sex at an earlier age are more likely to have a greater number of sexual partners and are less likely to practice safer sex, placing them at increased risk for pregnancy, STDs, and HIV (Coker et al., 1994).

Each year approximately 3 million adolescents (one out of every eight) are infected with a sexually transmitted disease. African American teens from impoverished, inner-city environments have among the highest rates of STDs (CDC, 1999). For example, African American female adolescents ages 15 to 19 have higher rates of both syphilis and gonorrhea than any other ethnic group in the United States (CDC, 2000). In addition, adolescents are the fastest growing group of individuals newly diagnosed with HIV in the United States. As of 2000, the CDC estimates that there are approximately 3,865 adolescents (ages 13 to 19) in the United States living with AIDS. Additionally, over 294,000 adults between the ages of 20 and 34 are currently living with AIDS (39% of all AIDS cases in the United States; CDC, 2000). Given the long incubation period of HIV, it is highly likely that a large number of these adults contracted HIV during adolescence. African American girls are at particular risk for HIV, representing 73% of 13- to 19-year-olds diagnosed with HIV and 66% of 13- to 19-year-olds diagnosed with AIDS (CDC, 2000).

Previous studies of adolescents have identified several psychosocial factors associated with adolescents engaging in risky sexual behavior. For example, teens with emotional or behavioral problems are more likely to engage in risky sexual behavior (Keller et al., 1991; Orr, Beiter, & Ingersol, 1991). African American female adolescents who report high levels of depression and hopelessness are more likely to engage in early sexual activity, more likely to engage in unprotected sex, and more likely to become pregnant (Miller-Johnson et al., 1999; Smith, 1997). In addition, behavioral problems, such as conduct disorder and delinquency, have been found to highly correlate with risky sexual behavior in African American adolescents (Doljanac & Zimmerman, 1998). Further, African American girls who report using substances also tend to report engaging in risky sexual behavior (Fortenberry, 1995; Millstein et al., 1992; Smith, 1997).

Previous studies have also identified social and environmental factors associated with teens engaging in fewer risky behaviors that may play a protective role in teens’ choices. African American adolescents who report having more social support are less likely to engage in risky sexual behavior (St. Lawrence, Brasfield, Jefferson, & Alleyene, 1994). In addition, African American youths who report having peers who engage in fewer risky sexual behaviors also report engaging in fewer risky sexual behaviors themselves (Black, Ricardo, & Stanton, 1997; Millstein & Moscicki, 1995).

In the past decade, a significant amount of attention has been given to providing young people with increased knowledge about HIV and with increased behavioral skills to practice safer sex. The HIV prevention literature has shown that knowledge of HIV transmission is a necessary, but not sufficient, prerequisite for teens to practice HIV preventive behaviors (Kirby & DiClemente, 1994). In contrast, sexual self-efficacy or the confidence in one’s ability to initiate and engage in safe-sex practices has been identified as a factor that increases the likelihood of adolescents practicing safer sex or postponing sex (Carvajal et al., 1999; Jemmott, Jemmott, Spears, Hewitt, & Cruz-Collins, 1992).

In the pediatric psychology literature, theoretical models have been developed that have explored risk and protective factors that affect adjustment to chronic illness (e.g., Wallander, Gil, Burbach, Keith, & Kinney, 1993; Wallander & Varni, 1998). These models posit that problematic adjustment or behaviors are the result of interactions between factors that elevate risk for such problems (e.g., stress, poverty, illness severity) and factors that serve as “buffers” of protection from the deleterious effects of risk factors (e.g., coping skills, social support). Whereas risk and protective models have been applied broadly to studies assessing adjustment to childhood chronic illness (Wallander & Thompson, 1995), only a few researchers have used risk and protective models to explore factors contributing to health-compromising behaviors in teens (Irwin & Millstein, 1986; Millstein & Moscicki, 1995).

As described, previous studies have identified possible risk and protective factors for teens engaging in high-risk sexual behavior; however, most of these studies have assessed these factors in isolation and have not attempted to link them in a theory-driven manner. More specifically, although factors that might play a protective role by moderating the relationship between risk factors and adverse outcomes have been identified, their potential moderating role has rarely been directly assessed. This study builds on
the existing literature by applying a theoretical model that includes both risk and protective factors in predicting African American girls’ risky sexual behavior (see Figure 1). The first goal of this study was to investigate the relations between potential risk factors (e.g., depression, conduct problems, substance use) and risky sexual behavior in a sample of African American adolescent girls. In addition, this study sought to determine whether social/environmental factors (e.g., social support, peer norms) or knowledge and skill factors (e.g., HIV knowledge, sexual self-efficacy) played a protective role in moderating the relationships between these risk factors and teens’ risky sexual behavior. This study also assessed a population known to be at high risk for pregnancy, STDs, and HIV, given that the participants reside in a low-income, urban community where prevalence rates for these outcomes are high, and the participants were attending a clinic that primarily provides STD treatment and family planning services. Last, this study assessed teens’ self-reported actual behaviors, rather than their intentions to engage in health-compromising behaviors.

We hypothesized that teens who reported more symptoms of depression, teens who reported more conduct problems, and teens who reported higher levels of substance use would report engaging in more risky sexual behavior. We also predicted that teens who reported having higher levels of social support and who reported that their peers were engaging in fewer risky behaviors would report engaging in less risky sexual behavior. Furthermore, we hypothesized that teens with more confidence in their ability to practice safer sex (i.e., sexual self-efficacy) would report engaging in fewer risky behaviors. In addition, we hypothesized that social/environmental factors (social support, peer norms) would serve as protective factors by moderating the relationship between each of the risk factors (depression, conduct problems, substance use) and risky sexual behavior. Specifically, depressed teens, teens engaging in delinquent behaviors, and teens with higher rates of substance use who

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**Figure 1.** Risk and protective model for predicting risky sexual behavior.
also reported higher levels of social support or peers who are engaging in fewer risky behaviors would report engaging in fewer risky behaviors. Finally, we predicted that knowledge and skill factors (HIV knowledge, sexual self-efficacy) would also moderate the relationship between these same risk factors and risky sexual behavior. Specifically, depressed teens, teens engaging in delinquent behaviors, and teens with higher rates of substance use who also reported more HIV knowledge or more confidence in their ability to practice safer sex would report engaging in fewer risky behaviors.

Method

Participants

One hundred fifty-eight African American female adolescents, ranging in age from 12 to 19 (M = 15.7 years, SD = 1.87 years) served as participants in this study. All participants were from low-income families and lived in inner-city neighborhoods. Approximately 65% (100 of 158) of teens reported that they lived with one or both parents, and 29% (45 of 158) lived with a grandparent or other relative. The remainder of the teens reported that they lived on their own (4 of 158), lived with a friend or boyfriend (4 of 158), or lived in a residential facility (1 of 158). Nine percent of adolescents in this sample (13 of 158) reported that they had one or more children of their own. Eighty-four percent (132 of 158) of teens were currently attending school and 10% (15 of 158) reported that they were receiving special education services.

To be eligible to participate in this study, teens had to be current patients of the Adolescent Primary Care Clinic; they had to speak and understand English and be able to complete the battery of questionnaires. None of the teens who participated in this study was identified as HIV-infected (e.g., through voluntary testing in the clinic).

Voluntary HIV testing is available, and health education on STD, HIV, and pregnancy prevention is provided to most teens. The participants in this study were representative of the patients who receive care in the Adolescent Primary Care Clinic.

Procedure

This study was approved by the Human Investigations Committee of Emory University School of Medicine. Adolescents attending clinic appointments or being seen on a walk-in basis in the Adolescent Primary Care Clinic were approached in the clinic waiting area by the study coordinator. The purpose and requirements of the study were explained to those teens who met the eligibility criteria and they were invited to participate. If the adolescent was under age 18, written assent from the teen was obtained and the signature of a parent or legal guardian was required prior to enrollment in the study. If the teen was 18 or older, the study requirements were explained and the teen was asked to sign a consent form.

All data collection took place in an exam room or staff office of the clinic. A trained research assistant verbally administered the battery of questionnaires to participants, to control for differences in reading ability. The research assistants were student volunteers who were not associated with the clinic in any capacity. The interview and questionnaire battery took approximately 90 minutes to complete. Each participant was paid $10.00 for participation. Approximately 11% (22 of 191) of teens who were approached and asked to participate declined to take part in this study. Potential subjects who declined participation reportedly were concerned that the procedure would take too long to complete or lacked interest in participating in the study.

Measures

A demographic questionnaire was completed by adolescent participants that included the following variables: age, gender, race/ethnicity, academic status and history, living situation, family status and income, and number of children. Teens’ history of STDs and of pregnancy was also obtained from their clinic medical records.

Risk Factors

Depression. Participants completed the Beck Depression Inventory (BDI; Beck & Beamesderfer, 1974),
which contains 21 items assessing cognitive, behavioral, affective, and somatic components of depression. Internal consistency estimates of the BDI with school and clinical samples of adolescents (ages 12–17) have ranged from .86 to .90 (Barrera & Garrison-Jones, 1988). Validity data for the BDI has also been demonstrated with adolescents (Roberts, Lewinsohn, & Seeley, 1991), and the BDI has been used with African American teens (ages 13–19) to assess depression (Leadbeater & Linares, 1992).

**Conduct Problems**. Participants also completed the Conduct Disorder Subscale of the Adolescent Symptom Inventory—4 (ASI; Gadow & Sprafkin, 1997) to assess conduct problems and delinquency. Reliability and validity for the ASI have been established for teens ages 12 to 18, and predictive validity estimates for the Conduct Disorder Subscale used in this study yielded sensitivity estimates of .76 to .92 and specificity estimates of .83 (Gadow & Sprafkin, 1997). The Conduct Disorder Subscale consists of 20 items that assess the presence of the symptoms for a diagnosis of Conduct Disorder delineated in the DSM-IV (American Psychiatric Association, 1995). Higher scores on this scale indicate more conduct problems.

**Substance Use** was measured by a 5-item scale that asks teens how often in the past 3 months they drank alcohol, got drunk from alcohol, or used marijuana, crack, or IV drugs. Items are scored along a four-point Likert scale from none/never to several times a week (DiIorio, Parsons, Lehr, Adame, & Carlone, 1993). Total scores were used on this measure, and higher scores indicated more substance use. In addition, teens were asked if they ever had a drink or tried marijuana, cocaine, amphetamines, or IV drugs. If so, participants were asked how many days in the past month they have used the substance and how much they used. Teens’ responses to the questions of ever having used substances were recorded for descriptive purposes only and were not used in the following analyses.

**Protective Factors**

**Social Support**. Participants completed the 20-item Medical Outcomes Study (MOS) Social Support Survey (Sherbourne & Stewart, 1991), which assesses perceived availability of social support. This measure assesses emotional and physical support, tangible support, and affectionate support and yields an overall score of social support used in this study. Previous studies have documented reliability and validity for this measure with adults in health care settings (Sherbourne & Stewart, 1991; Wu et al., 1991). Internal consistency for a subset of this sample of adolescents (n = 79) was .92 (Gess, 2001).

**Peer Norms** were measured by a 7-item scale assessing teens’ perceptions of their peers’ involvement in risky practices such as having sex without a condom, having multiple sex partners, and using illicit substances (DiIorio et al., 1993). Participants reported how many of their close friends practice each behavior (1 = none to 5 = all), resulting in a total score reflecting teens’ perceptions of their peers’ risky practices. This scale has been used with female college students and has documented reliability and validity. More recently, this scale has been used with younger African American adolescents (DiIorio, 1997).

**HIV Knowledge**. HIV-related knowledge was measured by the 15-item Knowing About HIV and AIDS scale (Popham et al., 1995), which measures functional knowledge about HIV/AIDS in a true/false format. Total scores were used in this study; higher total scores indicate greater knowledge of HIV.

**Sexual Self-Efficacy**. The Safer Sex Practice Self-Efficacy Scale (Soet, Dudley, & DiIorio, 1999) is a 12-item scale assessing teens’ confidence in their ability to practice safer sex. This scale contains three subscales that include refusing to have sex, properly applying a condom, and negotiating for condom use with partners. Cronbach’s alpha coefficients in a sample of 18- to 25-year-old African American and Caucasian young women for the three subscales were .74, .93, and .87, respectively (Soet, Dudley, & DiIorio, 1999). In this study, the total score was used to estimate perceived self-efficacy.

**Outcome Variable**

**Risky Sexual Behavior**. Participants were asked to indicate the age at which they first willingly had sexual intercourse. Teens were also asked how many sexual partners they had had in the past 60 days. For each partner, they were asked how many times they had sex with that partner and how many times they used a condom. The percentage of times teens used condoms while having sex was estimated from this information. Participants were also asked to report any current or previously diagnosed STDs and number of pregnancies in the past 12 months.

For the purposes of this study, an aggregate variable of risky sexual behavior was derived, which combined teens’ reports of the following: previous experience of willing sexual intercourse (0 = never engaged in sexual intercourse; 1 = previous experience with intercourse), number of sexual partners in the last 60 days (0 = 0; 1 = 1 partner; 2 = 2 or more part-
ners), percentage of sexual encounters where condoms were used (0 = 1.00; 1 = .50–.99; 2 = < .50), and history of STDs (0 = no; 1 = yes) and pregnancies (0 = no; 1 = yes) over the past 12 months. Scores on the risk aggregate variable ranged from 0 to 7, with higher scores indicating greater risk for contracting HIV or other STDs. This index of risky behavior had a mean of 2.43 and a standard deviation of 1.9. In addition, chi-square analyses indicated that each of the components of this outcome variable was significantly associated with the aggregate variable. It is significant to note that teens' STD history and pregnancy history were abstracted from their medical charts and compared to self-report data for a portion of this sample ($n = 107$). We obtained concordance rates of 96%, indicating that teens were accurate in their reporting of their STD and pregnancy history and the self-report data appears to be valid (Bachanas, Morris, Lewis, Sirl, & Sawyer, 1999).

### Results

#### Overview of Data Analyses

The following paragraphs describe the self-reported risky sexual behaviors and substance use of African American female adolescents in this sample. Age significantly correlated with risky sexual behavior ($r = .44, p < .001$), so age was controlled for in all of the following analyses. The relations between teens engaging in risky sexual behavior and their psychological risk factors, social/environmental factors, and knowledge and skill factors are explored through correlational analyses. Multiple regression analyses predicting risky sexual behavior in African American girls are then presented, which test the risk and protective model depicted in Figure 1.

#### Risky Sexual Behavior

Teens in this sample reported high rates of engaging in risky sexual behavior, placing them at great risk for HIV and other STDs (see Table I for frequencies of risky sexual behaviors stratified by age). Specifically, 78% (123 of 158) of teens reported that they had engaged in vaginal intercourse at least once. For this group, the mean age for first experience of vaginal intercourse was 14 years, 2 months ($SD = 1.5$). Of those teens who had become sexually active, 57% reported that their first consenting experience with sexual intercourse was at age 14 or younger. Forty percent of sexually active teens (49 of 123) reported having had at least one STD in the past year, and 14% (17 of 123) reported having an STD at the time of this study. In addition, 23% of sexually active teens in this sample (28 of 123) reported having been pregnant, and 10 of those teens had been pregnant more than once. Sixty-one percent of sexually active teens (75 of 123) reported having one sexual partner in the past 60 days, and 20% (24 of 123) reported having two or more sexual partners in the past 60 days. When asked about frequency of condom use, 17% (21 of 123) of teens who were currently sexually active reported that they used condoms less than half of the times they engaged in sexual activity, and 11% (14 of 123) reported that they never used condoms.

### Table I. Percentages and Frequencies (n) of Sexually Active Girls’ Risky Sexual Behaviors Stratified by Age (n = 158)

<table>
<thead>
<tr>
<th>Ages (n)</th>
<th>Sexually active [% (n)]</th>
<th>No. of sexual partners in last 60 days [% (n)]</th>
<th>% of sexual encounters w/condoms last 60 days [% (n)]</th>
<th>During previous year [% (n)]</th>
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</thead>
<tbody>
<tr>
<td>12–13 (18)</td>
<td>44 (8)</td>
<td>2 (3)</td>
<td>2 (3)</td>
<td>2 (2)</td>
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<tr>
<td>14–17 (104)</td>
<td>77 (80)</td>
<td>11 (14)</td>
<td>41 (50)</td>
<td>13 (16)</td>
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<tr>
<td>18–19 (36)</td>
<td>97 (35)</td>
<td>6 (7)</td>
<td>18 (22)</td>
<td>5 (6)</td>
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<tr>
<td>Total = 158</td>
<td>78 (123)</td>
<td>20 (24)</td>
<td>61 (75)</td>
<td>20 (24)</td>
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*Based on subsample of teens who are sexually active (n = 123).*
diction, teens’ self-reported symptoms of depression and conduct disorder were not significantly correlated with teens’ risky sexual behavior when age was controlled.

With regard to protective factors, teens who reported that their friends engaged in fewer risky behaviors also reported engaging in fewer risky sexual behaviors than teens who reported that their friends were engaging in more risky behaviors. Contrary to our hypothesis, teens’ perceived social support was not significantly related to teens engaging in risky sexual behavior. Also contrary to our expectations, adolescents’ confidence in their ability to practice safer sex was not significantly related to teens engaging in risky sexual behavior.

**Multiple Regression Analyses.** A series of hierarchical regression analyses were conducted, guided by the risk and protective model shown in Figure 1. Since age was found to correlate with risky sexual behavior, it was entered first in all regression equations as a covariate. In the second step, a predicted risk factor and potential protective factor (i.e., peer norms, social support, HIV knowledge, or sexual self-efficacy) were entered. In the third step, a term representing the interaction between these two variables was entered to test for a moderating effect. Only those models with significant effects will be reported in detail.

**Risk Factor 1: Depression.** To test whether peer norms, social support, HIV knowledge, and self-efficacy moderated the relation between adolescents’ depression and risky sexual behavior, we entered each of these variables into a separate regression equation with age and depression as described. The overall model that included depression and peer norms accounted for 26% of the variance in risky sexual behavior, $F(4, 151) = 12.82, p < .001$. Including depression and peer norms in the model resulted in a significant increase in $R^2$ beyond the significant contribution of age; however, only peer norms accounted for a significant portion of unique variance ($\beta = .30, p < .001$), indicating that teens who reported that their peers were engaging in fewer risky behaviors also reported engaging in fewer risky sexual behaviors. Contrary to our hypotheses, the main effect of depression and the interaction between depression and peer norms were not significant. Models that assessed social support, HIV knowledge, and sexual self-efficacy as potential moderators of a hypothesized relationship between depression and risky sexual behavior were also not significant.

**Risk Factor 2: Conduct Problems.** To test whether the potential protective factors moderated the relation between adolescents’ conduct problems and risky sexual behavior, we entered each of these variables into a separate regression equation with age and conduct problems. The overall model that included conduct problems and peer norms accounted for 27% of the variance in risky sexual behavior, $F(4, 152) = 13.52, p < .001$. Inclusion of conduct problems and peer norms in the model resulted in a significant increase in $R^2$; again, only peer norms accounted for a significant portion of unique variance ($\beta = .28, p < .001$). The main effect of conduct problems and the interaction between conduct problems and peer norms were not significant. When we included HIV knowledge in the equation, the overall $R^2$ for the model was significant, $F(4, 152) = 10.67, p < .001$, accounting for 22% of the variance in teens’ risky sexual behavior. Inclusion of conduct problems and HIV knowledge in the model did not result in a significant increase in $R^2$; however, conduct problems were a significant predictor of risky sexual behavior in this model ($\beta = .15, p < .04$), and the conduct problems × HIV knowledge interaction term approached significance ($\beta = .13, p < .08$).

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<td>6. Peer norms</td>
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Partial correlations controlling for age represented in bold. BDI = Beck Depression Inventory. *$p < .05$. **$p < .01$. 

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When we included sexual self-efficacy in the equation, the overall $R^2$ for the model was significant, $F(4, 150) = 9.37, p < .001$, accounting for 20% of the variance in teens’ risky sexual behavior. Although neither conduct problems nor sexual self-efficacy made significant independent contributions to the prediction of risky sexual behavior, the conduct problems $\times$ sexual self-efficacy interaction term approached significance ($\beta = -.15, p < .06$), suggesting a potential moderating impact of sexual self-efficacy on the relation between conduct problems and risky sexual behavior that approached but did not reach statistical significance. A model that assessed social support as a potential moderator of the hypothesized relation between conduct problems and risky sexual behavior was not significant.

Risk Factor 3: Substance Use. To test whether the protective factors moderated the relation between adolescents’ substance use and risky sexual behavior, we entered each of these factors and the interaction term into a separate regression equation with age and teens’ self-reported substance use. The overall model that included substance use and peer norms accounted for $33\%$ of the variance in risky sexual behavior, $F(4, 152) = 17.86, p < .001$. Inclusion of substance use and peer norms in the model resulted in a significant increase in $R^2$. Teens’ substance use accounted for a significant portion of the variance ($\beta = .37, p < .001$); however, the impact of peer norms was not statistically significant. The interaction between peer norms and substance use approached significance ($\beta = -.16, p < .07$), suggesting a potential moderating impact of peer norms on the relation between substance use and risky sexual behavior that approached but did not reach statistical significance. Models that assessed social support, HIV knowledge, and sexual self-efficacy as potential moderators of a hypothesized relationship between substance use and risky sexual behavior revealed a significant main effect for substance use but no significant moderating effects for the other factors.

Discussion

This study assessed high-risk sexual behavior and risk and protective factors associated with risky sexual behavior in a sample of African American teens from an inner-city, low-income clinic. Adolescents in this sample reported high rates of STDs, pregnancy, and unprotected sexual encounters with multiple partners. Similarly, high rates of substance use were reported, and substance use was a significant predictor of teens’ risky sexual behavior. However, emotional and behavioral problems were not found to predict teens’ risky sexual practices. Teens who reported having peers who engaged in fewer risky sexual behaviors also reported engaging in fewer risky behaviors; however, social support and sexual self-efficacy were not significantly related to teens’ risky sexual behavior. Little support was obtained for protective factors (peer norms, social support, HIV knowledge, sexual self-efficacy) moderating the relations between risk factors and adolescents’ risky sexual behavior in this sample. Although substance use and peer norms were both significantly associated with risky sexual behavior, when entered in the same model, only substance use accounted for a significant portion of the variance in teens’ sexual behaviors. Thus, substance use appears to play a critical role in teens’ risky sexual practices.

Many African American girls in this sample reported sexual debuts at very young ages. The majority of teens reported that their first consenting experience with sexual intercourse was at age 14 or younger. Findings from previous studies suggest that these teens who initiate sex at younger ages are at high risk for contracting HIV and other STDs, as they are likely to have more sexual encounters and more lifetime partners and are less likely to practice safer sex than teens who delay intercourse (Coker et al., 1994; Lynch, Krantz, Russell, Hornberger, & Van Ness, 2000). Younger teens who are having sex seem especially vulnerable, as developmentally they are least equipped cognitively and emotionally to handle the demands of communicating with their partners about condom use and delaying intercourse. These findings suggest that HIV and STD prevention interventions should be targeted to preteens and young adolescents, in an effort to prevent them from engaging in behaviors that place them at high risk for HIV as they get older.

Teens in this sample reported high rates of substance use, and teens’ self-reported substance use significantly predicted teens engaging in risky sexual behavior. Substance use was the strongest predictor of risky sexual behavior in African American girls in this sample. These findings are consistent with previous studies that have shown that teens who are sexually active are more likely to use drugs or alcohol (Fortenberry, 1995; Orr et al., 1991). It has been hypothesized that some teens may have an underlying predisposition toward sensation seeking, risk taking, or impulsivity that results in teens engaging in substance use.
and riskier sexual practices (Deas-Nesmith, Brady, White, & Campbell, 1999). Alternatively, it has been suggested that under the influence of alcohol or drugs, adolescents are less likely to delay intercourse or use protection during sex (Millstein & Moscicki, 1995). Although the correlational nature of this study does not allow for a causal relationship to be established, it is clear that teens who use substances are also more likely to engage in sexual behaviors that put them at greater risk for HIV and STDs.

Our findings that peer norms predicted teens engaging in risky sexual behavior are consistent with previous studies that have reported that African American youths who report that their peers engage in high-risk behaviors also report engaging in risky sexual behaviors (Black et al., 1997; Millstein & Moscicki, 1995). While individuation from the family and identifying with a peer group are developmental tasks of adolescence, Jessor and Jessor (1977) have argued that teens who are more influenced by their peers than by their families are more likely to engage in problem behaviors. In a recent study of risky sexual behavior in urban youths, Smith (1997) reported that the pressures to become involved with substance use and sexual intercourse are high for many African American teens in urban, impoverished neighborhoods. It is not clear if teens engage in risky behaviors to conform to an existing peer group or if those teens who engage in high-risk behaviors are drawn to other teens who also engage in risky behaviors. Regardless of the direction, these findings highlight the importance of peer influences on teens’ choices about risky practices. Teens who overestimate their peers’ substance use are more likely to report using substances themselves. This finding may also apply to teens’ perceptions of their peers’ sexual behavior. Consequently, interventions may focus on teens’ perceptions of normative peer behavior.

Taken together, the findings reported above indicate that African American girls in this sample who engaged in risky sexual behavior were also more likely to use substances and more likely to associate with peers who engaged in risky behaviors. This pattern is fairly consistent with Jessor and Jessor’s theory of problem behavior (1977), which suggests that problem behaviors such as alcohol use, marijuana use, delinquency, and precocious sexual activity tend to be associated with each other in teens (Donovan, Jessor, & Costa, 1991). However, several recent studies have suggested that alternative theories need to be developed to best explain the relationship among risky behaviors in low-income, African American youths. For example, Black, Ricardo, and Stanton (1997) reported that sexual activity in younger, urban African American teens (ages 11–14) was not associated with other risk practices (substance use, delinquency) in their sample of boys and girls. Similarly, Doljanac and Zimmerman (1998) reported that although engagement in high-risk sexual behavior was related to substance use and delinquency in African American youths, this relationship was much stronger for white teens. These findings, along with findings from this study, suggest that for low-income, urban youths, the relations between sexual activity and other risk behaviors are more complex and that behavior problem theory may not be the best explanation for these findings. Further, within low-income, urban environments, early sexual activity may be more normative, especially when teens perceive their peers as engaging in sexual activity, and may not be indicative of other problem behaviors.

Although previous studies have shown that adolescents who are depressed tend to engage in risky sexual behavior (e.g., Keller et al., 1991), teens in this study who reported symptoms of depression were not more likely to report engaging in risky sexual behavior. In this sample, 27% of girls reported depressive symptoms in the moderate range of severity and 13% endorsed depressive symptoms in the severe range. Although it is possible that teens who were exhibiting acting out behaviors and using substances might also be depressed, teens’ report of depressive symptoms was not associated with conduct problems or substance use in this study. Clearly, a significant number of teens reported symptoms of depression; however, these teens tended not to be engaging in risky behaviors.

Applying a risk and protective model to the prediction of African American girls’ risky sexual practices allowed for the identification of factors associated with risky sexual behaviors and of factors that may play a protective role in moderating the relations between risk factors and risky sexual behavior in a sample known to be at high risk for HIV and other STDs. Specifically, these adolescents reside in environments where prevalence rates for HIV and STDs are high, and they were attending a medical clinic providing STD treatment and family planning services. The findings from applying this model to urban African American teens revealed that substance use accounted for more of the variance in their risky sexual behavior than the other factors assessed. Risk factors that have been associated with teens’ risky sexual behavior in other studies (i.e., conduct prob-
lems, depression) were not associated with increased risky sexual behavior in this study, when age was controlled for. In addition, mixed support was obtained for the protective factors identified in the model. Specifically, peer norms were a strong predictor of risky sexual practices; however, support was not obtained for peer norms functioning as a moderating factor. In contrast, social support did not predict teens’ risky sexual practices, either directly or indirectly. It is possible that the measure used to assess social support in this study did not capture the type of support that may be helpful for teens when making decisions about engaging in risky sexual practices. In addition, HIV knowledge and sexual self-efficacy were not directly related to teens’ risky sexual practices and did not appear to have a moderating role with regard to risky sexual behavior.

In conclusion, the risk and protective model assessed in this study did not account for large amounts of the variance in African American girls’ risky sexual behaviors, and there was weak support for the protective factors evaluated in this model. Although risk and protective models have been found to be useful in predicting coping with chronic illness in childhood, it is possible that predicting teens’ sexual decision making is a qualitatively different outcome that may be better predicted by a different type of model (e.g., public health models or models of decision making). It is also possible that other factors not assessed in this study are more significant risk and protective factors (e.g., family variables) and that inclusion of these variables in a risk-protective model would result in increased predictive power.

This study has several limitations that should be acknowledged. Although this study includes an African American sample, we do not have a comparison group of Caucasian or Latina adolescents or adolescents from higher SES backgrounds. Consequently, we were unable to assess whether the sexual practices and predictors of risky behavior found in this study are representative of teens from different ethnic and socioeconomic backgrounds. In addition, all participants in this study were receiving care in an adolescent clinic that primarily provides family planning services and STD treatment, in addition to other primary care services. Therefore, the sample may be biased in terms of including more teens who are sexually active than a sample of teens from a community setting. However, this sample offers important data on teens who are at high risk for HIV and other STDs and who are likely representative of other urban populations. Another limitation of this study is the lack of male participants. Approximately 95% of the patients the adolescent clinic serves are female. Although we actively recruited male participants, we were not able to recruit enough to include in the analyses.

We collected data only from the adolescents who participated in this study. The lack of data from other informants (e.g., family members, peers) is a significant weakness of this study. Similarly, we relied on teens’ self-report for the majority of the data. Teens may have underreported some behaviors that are illegal (e.g., substance use) or sexual behaviors that they were uncomfortable discussing with an interviewer. However, the high concordance rate between girls' report of their STD and pregnancy history and the rates obtained from their medical charts suggests that these responses were valid. Similar findings have been reported by other investigators who also found consistent self-reports and chart-documented STDs from adolescents in clinic settings (Millstein & Moscicki, 1995). In addition, although we tried to choose measures that had been used with African American adolescents, most of the measures used in this study do not have norms for urban youths of color. Consequently, we cannot be certain that the measures used in this study adequately captured the experiences of African American girls in an urban environment. The cross-sectional nature of the study also limited the interpretation of our findings in terms of cause-effect relationships. Finally, there are many factors this study did not assess, including family influences, community influences (e.g., neighborhood violence), and interpersonal influences (e.g., spirituality, religious affiliation). Future research should attempt to add these factors into a risk and protective model predicting risky sexual behavior in African American girls.

Teens presenting in primary care settings in urban environments are at high risk for HIV, STDs, substance abuse problems, and delinquency. This study identified factors increasing teens risk for STDs and HIV and identified areas that health care professionals in primary care clinics should assess and target for intervention during adolescents’ contacts with the health care system. Specifically, the high prevalence of early sexual activity in African American girls reported in this sample and others reflects the importance of intervening early, and risk reduction strategies should be introduced during the preteens years. These findings also reflect the importance of targeting other risky behaviors in addition to reducing risky sexual behaviors, such as substance use. In addition, the high prevalence rate of substance use in this sample suggests that many of these teens may be at risk for developing substance abuse problems in the
future and should be targeted for substance abuse prevention programs. Finally, these data strongly support an interdisciplinary model of care in primary care settings serving at-risk youths. Psychologists and health care providers should adopt a prevention-oriented model when intervening with urban youths in clinic settings and should provide education and intervention aimed at reducing the development of more significant health, mental health, or substance abuse disorders.

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