

# Teen Pregnancy, Motherhood, and Unprotected Sexual Activity

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**Abstract:** The sexual behaviors and attitudes toward condom use of adolescent mothers ( $N=572$ ) from ethnic minority groups were examined. Constructs from social cognitive theory (SCT), the theory of reasoned action (TRA), and the theory of planned behavior (TPB; e.g., intentions to use condoms, self-efficacy, outcome expectancies) were measured with questionnaires. Measures of AIDS and condom-use knowledge and selected psychosocial, behavioral, and demographic variables were included. Many adolescents reported early onset of sexual activity, multiple lifetime sexual partners, substance use, and childhood sexual or physical abuse. Only 18% stated a condom was used at last intercourse. Using hierarchical regression analysis, 13% of the variance for factors associated with unprotected sex was accounted for by TRA constructs. Other variables contributed an additional 17% of the variance. Unprotected sex was associated with behavioral intentions to use condoms, pregnancy, having a steady partner, more frequent church service attendance, and ever having anal sex. Findings support the urgent need for broad-based HIV prevention efforts for adolescent mothers that build on theoretical concepts and address the realities of their lives.

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Adolescents and young adults are disproportionately affected by the AIDS epidemic, with higher infection rates than any other population group in the United States. Of new HIV infections, at least half are estimated to occur among persons less

than 25 years of age, primarily through sexual transmission (Centers for Disease Control and Prevention CDC, 2001a). Vulnerable ethnic/racial groups and women have been found to be particularly susceptible to HIV/AIDS; 77% of the

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cumulative reported AIDS cases for women are in African American (AA) and Latina adolescents and adults (CDC, 2001b). Inner-city youth also have been identified as one of the most vulnerable populations (CDC, 2001c); among these, pregnant adolescents and young mothers (referred to hereafter as “adolescent mothers”) comprise a high-risk subgroup.

A variety of factors place adolescent mothers at risk for HIV exposure through heterosexual transmission. Predominantly from vulnerable ethnic/racial groups and living in poverty (Ventura et al., 1999), many have been engaging in unprotected sexual activity (i.e., without using condoms) from an early age, have had more than one sexual partner, have a history of sexually transmitted infections (STIs), and have experienced physical or sexual abuse (Koniak-Griffin & Lesser, 1996; Lourie et al., 1998). Physiologic changes such as opening of the cervix in late gestation may increase HIV risk from unprotected sex with an infected partner (Fletcher, 1990). Following childbirth, young mothers often choose oral or injectable contraceptives that not only do not protect against HIV but may even increase susceptibility because of hormonal effects (Plummer, 1998).

Although condom use has increased significantly over the last few years (Ventura et al., 1999), the limited data available indicate the majority of adolescent mothers do not use condoms or use them inconsistently (Brown, Lourie, Flanagan, & High, 1998; Koniak-Griffin & Brecht, 1997; Koniak-Griffin, Nyamathi, Vasquez, & Russo, 1994), and their overall condom use is lower in comparison with their nonpregnant counterparts (Crosby et al., 2002). As little is known about factors affecting condom use among adolescent mothers, further research is urgently needed on sexual risk-taking behaviors and variables influencing use of condoms in this population in order to prevent HIV transmission to these young women and their children.

A number of variables have been hypothesized to influence condom use in samples comprised mainly of adults and youth. However, the relevance and applicability of findings from these studies to predictors of condom use in adolescent mothers of Latino and African American backgrounds may be limited. The vast majority of research examining variables that influence condom use has focused on theoretical predictors derived from social-cognitive theory and the theory of reasoned action (e.g., self-efficacy, behavioral intentions, prevention beliefs, etc.). Although consideration of these theoretical

variables is useful and well supported in the literature (Jemmott & Jemmott, 2000), integration of other important factors may be necessary for improving our understanding of influences on condom use of adolescent mothers. Investigators using theoretical models tend to focus on the individual and may not consider sufficiently the social context of the behavior for African Americans (Cochran & Mays, 1993) and other vulnerable ethnic/racial groups disproportionately affected by social factors such as poverty and racism. Moreover, they may fail to recognize fully the impact of relationship issues and gender dynamics that may make young women feel unable to insist on condom use even though they are aware of the risks involved (Amaro, 1995; Wingood & DiClemente, 1999). The purpose of this study was to examine the influence of theoretical variables and selected psychosocial, behavioral, and demographic factors on condom use among poor, predominantly Latina and African American adolescent mothers. The theoretical variables provided a measure of the constructs derived from social-cognitive theory and the theory of reasoned action with its extension, the theory of planned behavior: self-efficacy, behavior intentions, prevention beliefs, subjective norms, perceived behavioral control, AIDS knowledge, and condom-use knowledge. In addition, we examined *psychosocial* (relationship status, partner's high-risk behaviors, history of sexual/physical abuse, perceptions of depressive symptoms, and self-worth), *behavioral* (substance use, sexual history age of initiation of sex, multiple sex partners, engaging in anal sex, contraceptive practices, pregnancy status, number of past pregnancies), and *demographic* variables (age of adolescent and her partner, ethnicity, religion/religiosity). By using this combination of variables, we hoped to improve the behavioral prediction of safer sex practices in this population and to explain a greater proportion of the variance in condom use than has been achieved in previous studies with the use of theoretical variables alone. An in-depth review of the literature provided a rationale for selecting the constellation of variables examined in this study.

The *theoretical framework* underlying the longitudinal study that was the source of baseline data used for this article was based on constructs from social cognitive theory (SCT), the theory of reasoned action (TRA), and the theory of planned behavior (TPB). These theories are based on a comprehensive analysis of the determinants of behavior, including sexual behavior. From an SCT perspective, Bandura (1982, 1986, 1989)

proposed that information (e.g., AIDS knowledge) alone does not necessarily bring about behavioral change, but that two important influences on self-regulation of behavior and ability to use skills such as condom use negotiation are (a) perceived self-efficacy (the belief that one can successfully perform a specific behavior), and (b) outcome expectancy (the belief that a given behavior will lead to negative or positive outcomes). Outcome expectancies include prevention beliefs, hedonistic beliefs, and partner reaction beliefs. From TRA, we can stipulate that behavior is determined by intention (Ajzen & Fishbein, 1980). Two conceptually distinct sets of beliefs affect behavior intention: behavioral beliefs influence the individual's attitude toward performing a behavior, and normative beliefs influence subjective norms (i.e., what the individual thinks the people important to him/her believe and want him/her to do regarding the behavior). To take into account the limitations in performing a given behavior, real or perceived, Ajzen's TPB (1985, 1988) includes an additional component, perceived behavioral control. This construct reflects the person's belief about how easy or difficult adopting a behavior is likely to be, and also may reflect external (e.g., dependence on others for social support) and internal factors (e.g., skills, information, emotions). Perceived behavioral control has been shown to enhance the prediction of both behavioral intention and actual behavior (Madden, Ellen, & Ajzen, 1992). Using these frameworks, condom use is believed to be influenced by self-efficacy, outcome expectancies, behavioral intentions, subjective norms, perceived behavioral control, and knowledge.

Results of several individual studies and larger meta-analyses provide support for the relationships between theoretical variables and condom use as proposed in this investigation. In a focus-group study involving ethnically diverse adolescents who were pregnant or recently had given birth, Koniak-Griffin et al. (1994) found that factors associated with failure to use condoms included the hedonistic belief that condoms interfere with sexual pleasure, lack of knowledge about AIDS, and lack of skills in condom use. DiClemente et al. (1996) discovered that urban AA adolescents ( $N = 264$ ) were more likely to report consistent condom use if they had high self-efficacy, enabling them to demand the use of condoms, and if they perceived peer norms as supportive. Jemmott and Jemmott (1992) also found increased condom use to be associated with higher self-efficacy as well as favorable outcome

expectancies about the effect of condoms on sexual enjoyment and partner support.

Young heterosexuals' attitudes toward condoms have been found to be predictive of their intentions to use them (Boyd & Wandersman, 1991; DiClemente, 1992; Richard, van der Pligt, & de Vries, 1995). Evidence also exists that perceived norms are good predictors of HIV-preventive intentions and behavior (Fisher & Fisher, 1992; Schaalma, Kok, & Peters, 1993) and that the subjective norm component of TRA is significantly associated with safer sex behavior (Boyd & Wandersman, 1991). Basen-Engquist (1992) tested a safer sex model using variables from social learning theory, TRA, the health belief model, and cognitive coping style theories with 275 undergraduates of mixed ethnicity. They reported that a cluster of variables including behavioral intention, perceived susceptibility, self-efficacy, and social support predicted 35% of variance in condom use, with intentions being the strongest predictor of safer sex behavior. In a large meta-analysis Sheeran and Orbell (1998) examined 28 independent correlations between behavioral intentions and condom use ( $N = 2,532$ ), reporting an average correlation of .44. The intention construct from the TRA, by itself, explained 10.4% of the variance in condom use by both heterosexuals and gay men. Findings of a literature review were that social cognitive models (TRA, TPB, and SCT) explain 20–45% of variance in behavior and are successful in predicting sexual behaviors in adults (Abraham, Sheeran, & Orbell, 1998). Results of multiple studies examining the relationship between knowledge and condom use in heterosexuals have shown that the average correlation is statistically significant, though small (Sheeran, Abraham, & Orbell, 1999).

A variety of *psychosocial factors* in the lives of adolescent mothers have the potential to influence their sexual practices. For example, they face relationship issues involving concerns about trustworthiness in their partner, appropriateness of condom use in close interpersonal relationships, and a desire to maintain a family relationship with the father of their baby, who usually is their sexual partner (Koniak-Griffin et al., 1994). Young mothers often believe (or want to believe) that they are in a monogamous steady relationship with a trusted partner and are therefore protected from HIV/AIDS; thus, they may fail to take into account the previous or concurrent sexual activity of their partner or other partner risk factors such as history of incarceration or injecting drug use (Guagliardo, Huang, & D'Angelo, 1999; Spingarn

& DuRant, 1996). Overby and Kegeles (1994), in a sample of nonchildbearing adolescents in current monogamous relationships, similarly discovered an implicit trust in a partner's safe activity and the behavioral belief that condom use was not necessary despite not speaking with a partner about actual risk and being unaware of the partner's past sexual behaviors. Negative partner-reaction beliefs (i.e., belief that a partner would feel "hurt, insulted, angry, or suspicious" if asked such questions) were held by 32% who perceived themselves to be at low personal risk. Further evidence that relationship status (e.g., steady vs. casual) and length may influence the consistency of condom use among heterosexual adolescents has been provided by the findings of other investigations (Raj, 1996; Sanderson & Jemmott, 1996).

In addition to the influence of relationship concerns, the sexual risk behaviors of adolescents may be affected by psychological factors. Depressed adolescents and those with low self-esteem or lack of parental support have been found to be less likely than others to use effective contraception and more likely to be child bearers (Kowaleski-Jones & Mott, 1998; Smith, 1997). Self-esteem has been reported to be positively associated with condom use in young, sexually active, predominantly African American adolescents living in areas of urban poverty (Overby & Kegeles, 1994). Boyer, Tschann, and Shafer (1999) found social support to be inversely related to sexual risk in an ethnically diverse sample of ninth-graders. Histories of childhood sexual abuse and recent partner violence reportedly have an adverse influence on HIV risk-reducing behaviors in women (Gilbert, El-Bassel, Schilling, Wada, & Bennet, 2000; National Institute of Mental Health [NIMH] Multisite HIV Prevention Trial Group, 2001; O'Leary & Jemmott, 1995; Thompson, Potter, Sanderson, & Maibach, 1997).

Several *behavioral factors* also *may* influence condom use, for example, substance use, sexual history, current contraceptive practices, and partner risk status. The association between drug and alcohol use and high-risk sexual activity in adolescents is well documented (Ford & Norris, 1994; Halpern-Felsher, Millstein, & Ellen, 1996; O'Leary, Goodhart, Jemmott, & Boccher-Lattimore, 1992). Based on findings of the 2001 National Youth Risk Behavior Survey (CDC, 2002), of the 33% of students nationwide who identified themselves as currently sexually active, 26% had used alcohol or drugs at last sexual intercourse.

Engaging in unprotected sex also has been associated with other variables that indicate

adolescents' high-risk sexual experience: early age of initiation of sexual activity, having multiple lifetime sex partners, and engaging in anal intercourse (Baldwin & Baldwin, 2000; DiClemente, 1992; Melchert & Burnett, 1990; St. Lawrence & Scott, 1996; Smith, 1997). Smith, in a longitudinal study of urban adolescents, determined early sexual onset to be associated with several sexual risk behaviors, including inconsistent condom use, pregnancy, and multiple sexual partners. DiClemente found number of sexual partners inversely related to condom use; however, the relationship between number of lifetime partners and unprotected sex was not supported in the meta-analysis findings of Sheeran et al. (1999). Baldwin and Baldwin discovered that 18% of undergraduates overall and 22.9% of nonvirgin undergraduate students reported having engaged in anal intercourse. Of respondents who reported anal sex, 68.2% had not used a condom at last vaginal intercourse, compared with 48.5% of those who did not report anal sex.

The use of various contraceptive methods may affect HIV protective behaviors. Brown et al. (1998) observed that barrier contraceptives were seldom used in combination with the preferred hormonal methods of pregnancy prevention by Latina and AA adolescent mothers. Similarly, Roye (1998) found that variables significantly associated with not using condoms among Latina and AA women included hormonal contraceptive use (oral, Depo-Provera, or Norplant). In prospective studies, baseline level of condom use has been found to be a strong and significant predictor of consistent condom use at follow-up (DiClemente et al., 1996).

In a sample of culturally diverse adolescents (pregnant or new mothers), engaging in unprotected sex was significantly predicted only by pregnancy status (Koniak-Griffin & Brecht, 1995). Pregnant adolescents were more likely than young mothers not currently pregnant to have unprotected sex. Having a single sexual partner has been associated with lack of perception of risk and engagement in unsafe sex practices in pregnant adolescent and adult women (Hobfoll, Jackson, Lavin, Britton, & Shepherd, 1993).

Relationships also have been reported between various *demographic* variables (e.g., age of adolescent and her partner, ethnicity, religion/religiosity) and sexual risk behaviors. For example, in a meta-analysis of the findings of 121 empirical studies involving heterosexuals of varying ages, younger participants were found to be more likely than older ones to report condom use (Sheeran et al., 1999). A small but significant

relationship was found between having a religious affiliation and condom use, which were negatively associated. Individual studies involving samples of adolescents of varying ethnicities add further support to the findings of an association between younger age and consistent condom use (DiClemente et al., 1996; Raj, 1996). A partner's age also may affect sexual risk-taking behaviors. African American adolescent mothers with adult partners 5 or more years their senior were more likely to report infrequent condom use or refusal by their partner to use condoms than were mothers with same-age partners (within 2 years; Agurcia, Rickert, Berenson, Volk, & Weimann, 2001). Similar findings have recently been reported for a sample of pregnant and nonpregnant adolescents (DiClemente et al., 2002).

The results from studies about the relationship between ethnicity and condom use have been more inconsistent. Although several investigators reported ethnic differences, findings varied regarding the level of condom use of a group (African Americans, Latinos, Whites) relative to other groups (CDC, 2002; Rickman et al., 1994; Soler et al., 2000).

In summary, there is a scarcity of studies on predictors of condom use in adolescent mothers. In general, research findings from individual studies, as well as meta-analyses with adult and adolescent samples, have provided support for the purported relationships between condom use and the theoretical, psychosocial, behavioral, and demographic variables examined in this study. However, most previous studies have focused on single categories of variables (e.g., theoretical), rather than applying an integrated approach, which involves examination of different categories of variables. Such an integrated approach has the potential to increase our understanding of factors influencing condom use. Therefore, the research question addressed in this study was: What are the associations of condom use with selected theoretical constructs and psychosocial, behavioral, and demographic factors believed to influence sexual behavior in pregnant adolescents.

## METHOD

### Sample

Baseline data examined in this article were collected from participants in a quasi-experimental prospective longitudinal study designed to evaluate

an HIV prevention program for adolescent mothers. Recruited from programs for pregnant/parenting adolescents in four school districts in Los Angeles County, California, the convenience sample was composed of 572 female adolescents ages 14–20 years ( $M = 16.52$ ,  $SD = 2.57$ ). The ethnic/racial distribution (77% Latina, 18% African American, and 5% whites, Asians, and others) is similar to that of the county for teen births, reflecting the high proportion of child-bearing Latinas. Most Latinas (67%) described themselves as Mexican American or Mexican; 18% were born outside the United States. All participants spoke and read English; 61% were Catholic; 95% were single, and of these, 72% stated they had a steady partner; nearly 21% of all participants were living with their steady partner. At intake, 67% were pregnant, and 33% had already given birth. Histories of physical (15%) or sexual abuse (17%) and of STIs (10%) were reported.

### Measures

The variables measured at baseline were those included in the conceptual framework for the longitudinal study, as well as other clinical and psychosocial factors believed to influence sexual behaviors in young mothers. Selected standardized questionnaires and items from the instrument packet developed for the larger project were used to measure theoretical constructs, sexual and substance-use behaviors, psychosocial and behavioral variables, and sociodemographic characteristics. Four constructs of social cognitive theory (SCT) were measured with 5-point Likert-type scales: (a) condom-use prevention beliefs, (b) condom-use hedonistic beliefs, (c) partner reaction beliefs, and (d) self-efficacy beliefs. Measures of two constructs from the theory of reasoned action (TRA) were obtained—behavioral intention to use condoms and subjective norms—along with an additional construct, perceived behavioral control, from the theory of planned behavior (TPB). Higher scores on these theoretical measures reflect more favorable beliefs and intentions about condoms. Descriptions of these measures and their characteristics appear in Table 1. Previous research has demonstrated the adequacy of these measures' psychometric characteristics (Jemmott, Jemmott, & Fong, 1998). The measure of AIDS knowledge, adapted from another study, has established reliability and validity (Koniak-Griffin & Brecht, 1995). A similarly formatted and scored

**Table 1. Measures of Theoretical and Psychosocial Variables (N = 572)**

Measure	Description	Maximum Possible Score	Coefficient alpha	M (SD)
Social Cognitive Theory Outcome expectancy	3 items (5-point Likert), beliefs that condoms prevent pregnancy, STIs, HIV, etc.	15	.73	12.54 (2.59)
Prevention beliefs	5 items (5-point Likert), beliefs that condoms interfere with sexual pleasure	25	.74	17.27 (4.08)
Hedonistic beliefs	8 items (5-point Likert), beliefs about partner's reaction to condom use (e.g., angry, happy)	40	.72	32.76 (4.49)
Partner reaction beliefs	15 items (5-point Likert), beliefs about ability to obtain and use condoms	75	.84	56.72 (9.38)
Self-efficacy				
Knowledge AIDS	29 items (yes/no/not sure), knowledge about cause, transmission, symptoms, prevention, etc.	29	.76	21.65 (4.06)
Condom use	8 items (yes/no/not sure), knowledge about how to put on, remove, store condoms, etc.	8	.60	4.54 (1.59)
Theory of reasoned action				
Behavioral intentions	5 items (5-point Likert), intention to use condoms in future	25	.79	18.53 (4.77)
Subjective norms	8 items (5-point Likert), beliefs about approval/disapproval of condom use by others (e.g., partner, parents, friends) and the importance of others' opinions	40	.71	29.03 (5.64)
Theory of planned behavior				
Perceived behavioral control	9 items, beliefs about how hard/easy it would be to get partner to use condoms, etc.	8	.60	4.54 (1.59)
Psychosocial				
CES-D (depression scale)	20 items (5-point Likert); assesses depressive symptoms (e.g., sleep and eating disorders, feelings of helplessness, sadness, powerlessness)	60	.84	19.42 (10.19)
Self-perception profile for adolescents	5-item subscale; measures one's feelings and worth as a person via two statements reflecting opposing views; respondent decides which best describes her, then indicates whether statement is <i>really true</i> or <i>sort of true</i> for her	4	.72	2.95 (0.72)
Norbeck social support questionnaire	9 items; respondents list significant persons in their lives and the relationships; each person is rated for support by 8 questions; an additional item relates to loss of a relationship	66–557 <sup>a</sup>	.99	209.71 (113.37)

<sup>a</sup>Maximum score for the Total Functional Support variable of the NSSQ used in this study varies according to the number of significant persons identified. Normative data ranged from 43 to 567 for females.

questionnaire was used to measure condom use knowledge (see Table 1).

Three standardized instruments were used to measure psychosocial variables (see Table 1). The Center for Epidemiologic Depression Scale (CES-D), which measures depression symptoms, has been used with diverse adolescent and adult samples, with adequate reliabilities consistently reported and validity established (Beeber, Shea, & McCorkle, 1998; Koniak-Griffin, 1994; Radloff, 1977). Global self-worth (one's feelings and worth as a person) was measured by a subscale of the Self-Perception Profile for Adolescents (Harter, 1988). This subscale was found to have adequate reliability in this study (coefficient  $\alpha = .72$ ), as well as construct validity and reliability in previous studies with diverse adolescent samples (Hagborg, 1993; Dimmitt, 1996; Trent, Russell, & Cooney, 1994). Social support was measured by the Norbeck Social Support Questionnaire (NSSQ; Norbeck, Lindsey, & Carrieri, 1981). The NSSQ has been used in studies involving vulnerable youth (Connelly, 1998; Koniak-Griffin, Lominska, & Brecht, 1993) and has undergone extensive psychometric testing for validity and reliability with acceptable results (Norbeck et al., 1981; Norbeck, Lindsey, & Carrieri, 1983).

In addition, individual items were used to assess psychosocial, behavioral, and demographic factors shown in the literature to be associated with adolescents' unprotected sexual activity: relationship status (having a steady partner), history of sexual or physical abuse, contraceptive practices (use of pills or injections), pregnancy status (currently pregnant/already given birth), number of past pregnancies, maternal age, age of partner, ethnicity, and religion. Two items addressed religious beliefs and practices: attitude of religiosity (range from 1 = *not religious* to 5 = *very religious*) and frequency of church service attendance (range from 1 = *more than once a week* to 5 = *never*). Sexual behaviors examined included number of lifetime sex partners, age at first sexual intercourse, ever having anal intercourse, and ever having sex under the influence of drugs or alcohol.

A composite variable representing the adolescent's report of her (lifetime) partners' high-risk behaviors was created by counting the number of discrete risk factors reported for partner(s). These included: (a) sharing injection drugs, needles, and other equipment; (b) having been in jail; (c) having more than one sex partner; (d) having had sex with another male; (e) being HIV positive; (f) using crystal methamphetamine; and (g) using cocaine or crack cocaine. A second composite variable

representing the mother's recent drug and alcohol use was computed as the mean of six ordinal scales rating frequency of use of cigarettes, alcohol, marijuana, cocaine, and crystal methamphetamine and the amount of alcohol used in the past month; a higher score represents more frequent use. The final composite variable, on AIDS information, was computed as the sum of six ordinal scales representing the amount of AIDS information obtained from religious organizations, parents, friends, schools, reading, and the media.

The dependent variable of unprotected sex was based on the participant's report of the number of times she had had unprotected sex in the previous 3 months. Reporting sexual behaviors over a relatively short period (e.g., 3 months) has been found to increase the validity of this type of self-report data (Jemmott et al., 1998; Kauth, St. Lawrence, & Kelly, 1991). Those abstinent over the previous 3 months were assigned a 0; a higher score indicated a greater frequency of unprotected sex.

In all, 30 variables were examined in this study, 25 of which were included in the regression model. Five theoretical variables were excluded from the final regression model because of findings that will be described in the Results section.

## Procedures

All recruitment procedures and forms used to obtain written informed consent from participants were approved by the university's institutional review board. Questionnaires were read to small groups of young women by a specially trained research assistant in classrooms of the alternative schools where the study was conducted.

## Data Analysis

Data from instruments were scored to create the scales and subscales making up the study variables. The dependent variable, number of episodes of unprotected sex, was log transformed for analysis because of its marked skewed distribution to the left. The distribution of the variable was considerably normalized after the transformation. Ethnicity was dummy-coded for use in regression analysis.

All predictor variables were examined for potential multicollinearity prior to performing a series of hierarchical regression analyses. Because two of the three variables representing religious beliefs and behavior (religion: Catholic/

non-Catholic, and religiosity) were highly correlated with being Latina, frequency of attending religious services was the only religious variable used in the analysis.

## RESULTS

Descriptive findings on theoretical and psychosocial variables and adolescent mothers' sexual and substance-use behaviors are presented first, followed by an examination of the specific factors associated with unprotected sex in order to enhance understanding of results related to the research question.

### Descriptive Findings

**Theoretical and psychosocial variables.** Means and standard deviations for the theoretical measures (SCT, TRA, TPB) and psychosocial measures (depression, global self-worth, social support) are presented in Table 1. On the measures of condom use, outcome expectancy (prevention beliefs, hedonistic beliefs, and partner reaction beliefs), participants showed positive attitudes toward condoms (e.g., believing that condoms could prevent AIDS, that sex could be pleasurable with condoms, and that partners would not harm them if condoms were used). Similar findings were observed for other measures of SCT self-efficacy and for the TRA measures, behavioral intentions and subjective norms. Average scores for AIDS and condom use knowledge were 21.65, or 75% correct (range: 7–29) and 4.54, or 65% correct (range: 0–7), respectively. Mean scores were approximately 3 points above the cutoff score that indicates mild depressive symptomatology on the CES-D (Comstock & Helsing, 1976). For social support, mean NSSQ scores were fairly high.

**Sexual behaviors.** The average number of unprotected sex episodes in the previous 3 months was 17.28 ( $SD = 23.2$ ). Several other significant sexual behaviors were reported that placed adolescent mothers in the sample at risk for HIV, including onset of sexual activity at an early age and having multiple lifetime sex partners (see Table 2). More than 50% reported having two or more sex partners in their lifetime. Overall lifetime condom use was low. The large majority (82%) of respondents did not use a condom at last intercourse, citing two main reasons: "I'm pregnant" (58% of pregnant teens), and "I used another form of birth control" (e.g., the pill or

shots, 30% of young mothers). Less commonly reported reasons for not using condoms were not anticipating sex, not liking condoms, and "only having sex with each other."

**Substance use risk behaviors.** Other high-risk behaviors reported by participants included past and/or current use of tobacco, alcohol, and illegal substances (see Table 2). Rates of lifetime use were notably higher than use in the past month (when most young women were pregnant). The three substances used most frequently, in order both over an adolescent's lifetime and in the past 3 months, were alcohol, marijuana, and tobacco; however, use of cocaine and crystal methamphetamine also was reported.

**Risk behaviors of male partners.** Responses of adolescents to questions concerning lifetime sexual partners indicated many were involved with high-risk young men. Risk factors for these men included: being in jail (44%), having multiple sex partners (29%), and using cocaine (13%) and/or crystal methamphetamine (10%). Twelve young men (2%) reportedly used drugs by injection. The mean age of the young mothers' current male partners was 19 years; 22% were 21 years or older.

### Factors Associated with Unprotected Sex in Adolescent Mothers

Data were available on all variables for 511 of the 572 participants. Intercorrelations among the theoretical variables and unprotected sex showed that seven theoretical variables had low to moderate correlations (see Table 3). For SCT, *hedonistic beliefs* was moderately correlated with *partner reaction beliefs* and *self-efficacy*. *Self-efficacy* was moderately correlated with *partner reaction beliefs*. *Prevention beliefs* was quite independent of the other theoretical variables (both within and between theories). For TRA there was a moderate correlation between the two theoretical variables of *intentions to use condoms* and *subjective norms* ( $r = .42$ ). The TPB variable *perceived behavioral control* was moderately correlated with the TRA variables and with two SCT variables (*self-efficacy* and *partner reaction beliefs*). SCT and TRA also had moderately correlated variables. Only one theoretical variable was moderately correlated with unprotected sex, *intentions to use condoms* ( $r = -.34$ ). The greater the intention to use condoms, the fewer times unprotected sex occurred. Although statistically significant, the correlations of hedonistic beliefs and subjective norms with unprotected sex were low.

**Table 2. Descriptive Data on Risk Behaviors of Adolescent Mothers (N = 572)**

Variable	M	SD
Age at onset of sexual activity	14.29	1.38
Number of lifetime sexual partners	2.58	3.06
Number of unprotected sex episodes in past 3 months	17.28	23.29 <sup>a,b</sup>
Variable	N	%
Number of sex partners		
Lifetime		
1	283	50
2-4	210	37
5-9	74	10
≥ 10	19	3
Past 3 months		
0	136	24
1	418	74
2-3	13	2
History of condom use		
During last sexual episode		
Never/not very often/about half the time	93	18
Always/most of the time	425	75
History of experiencing anal sex		
Lifetime		
In the past 3 months	86	15
History of alcohol consumption		
Lifetime		
In the past month	36	6
History of marijuana use		
Lifetime		
In the past month	424	74
History of smoking		
Lifetime		
In the past month	58	10
History of crystal methamphetamine use		
Lifetime		
In the past month	346	60
History of cocaine use		
Lifetime		
In the past month	42	7
History of injection drug use		
Lifetime		
In the past month	143	25
History of getting high on alcohol or drugs and then having sex		
Lifetime		
In the past 3 months	41	7
History of crystal methamphetamine use		
Lifetime		
In the past month	122	21
History of cocaine use		
Lifetime		
In the past month	116	20
Lifetime history of injection drug use		
Lifetime		
In the past 3 months	10	2
History of getting high on alcohol or drugs and then having sex		
Lifetime		
In the past 3 months	5	1
History of getting high on alcohol or drugs and then having sex		
Lifetime		
In the past 3 months	234	41
History of getting high on alcohol or drugs and then having sex		
Lifetime		
In the past 3 months	46	8

<sup>a</sup>skew = 2.18; <sup>b</sup>kurtosis = 4.25.

In the hierarchical regression analysis, the log transformation of unprotected sex was regressed onto the variables for the three theories (SCT, TRA, TPB) in three separate steps. Because of an absence of a theoretical ordering in the literature, the order of entry was rotated in successive hierarchical regression analyses. The average  $R^2$  for each construct was low: SCT = 1.8%, TRA = 7.1%, and TPB = 0.4%. TRA (behavioral intentions and subjective norms) was the only theory that accounted for a significant amount of variance in unprotected sex. Therefore, the other variables from SCT and TPB were dropped and the

data reanalyzed in two hierarchical blocks, TRA followed by the remaining variables of interest (e.g., psychosocial, behavioral, and demographic) in a single step. This approach allowed separate testing of the contributions of theoretical variables and all other factors.

In the first step of the final hierarchical regression analysis, the log-transformed unprotected sex variable was regressed on intention to use condoms and subjective norms. The  $R^2$  value for this variable, 13%, showed it was significantly associated with unprotected sex,  $F(2, 508) = 37.52, p < .001$ . All other variables

**Table 3. Intercorrelation Matrix of the Constructs from SCT, TRA, and TPB with Unprotected Sex, *N* = 572**

Variables	1	2	3	4	5	6	7	8
Social cognitive theory								
1. Hedonistic beliefs	—							
2. Prevention beliefs	.08	—						
3. Partner reaction beliefs	.32***	.04	—					
4. Self-efficacy	.36***	.10*	.46***	—				
Theory of reasoned action								
5. Subjective norms	.25***	.08	.22***	.34***	—			
6. Intentions to use condoms	.32***	.08*	.26***	.38***	.42***	—		
Theory of planned behavior								
7. Perceived behavioral control	.27***	.10*	.46***	.57***	.33***	.31***	—	
8. Log unprotected sex	-.17***	.02	-.08	-.05	-.21***	-.34***	-.06	—

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

(*n* = 23) added in step 2 accounted for 17% of the variance in unprotected sex, exceeding that of TRA,  $F(24, 484) = 4.77$ ,  $p < .001$ . The total variance accounted for was 30%, with the entire model significantly associated with unprotected sex (see Table 4). Also shown in Table 4 are the standardized regression coefficients (beta weights) of the variables significantly associated with unprotected sex; these included less intention to use condoms, being pregnant, having a steady partner, attending religious services more frequently, and having anal sex. Using birth control injections, age, having "ever gotten high and had sex," and past history of sexual abuse had *p* values ranging from .057 to .081. Other variables not associated with unprotected sex included maternal age, ethnicity, contraceptive practices (use of birth control pills or injections), number of past pregnancies, age at first coitus, number of previous sex partners, history of physical abuse, maternal drug use, age of the baby's father, partner's risk score, social support, depressive symptomatology, global self-worth, AIDS knowledge, and condom use knowledge.

## DISCUSSION

The bivariate correlational and multiple hierarchical regression analysis findings of this study indicate that constructs from SCT and TPB have limited usefulness in predicting unprotected sex of adolescent mothers from vulnerable ethnic/racial groups. Although six of the seven theoretical variables exhibited moderate within- and/or between-theory intercorrelations, their bivariate correlations with the log of unprotected sex, with

one exception, were low. However, the correlations between TRA variables (behavioral intentions and subjective norms) and unprotected sex were significant. The power of the predictive model was strengthened when the selected psychosocial, behavioral, and demographic factors were added to the theoretical variables as predictors in the regression equation. Although 13% of the variance in unprotected sex was accounted for by the individual contribution of the theoretical TRA variables, an additional 17% was explained by these additional predictors. Thus, the predictive model explained 30% of the variance in unprotected sex, with the remaining 70% attributable to unidentified factors. Overall, these data indicate that adolescent mothers' condom use is associated with psychosocial, behavioral, and demographic factors as well as behavioral intentions to use condoms. Adolescents who were pregnant, in a steady relationship with a male partner, had little intention to use condoms, had previously engaged in anal sex, or had more frequent church attendance reported higher unprotected sex in the past 3 months.

Although earlier findings supported the relationship between theoretical constructs from SCT and risky sexual behavior (Abraham et al., 1998), some researchers have reported that the self-efficacy construct contains elements more highly correlated with multiple-partner unprotected intercourse than with precautionary behavior such as condom use (Reitman et al., 1996). Basen-Engquist and Parcel (1992) tested a path model predicting condom-use intentions and behaviors of adolescents and found attitudes toward condom use and norms affected behavior only indirectly through their relationship to intention.

**Table 4. Factors Associated with Unprotected Sex in Adolescent Mothers: Variables with Significant Beta Weights in Regression Analysis<sup>a</sup>**

Variable	Log of Unprotected Sex at Last Sexual Intercourse	
	Beta	<i>p</i> value
Currently pregnant	.26	< .001
Having a steady partner	.26	< .001
Behavioral intentions to use condoms	-.24	< .001
Anal sex	.11	.006
Frequency of church attendance	.09	.020
Birth control injections	.08	.057
Age	.10	.063
Got high and had sex	.08	.062
Past history of sexual abuse	.08	.081

<sup>a</sup> $R^2 = .30$ ,  $F(26, 484) = 7.80$ ,  $p < .001$ .

The correlations in this study between behavioral intentions, self-efficacy, and other theoretical variables, consistent with the latter findings, suggest that attitudes toward condom use are related to intentions, which, in turn, affect sexual risk-taking behavior.

The association between older age and unprotected sex reported in some studies involving adolescents (Reitman et al., 1996) was not supported by the results of this study. A rather intriguing finding of this investigation was the significant relationship found between more frequent church attendance and unprotected sex. Some investigators have reported that minority youth with higher church attendance are more likely to use condoms (Ku, Sonenstein, & Pleck, 1993), although others have not found church involvement to be a significant predictor of condom use or risky sexual behavior (Reitman et al., 1996). It is possible that many of the young women in this predominantly Latina sample were following religious convictions against condom use or planned sexual activity. The relationship between ever having engaged in anal sex and failure to use condoms also requires further investigation.

The finding that AIDS knowledge alone has no relationship with condom use reconfirms the results of previously cited investigations involving childbearing youth (Koniak-Griffin & Brecht, 1995), as well as other studies of ethnically diverse adolescents (Kirby et al., 1994). Several other demographic (e.g., age, ethnicity) and behavioral (number of past sex partners) variables similarly were not significantly associated with condom use. These findings, consistent with those of Brown et al. (1998), suggest that some factors often associated with condom use by adolescents are not behavioral determinants in adolescent mothers. It also is important to note that the drug

use variable was constructed based on behavior during the previous month, when most participants were pregnant. Adolescents often decrease or eliminate their use of alcohol/drugs during childbearing (Koniak-Griffin, Mathenge, Anderson, & Verzemnieks, 1999; Morrison, Spencer, & Gillmore, 1998).

Although data on the intimate male partners of the adolescent mothers were obtained by maternal report, the findings suggest that many of these young men not only engaged in unprotected sex with their steady partner but had multiple lifetime partners. Furthermore, according to their partners, many of the men used methamphetamines and cocaine, behaviors associated with increased risk for unprotected sex and HIV exposure (Stouthamer-Loeber & Wei, 1998). A disturbing finding was the high rate of reported incarceration among the male partners. A history of incarceration is known to be an important proxy for a multitude of HIV risk behaviors; AIDS incidence in incarcerated males is reported to be seven times that of the general population (Mahon, 1996). The partners of participants in this sample were predominantly adolescents rather than adult men, supporting the findings of some researchers that most male partners of adolescent mothers are themselves adolescents (Lindberg, Sonenstein, Ku, & Martinez, 1997; Rickert, Wiemann, & Berenson, 1997), although other investigators have reported a higher incidence of older partners (Landry & Forrest, 1995; Males & Chew, 1996). Descriptive findings on the psychological factors examined in this study warrant further consideration. Although the average score on the CES-D suggests mild depressive symptomatology, positive responses to some items (e.g., restless sleep, poor appetite) may reflect physical symptoms associated with pregnancy changes rather than

psychological status. The mean global self-worth score for this sample was comparable to normative scores for a sample of predominantly White 10th graders reported by Harter (1988). The level of social support was fairly high compared with an earlier group of pregnant and parenting adolescents who completed the NSSQ (Koniak-Griffin, 1988) but lower than the mean reported for the normative sample of adult females (Norbeck et al., 1983).

The limitations of the study should be considered in relation to the findings. First and foremost is the nature of the design. Because data collection was limited to one time point, only correlations between variables can be determined. No inferences can be drawn about one variable influencing another (i.e., causation cannot be determined). Second, the measure of unprotected sex is based on self-report of vaginal sex only. Other types of risky sexual activity, such as unprotected anal sex, were not included as outcome variables in the regression analysis. Third, data on male partners are based on maternal report rather than the partner's account. This could lead to inaccurate reporting of risk behaviors in young men, probably underreporting. Finally, our results may be population specific (i.e., to urban Latina and African American childbearing youth); generalizations to other populations of youth warrant further empirical investigation. Nevertheless, the findings have major implications for those involved in HIV educational programs and in promoting safer sexual practices.

Overall, the findings support the urgent need for broad-based HIV prevention programs for pregnant/parenting adolescents, a high-risk population for HIV and other STIs because of their high rate of unprotected sex and multiple other risk factors. Fortunately, in pregnancy and following childbirth, many adolescents have frequent contact with health educators and clinicians in settings where AIDS education and counseling may be available (e.g., prenatal and well-child clinics, pregnant minor and parenting programs, and alternative schools). Programs offered in these settings should include more than interventions derived from theoretical models such as TRA. Although strategies need to be designed to influence behavioral intentions to use condoms, correlated in this study with self-efficacy and other constructs from SCT, a more comprehensive approach is needed. The unique issues faced by this population must be addressed. Based on the findings of this study, being pregnant and in a steady heterosexual relationship are particularly important factors that make condom use a

complex issue in the lives of adolescent mothers. Issues related to gender and power within the intimate relationship, such as adolescent mothers' perceived or real powerlessness to negotiate with male sex partners about condom use and sexual decision making, need attention (Koniak-Griffin et al., 1994). A young mother often continues to be involved in a sexual relationship with her baby's father and may place a great deal of trust in their relationship, denying or expressing little concern about the risk of exposure to HIV (Lourie et al., 1998). The data in this study indicate that such trust and denial may pose a direct threat to young mothers with partners who engage in HIV-related, high-risk sexual or substance-use behaviors. In some situations the need for love and security may outweigh concerns about transmission of disease from steady partners. It is particularly important to promote condom use beyond the initial phase of a relationship, when it is often discontinued (Ku, Sonenstein, & Pleck, 1994).

Young parents using hormonal or other contraceptive methods often are much more focused on preventing pregnancy than on STI/HIV prevention (Brown et al., 1998). These results support the need for AIDS education programs for young mothers to emphasize the use of condoms for disease prevention. Following childbirth, when these mothers are often encouraged to use birth control pills or injections, they can also be advised about the importance of dual method usage (condoms plus hormonal contraceptives).

In promoting safer sexual practices, the potential for abuse within the relationship should be considered. A significant factor influencing young women's inability to carry out safer sexual negotiations is fear of or experience of abuse by partners (Amaro & Gornemann, 1992). Adolescents experience a higher incidence of abuse during pregnancy than do adult women when pregnant (Parker, McFarlane, Soeken, Torres, & Campbell, 1993).

Overall, the many complexities in the lives of young mothers increase the challenge for professionals involved in AIDS prevention efforts. Counterbalancing this challenge is the opportunity for promoting risk-reduction behaviors provided by the transition period of pregnancy and early parenthood. Pregnancy is a period of developmental growth when adolescents may be receptive to health promotion efforts and to adopting new healthy behaviors (Lesser, Koniak-Griffin, & Anderson, 1999). The theoretical models (e.g., TRA) provide the framework for HIV prevention programs; yet to be successful, these programs need to reflect more of the realities of the lives of

the young mothers attending them. The findings of this study indicate that to better address relationship issues in HIV risk-reduction programs for young mothers, male partners should be included. For further development of appropriate interventions, it is imperative that longitudinal research be conducted to enhance the understanding of the underlying psychosocial, behavioral, and demographic factors that lead to risky sexual behavior in pregnant and parenting adolescents.

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