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## Abstract

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## Keywords

African Americans, demography, educational status, young adult, parents, unsafe sex

## Disciplines

Developmental Psychology | Psychology | Race and Ethnicity

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### Abstract

Little research has examined the links between role status changes during the transition to adulthood and sexual behaviors that place African Americans at risk for sexually transmitted infections. Moreover, the mediating processes that explain these links, or protective factors that may buffer young adults from risky sexual behavior, are unknown. African American young adults who had either completed or dropped out of high school (ages 18 to 21, N = 186) provided information regarding their sexual behavior, role status, substance use, peer affiliations, religiosity, and receipt of protective family processes. Anticipated school attendance, part-time rather than full-time employment, and residence in a dorm or barracks rather than with peers or alone were negatively associated with risk behavior. Parenthood was positively associated with risk behavior; affiliation with peers who encourage risky sex partially accounted for this effect. Substance use fully accounted for the effect of part-time versus full-time employment on sexual risk behavior. Protective family processes and religiosity moderated the association of parenthood with sexual risk behavior. Prospective studies on these processes are warranted.

### Keywords

African Americans; demography; educational status; young adult; parents; unsafe sex

Each year in the United States, approximately 25% of sexually active adolescents and young adults—4 million individuals—contract sexually transmitted infections (STIs), including HIV (W. C. Miller et al., 2004). African American young adults are particularly at risk, experiencing disproportionately high rates of HIV and other STIs (Centers for Disease Control and Prevention [CDC], 2007; W. C. Miller et al., 2004). For example, non-Hispanic Blacks aged 19 to 24 years are nearly 20 times more likely to be infected with HIV than are young adults in any other racial group (Morris et al., 2006). Among African Americans, HIV is transmitted through high-risk sexual behavior (exclusive of injection drug use, male-to-male sexual contact, or prenatal exposure) in approximately 20% of infections among men and more than 50% of infections among women (CDC, 2007). These findings underscore the importance of identifying the correlates of high-risk sexual behavior to be targeted in prevention programs. Primary risk behaviors associated with HIV and other STIs in community samples include inconsistent condom use, substance use, and sex with multiple partners (Milhausen et al., 2003).

STI prevalence rates peak around age 20 (CDC, 2006), during the developmental juncture between adolescence and adulthood, when young people experience pervasive social role changes (Schulenberg, Sameroff, & Cicchetti, 2004). Developmental scientists have identified this transition as a period of increased engagement in risky behavior and heightened vulnerability to negative health outcomes for African Americans (Aseltine & Gore, 2000, 2005; French, Finkbiner, & DuHamel, 2002; J. Taylor & Turner, 2002). For example, at age 15, marijuana use rates are lower for African Americans than for other racial/ethnic groups. By age 20, however, African Americans are more likely than members of other racial/ethnic groups to be dependent on marijuana use (Reardon & Buka, 2002). Gore and Aseltine (2003) reported that, compared to their European American peers, African Americans experienced more depressive symptoms after leaving high school. Despite the potential for African Americans to experience decrements in well-being and increases in risky behavior during young adulthood, most of the current research focuses on either adolescents (e.g., Kotchick, Shaffer, Forehand, & Miller, 2001) or college students (Whaley & Winfield, 2003). These studies did not address the multiple life changes adolescents experience after high school or the living situations of many African Americans who do not attend college. Consequently, few data are available concerning the ways in which risky sexual behavior is affected by the heterogeneous life pathways African American youth pursue after high school. The present research addresses the need for this information.

The conceptual model that guided this study is pictured in Figure 1. Several theories contributed to this model's development, including Arnett's (2000) conceptualization of emerging adulthood, social developmental theory (Catalano & Hawkins, 1996), and theories of life-course development that highlight the emergence of vulnerability and resilience (Rutter, 1985). Emerging adulthood theory underscores the pervasive and simultaneous changes in role status that young adults experience during this life stage and the potential such changes have for explaining increases and decreases in risk behavior. Our hypotheses regarding the direction of influence of specific role statuses and mediating processes were informed by social developmental theory. This theory suggests that role statuses that lead to bonding with conventional institutions or groups will deter risk behavior and that peers play an important role in the initiation and maintenance of risky behaviors. Life-course theories of development highlight variability in individuals' responses to risk factors. Specifically, intrapersonal and contextual processes can attenuate the effects of specific risk factors.

In the model depicted in Figure 1, we hypothesized that young adults' role statuses affect sexual behavior both directly and indirectly through affiliations with risk-taking peers and substance use. We focused on four primary roles in which young adults typically experience

transitions: student status or educational plans, parenthood, employment, and living arrangements (Arnett, 2000). Although nearly all young adolescents are students and school is a major influence in their lives, after high school the pursuit of education becomes a voluntary decision. Although most adolescents live with caregivers, young adults often change their living arrangements after high school. In addition, a sizeable minority of African American young adults become parents. In the following sections, we present evidence supporting the links in the heuristic model, then describe potential moderators that may buffer young adults from the influence of changing role statuses on risky sexual behavior.

## **ROLE STATUS, SUBSTANCE USE, PEERS, AND RISKY SEXUAL BEHAVIOR**

On the basis of social development theory (Catalano & Hawkins, 1996), we expected that, for African American young adults, those who were or planned to become students would report lower levels of risky sexual behavior. This theory posits that involvement with conventional social groups and institutions deters risk behavior via the internalization of conventional norms and values (Hirschi, 1969). Data on substance use patterns support this hypothesis. Although college attendance coincides with increases in some forms of substance use (e.g., binge drinking), this effect apparently does not generalize to African American students (Wechsler, Lee, Kuo, & Lee, 2000). African American college students drink less than do nonstudents, although the opposite is true for European Americans (Paschall, Flewelling, & Faulkner, 2000). Many European American college students and their families view college as a context for maturation, experimentation, and development of an adult identity (Arnett, 2000). Among African Americans, college attendance is less normative, often requiring significant financial effort and sacrifice. Accordingly, many African American students may view higher education as an important responsibility rather than an opportunity for experimentation and identity formation. In the present study, we considered plans to attend college as well as current student status. For many young adults, college attendance is intermittent. Cost concerns impede continuous attendance for many African Americans (Hamilton & Hamilton, 2006). We expected both current student status and plans to enroll in college in the near future to be associated with avoidance of risky sexual activity via the avoidance of substance use and selection of peers who do not encourage risk behavior.

Parenthood during the years immediately following high school was hypothesized to be positively associated with risky sexual behavior. After young adults complete their educations or begin careers, parenthood and family formation tend to have conventionalizing effects that reduce impulsive and risky behavior (Bachman et al., 2002). Among African Americans in the years following high school, however, parenthood is unlikely to be associated with the formation of stable marital relationships (Chase-Lansdale et al., 1999). Although some African American young adults plan to have children, pregnancies are more often unplanned (Crosby, DiClemente, Wingood, Rose, & Lang, 2003; Henshaw, 1998) and result from unprotected sexual activity (Gillmore, Gilchrist, Lee, & Oxford, 2006). Unplanned pregnancies are more common among adolescents and young women with few strong ties to conventional adults in the community (Moore & Chase-Lansdale, 2001). Stressors associated with child rearing, combined with a history of risk-taking behavior, can undermine young adults' adaptation (Jaffee, 2002) and encourage some young parents to use substances (Gillmore et al., 2006; Huang & Reid, 2006); this may partially explain effects on risky sexual behavior. Although few studies include specific data on young parents' peers, we expected affiliations with risk-taking peers to continue to explain risky sexual behavior through parenthood's constraints on social and residential mobility. Thus, parents are likely to maintain the affiliations they had when their unplanned

pregnancies occurred. We explored these mediating paths in the link between parenthood and current sexual behavior.

The literature documents a link between employment status during adolescence and risk-taking activities (Leventhal, Graber, & Brooks-Gunn, 2001; Mortimer, Finch, Ryu, Shanahan, & Call, 1996; Valois, Dunham, Jackson, & Waller, 1999), primarily substance use. During adolescence and the years immediately following high school, when they have few skills and little work experience, youth tend to hold low-wage jobs with little opportunity for advancement (Hamilton & Hamilton, 2006). After high school, full-time employment at such jobs provides an opportunity for increased affiliation with risk-taking coworkers with whom youth may use substances after work (Frone, 2006). Accordingly, we expected full-time employment to be associated with increases in risky sexual behavior.

After high school, changes in living arrangements are common among young adults, though less so for African Americans, who are more likely to remain in the family home (Goldscheider & Goldscheider, 1997). Consistent with social development theory, we hypothesized that continued residence with family members would be associated with lower levels of risk behavior. For young adults living in the family home, continued interaction with parents or parent figures may attenuate the influence of risk-taking peers (Whitaker & Miller, 2000) and reduce the likelihood of substance use (Wood, Mitchell, Read, & Brand, 2004). Residence in a college dorm or in a military barracks, compared to living independently with peers, also was hypothesized to provide a more structured and supervised environment that encourages responsible behavior. Youth living alone or with peers in unsupervised residences are likely to experience fewer deterrents to risk behavior (Moore & Chase-Lansdale, 2001).

## **POTENTIAL MODERATORS OF ROLE STATUS: PROTECTIVE FAMILY PROCESSES AND RELIGIOSITY**

On the basis of life-course theories of development (Rutter, 1985), we hypothesized that protective processes would attenuate the influence of risk-inducing role status changes. Two specific protective factors have been identified in the literature: protective family processes and religiosity. Protective family processes include close, satisfying relationships with parents; communication about risk behavior; and clear parental norms that discourage such behavior. These processes, singly (Perrino, Gonzalez-Soldevilla, Pantin, & Szapocznik, 2000; Wills & Yaeger, 2003) and in combination (Cleveland, Gibbons, Gerrard, Pomery, & Brody, 2005; B. C. Miller, 2002), have been found to reduce the influence of risk-taking peers and difficult environments on adolescents' risky sexual behavior. Their influence among young adults is unknown. In accordance with past research on adolescents, we expected protective family process to attenuate the influence of role status changes on risk-taking peers (Whitaker & Miller, 2000) and substance use (Stewart, 2002).

The second factor with pervasive influence on African American youths' mental health and risky behavior, religiosity, is manifested more among African American than European American families (R. J. Taylor, Mattis, & Chatters, 1999). Religious beliefs and church attendance form an important coping mechanism for negotiating the life stresses that rural African Americans are particularly likely to experience (Brody, Stoneman, & Flor, 1996). Religiosity has been found to exert a direct influence on adolescent substance use and sexual behavior (Albrecht, Amey, & Miller, 1996; Brewster, Cooksey, Guilkey, & Rindfuss, 1998) and to act as a protective factor for youth in disadvantaged circumstances (Wills, Gibbons, Gerrard, Murry, & Brody, 2003). We expected role status changes that promote risky sexual behavior to have less influence on young adults who remain involved with church.

## SUMMARY OF THE PRESENT STUDY

On leaving high school, African American young adults (age 18 to 21) experience simultaneous and pervasive role changes that have the potential to facilitate risky sexual behavior. Using data from 186 participants in the Family and Community Health Study (FACHS), we tested a theoretical model that linked young adults' current role status (school plans, student status, living arrangements, employment, and parenthood status) to their engagement in risky sexual behavior via two mediating pathways: substance use and affiliations with risk-taking peers. We hypothesized that being a parent, being out of school or having no plans to attend school, having full-time employment, and living with peers or alone would be associated with high levels of risky sexual behavior. We further hypothesized that these role statuses would affect sexual risk behavior via their influence on substance use and peer affiliations. Additional analyses were conducted to determine if two protective processes that buffer adolescents from the influence of risky environments function in a similar way for young adults.

## METHOD

The study hypotheses were tested with data from the third wave of FACHS, which was designed to identify neighborhood and family effects on health and development among African Americans in contexts other than inner cities. Families were recruited from 259 census-defined block group areas (BGAs) in Georgia and Iowa, which were purposively selected to represent the diverse communities in which African American families live outside of densely populated inner cities. From these BGAs, researchers randomly selected for participation households with fifth grade students. Complete data were gathered from 72% of the families on the recruitment lists. Most of the primary caregivers were women (93%), and their educational levels ranged from less than high school (19%) to a graduate degree (3%); the mode was a high school diploma (41%). The Georgia and Iowa samples were combined after data analyses indicated that they were comparable on demographic and family process variables (Cutrona, Russell, Hessling, Brown, & Murry, 2000). A total of 867 African American families participated in the first wave of FACHS, 291 of which included siblings no more than 3 years older ( $M = 13.0$  years) than the fifth grade students. Because the present study focused on the correlates of risky sexual behavior during the transitional years following high school, we tested the hypotheses using data from the older siblings, who were 18 to 21 years old and no longer in high school during the third wave of data collection ( $N = 186$ ). Siblings who had completed high school (90.3%) and those who had dropped out (9.7%) were included; those currently in high school were excluded. Mean age of the sibling participants in the final sample was 19.11 ( $SD = 0.86$ ), and 102 (54.8%) were female. Young adults from Iowa composed 63% of the sample; the rest were from Georgia. No data from the younger target participants were included, as they had neither reached the age of 18 nor left high school at the last wave of data collection.

## PROCEDURE

In earlier waves of FACHS, older siblings completed written questionnaires during home interviews. In Wave 3, on which the present study is based, all interviews were conducted by telephone because of the older siblings' residential mobility. Participants identified convenient times for the telephone interviews. Interviewers, all of whom were African American, received 20 hours of training on assessment protocols and used preprogrammed laptop computers to conduct the interviews. One item at a time was displayed on the computer screen and read to the participant. Participants used numerical scales to respond to most questions, and the interviewers entered the responses into the computers. Computer-assisted interviewing creates an easy interview pace while reducing missing data. The participants' privacy was protected by a Certificate of Confidentiality from the U.S.

Department of Health & Human Services, and both interviewers and participants were instructed about confidentiality. Siblings received \$30 for their participation in the study.

## MEASURES

**High-risk sexual behavior**—High-risk sexual behavior was assessed with an eight-item index. We considered examining each sexual behavior separately; however, that approach could have underestimated the risk of infection (Susser, Desvarieux, & Wittkowski, 1998). Previous research using sexual risk behavior indices has supported their validity in predicting STI acquisition (Capaldi, Stoolmiller, Clark, & Owen, 2002; Millstein & Moscicki, 1995). Three items in the index assessed general sexual behavior with no time frame: “When you have sex, how often do you use a condom?” “Have you ever had sex with someone you thought might be infected with HIV?” “When you have sex, how often do you have some alcohol or drugs beforehand?” Respondents answered on a scale ranging from 1 (*definitely not*) to 5 (*definitely yes*). Later in the survey, four questions were asked about the frequency with which the participant, during the past 12 months, had sexual intercourse, sex without any birth control, sex without a condom, and sex with a person the participant did not know well. Respondents answered on a scale ranging from 1 (*never*) to 5 (*6 or more times*). Participants also entered their exact number of lifetime sexual partners. A logarithmic transformation was applied to the lifetime partner item to correct the skewed distribution (Bland & Altman, 1996). The eight items were standardized and aggregated to form an internally consistent scale ( $\alpha = .84$ ).

**Role status**—Living arrangements were coded as residing with family members; in a dormitory or barracks; or with a romantic partner, with peers, or alone. Student status was recorded as a dichotomous variable reflecting current school attendance. Expectations for attending school and parenthood status were coded as dichotomous variables. Participants reported their employment status as unemployed, employed full-time, or employed part-time.

**Mediators**—Affiliation with peers who encouraged risky sex was indexed by three items: the proportion of peers who engage in risky sex, perceived peer approval of sex without a condom, and perceived peer approval of participants’ engagement in risky sex ( $\alpha = .63$ ). Participants’ 12-month substance use frequency measured binge drinking (3 or more drinks at one time) and marijuana use ( $\alpha = .73$ ).

**Moderators**—A protective parenting factor index was developed using three scales. Protective factor indices are particularly useful in maximizing the explanatory power of a set of interrelated elements that confer protection and account for the impact of the accumulation of factors on a given outcome (Burchinal, Robert, Hooper, & Zeisel, 2000). Participants’ scores on each protective factor were determined by their positions relative to the measures’ medians for this sample and then summed. For example, a score of 2 indicated that a participant scored above the medians on two positive parenting factors. The scales used to develop this index follow.

A two-item scale developed for the FACHS project indexed general relationship satisfaction: “How satisfied are you with your relationship with your caregiver?” and “How happy are you with the way things are between you and your caregiver?” Participants responded on a Likert-type scale ranging from 1 (*very unsatisfied or unhappy*) to 5 (*very satisfied or happy*). These items were intercorrelated ( $r = .75, p < .01$ ). On a five-item scale ( $\alpha = .93$ ), young adults reported the extent to which their parents talked to them about sexual activity, birth control, and STIs during the past year. The response set ranged from 1 (*never*) to 4 (*many times*). The previous use of these scales supports their reliability and

predictive validity in forecasting adolescents' vulnerability to substance use (Wills et al., 2003). A five-item scale indexed young adults' perceptions of their parents' norms regarding risk behavior. For five risk behaviors (smoked cigarettes, drank alcohol, drank a lot of alcohol, used illegal drugs, had risky sex), participants were asked, "What would your [caregiver] do if you. . ." The response options were 1 (*tell you to stop*), 2 (*not approve, but not tell you to stop*), 3 (*not care*), 4 (*approve*), or 5 (*approve and encourage you to continue*). Cronbach's alpha for this scale was .85.

Participants responded to three items that indexed the importance and influence of religion in their lives. Responses to the first item, "How important is your religion to you?" ranged from 1 (*not at all*) to 4 (*very*). The response set for the other two items, "How much would your religion influence whether or not you decide to drink alcohol?" and "How much would your religion influence whether or not you decide to have 'risky' sex?" ranged from 1 (*not at all*) to 5 (*very much*). Cronbach's alpha for the aggregated three-item scale was .82.

## PLAN OF ANALYSIS

Because the hypotheses were unidirectional, a one-tailed significance criterion ( $p < .05$ ) was used in all analyses. The analytic plan for assessing the heuristic model pictured in Figure 1 was based on Baron and Kenny's (1986) causal steps method. Accordingly, mediation is supported when significant associations are found between an exogenous variable (a role status) and the outcome (high risk sexual behavior), the exogenous variable and the mediator or mediators (substance use, risk-promoting peer influences), and the mediator or mediators and the outcome. Mediation is evident when the inclusion of the mediator attenuates the influence of the exogenous variable on the outcome; significance of the mediation can be determined with a Sobel (1982) test. Below, we first examine the independent effects of each role status and of gender on risky sexual behavior using independent samples  $t$  tests. Significant predictors ( $p < .05$ ) were then included in a multiple regression analysis; nonsignificant predictors were dropped from future analyses. To establish mediation, we then tested the influence of role status on each mediator (substance use, risk-taking peers) and the influence of the mediators on the risky sexual behavior outcome. For paths with significant links (exogenous to mediator and mediator to outcome) we used path analysis to specify a final model in which potential mediators linked associations between role status and risky sexual behavior and those role statuses without a potential mediator in the model were specified as direct effects. The significance of mediating pathways was tested with a Sobel test. To assess moderational hypotheses, multigroup analyses were conducted to determine whether the paths were conditioned by family processes or religiosity. All analyses were performed using AMOS software (Arbuckle, 2003), which permits the modeling of missing data using full information likelihood procedures.

## RESULTS

### DESCRIPTIVES

Most participants, 62%, lived with family members, 11% lived in a dorm or barracks, and 27% lived with peers, with a romantic partner, or alone. Of the young adults, 43% were not employed, 30% were employed part-time, and 28% were employed full-time; 39% were students, 51% had graduated from high school and were not currently in school, 9% had dropped out of high school, and 65% planned to attend school in the coming year. Most of the participants reported having had sexual intercourse in their lifetimes; 14% were sexually inexperienced. Sexually experienced participants had a median of three lifetime sexual partners. The standardized sexual risk variable had a range of 0.41 to 4.05; the mean was 1.89 ( $SD = 0.76$ ).

## MAIN EFFECTS

Mean comparisons by role status are summarized in Table 1. Men engaged in more risk behavior than did women. Students engaged in less risk behavior than did nonstudents. Participants who planned to attend school within the next year engaged in less risk behavior than did those with no plans. Employment status predicted risk behavior via the comparison between part-time and full-time employment. Living arrangements were significantly associated with risk. Youth who lived alone or with peers were significantly more likely to engage in high-risk sexual behavior than were youth who lived with family or in a dorm or barracks. Parent status was associated with risk behavior. Role statuses and gender were entered into a simultaneous multiple regression using AMOS, which permits assessment of model fit in addition to  $R^2$ . Categorical predictors were represented with two dummy variables. In the final model,  $\chi^2 = 5.50(11)$ ,  $p = .9$ ,  $\chi^2/df = 0.5$ , comparative fit index (CFI) = 1.0,  $R^2 = .16$ , each role status was an independent and significant predictor of risky sexual behavior in the expected direction. Gender, however, was not significant and was dropped from additional analyses. Among the discrete variables, specific comparisons were significant. For employment, the comparison between part-time versus full-time employment was significant ( $p = .009$ ) but not the comparison between unemployment and full-time employment ( $p = .372$ ). For living arrangements, the comparison between residence in a dorm or barracks versus living alone or with peers was significant ( $p < .001$ ) but not the comparison between residence with family versus living with peers or alone ( $p = .418$ ). The gender variable was nonsignificant; all nonsignificant links were dropped from further analysis.

## MEDIATIONAL ANALYSES

Evidence of a mediating effect is supported by (a) a significant association between role status and a mediator, (b) a significant association between the mediator and risk behavior, and (c) a significant Sobel test, representing the cross-product of these paths (Sobel, 1982). The first step in investigating mediation, identifying associations between role status and mediators, is presented in Table 2. Parenthood status and expected school attendance were significantly associated with risk-promoting peer affiliations ( $p = .039$ ,  $p = .016$ , respectively). Full-time rather than part-time work was associated with substance use ( $p = .015$ ). The next step involves determining if the putative mediators are associated with the outcome. The two mediating processes being tested, risk-promoting peer affiliations and substance use, were both significantly associated with sexual risk behavior ( $r = .41$ ,  $p = .005$ ;  $r = .52$ ,  $p = .005$ ; respectively). These pathways were modeled in a path analysis, and Sobel tests were conducted to determine the significance of mediating effects. The peer-mediated path linking anticipated school entry with sexual behavior was not significant and was deleted from the model. The final model, which adequately fit the data,  $\chi^2 = 34.58(22)$ ,  $p = .043$ ,  $\chi^2/df = 1.57$ , CFI = .95, is depicted in Figure 2. Substance use fully mediated the influence of part-time versus full-time employment on risk behavior based on the attenuation of the direct path and a significant Sobel test ( $p = .035$ ). Peer affiliation partially mediated the influence of parent status on risk behavior. A Sobel test was significant ( $p = .033$ ), though the direct path also remained significant.

## MODERATIONAL ANALYSES

Multigroup analyses were conducted to determine if paths were conditioned by the protective parenting index or religiosity. A baseline model freely estimating the regression paths among constructs for participants who were high or low based on a median split on the protective parenting index and the religiosity scale was established; each regression path then was constrained to be equal across groups. Significant change in chi-square for model fit indicates a moderational effect (Byrne, 2001). Results are summarized in Table 3.

Protective family process and high religiosity buffered the impact of parent status on risk behavior. High religiosity attenuated the impact of substance use on risk behavior.

## DISCUSSION

High rates of STIs, including HIV, among African Americans during the transition to adulthood underscore the need to identify aspects of young adults' changing roles that place them at risk for engaging in high-risk sexual behavior. Using data from 186 FACHS participants, we tested a theoretical model that linked young adults' current role status (school plans, student status, living arrangements, employment, and parenthood status) to their engagement in risky sexual behavior via two mediating pathways: substance use and affiliations with risk-taking peers. We hypothesized that being a parent, being out of school or having no plans to attend school, full-time employment, and living with peers or alone would be associated with high levels of risky sexual behavior. We further hypothesized that these role statuses would affect sexual risk behavior via their influence on substance use and peer affiliations. Additional analyses were conducted to determine if two protective processes (family relations and religiosity) that buffer adolescents from the influence of risky environments would function similarly for young adults.

The primary findings of this study are as follows: Anticipated school attendance, part-time rather than full-time employment, and residence in a dorm or barracks rather than with peers or alone were associated negatively and independently with sexual risk behavior. Being a parent was positively associated with sexual risk behavior; affiliation with peers who promote risky sex partially accounted for this effect. Substance use fully accounted for the effect of part-time versus full-time employment. Young adult parents who experienced high levels of protective family processes or evinced high levels of religiosity were not at risk for engaging in risky sexual behavior. High religiosity somewhat lessened the impact of substance use on sexual risk behavior; however, substance use continued to contribute significantly to risky behavior.

Little or no prior research has addressed the influence of living arrangements on young adults' risky sexual behavior. Consistent with our hypotheses and social developmental theory, residence in a dorm or barracks compared to residence with peers, alone, or with a partner is associated with less risk behavior. Our expectation that living arrangements would be mediated by substance use or affiliations with risk-taking peers, however, was not supported. It is thus not clear what explains this association. Young adults living in a dorm or barracks may indicate a more conventional developmental trajectory in general, particularly among samples of African Americans where attending college is not normative. Military residence also may operate by constraining opportunities for sexual behavior or may indicate a greater access to HIV prevention programming. College students and military recruits may differ from other young adults in their self-regulatory behavior, which is a strong predictor of academic engagement and achievement in adolescence (Brody, Kim, Murry, & Brown, 2003) and of risky sexual behavior in adolescence and young adulthood (Raffaelli & Crockett, 2003). This may be true both prior to attendance and as a result of the structure and routines imposed by these institutions. Future studies are needed to clarify this association and the mechanisms that explain it.

Full-time employment compared to part-time employment is positively associated with sexual risk behavior in this sample. In our sample, substance use fully accounted for this effect. Links between employment and substance use (Bachman, Safron, Sy, & Schulenberg, 2003; Dooley & Prause, 1997) and between substance use and risky sexual behavior are consistent with studies of both adolescents and young adults. No prior research, however, has examined the pathway from employment to risky sexual behavior in young adulthood.

Our results suggest that a primary reason for increased sexual behavior by young adults who work full-time is the use of alcohol or drugs. Full-time employment may provide young adults with increased financial resources for purchasing substances at a time when many do not have families to support with their earnings. Employment also may be related to educational aspirations, with those who work full-time having selected out of further education.

Combined with previous data on African Americans' substance use (Paschall et al., 2000), our findings suggest that the increased vulnerability of college underclassmen to engaging in risk behavior (Wechsler et al., 2000) may be specific to European American youth. We suspect that attending higher education is particularly protective for African Americans, especially for those from lower SES backgrounds. Many of the young adults in our sample represented the first generation in their families attending higher education and likely viewed college as a scarce opportunity (Hamilton & Hamilton, 2006). In contrast, youth from economically privileged backgrounds may view college as a context for development, a place to grow up and to experiment with developing an adult identity (Arnett, 2000). This same experimentation may be linked to increased risk behavior in contrast to a focus on achievement and job preparation. Such experimentation may not be a luxury afforded to many African American youth attending college.

Parenthood status at this age suggests a recent history of unprotected sexual intercourse as the majority of young adults this age do not intend to become parents (Crosby et al., 2003). This effect was partially accounted for by affiliation with risk-taking peers. In contrast to young adults who become parents when careers are more established, becoming a parent does not necessarily "conventionalize" younger parents. Relationships with peers who promote risky sexual behavior continue. This effect may be attenuated, however, by strong family relationships and religious involvement. The buffering influence of these factors is consistent with research on adolescents (Brewster et al., 1998; Billy, Brewster, & Grady, 1994); the present study extends this research into another developmental stage.

## LIMITATIONS

Several limitations of the present study must be noted. The use of cross-sectional data limits understanding of the direction of effects. Longitudinal data are needed to examine the causal sequence of predictors and outcomes and to distinguish situational stressors from long-term risk behavior patterns that may have begun during early adolescence. A second limitation involves potential social desirability bias in self-reports of sexual behavior. The use of telephone interviewing may have inhibited some participants' responses, yielding a conservative test of significant predictors. Although past research has shown that this technique can elicit reliable responses (Schroder, Carey, & Vanable, 2003), higher rates of risk behaviors are reported when more private modes of assessment are used. The use of a secondary data set required operationalizing variables with scales that lack extensive psychometric data, including the sexual risk behavior index, which did not provide a uniform time frame for all behaviors.

## PREVENTION AND POLICY IMPLICATIONS

The findings suggest directing STI prevention resources toward African American young adults who are parents, who live alone or with peers, who work full-time, and who have no intentions of continuing their education. This represents a clear public health challenge, as there are few institutional structures designed to reach out to these young people. As most full-time employment at this age represents low-wage or service-sector work and is often intermittent, employers are unlikely to invest in health-promotion programs for their employees. Outreach strategies are necessary to connect young adults who are on their own

and not in school with resources for risk behavior prevention. The findings also highlight the importance of engaging young African American adults in continuing education, not only for the personal and economic downstream benefits but also for the protection from STIs that educational plans confer.

Moderational results confirm several studies that have indicated that family support is critical in the well-being of young parents (Burton, 1993; Gordon, Chase-Lansdale, Lindsay Matjasko, & Brooks-Gunn, 1997) and extend this finding to the years following high school. Engaging family members into programs for young parents is indicated for reducing sexual risk behavior. Religiosity appears to be a powerful protective influence among young parents. In the presence of high religiosity, being a parent had no effect on current sexual risk behavior. Interestingly, religiosity attenuated the impact of substance use on sexual risk behavior. More religious youth who use substances are less likely to engage in risky sexual behavior than less religious youth who use substances.

These findings underscore the importance of targeting young adult African Americans who live with peers or alone, are parents, are working full-time, or are not anticipating attending school. Further research is necessary to examine a range of protective factors that may attenuate the influence of these risk factors on risk behavior or that encourage further education. Such research is critical for the development of prevention programs for these young adults.

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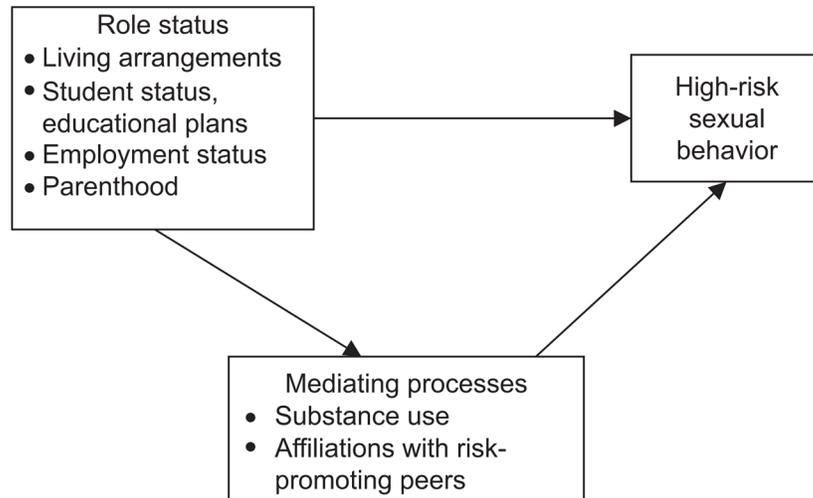
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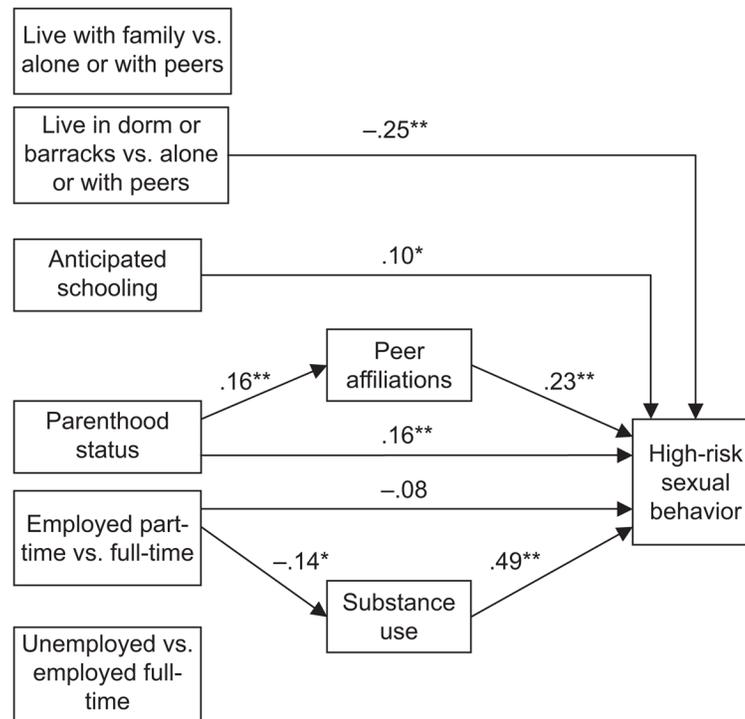
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**Figure 1.**  
Heuristic Model



**Figure 2. Mediation Model**  
 $*p < .05$ , one-tailed.  $**p < .05$ , two-tailed.

**TABLE 1****Bivariate Associations for Gender, Role Statuses, and Sexual Risk Behavior**

<i>Variable</i>	<b>M</b>	<b>SD</b>	<b>F</b>	<b>p</b>
Gender			7.90	.005
Male	2.06	0.71		
Female	1.75	0.78		
Parent status			7.57	.007
Parent or pregnant	2.27	0.51		
Not a parent, not pregnant	2.00	0.61		
Living arrangements			6.32	.002
Family	1.82	0.78		
Peer or alone	2.17	0.63		
Dorm or barracks	1.54	0.80		
Employment status			3.63	.028
Unemployed	1.85	0.75		
Part-time	1.72	0.82		
Full-time	2.11	0.67		
Current student?			5.69	.018
Yes	1.72	0.79		
No	1.99	0.73		
Expect to be a student?			7.47	.007
Yes	1.78	0.76		
No	2.09	0.75		

**TABLE 2**  
 Bivariate Associations (Independent-Samples *t* Tests) for Identifying Potential Mediating Processes

Role Status	<i>Risk-Promoting Peer Affiliations</i>			<i>Substance Use</i>		
	T	df	p	T	df	p
Parenthood status	1.77	153	.039	0.031	158	.49
Living in dorm or barracks vs. living with peers or alone	0.326	128	.380	0.870	133	.190
Part-time employment vs. full-time employment	1.53	131	.065	2.180	32	.015
Expect to be a student?	2.29	179	.016	0.810	184	.420

TABLE 3

## Significant Moderated Paths From Multigroup Analyses

Moderator and Path	Parameter		Change in Model Fit		
	$\beta$	p	$\Delta\chi^2$	df	
Protective family processes					
Parenthood status → Risk behavior	High	.040	.630	5.11	1
	Low	.390	.001		
Religiosity					
Substance use → Risk behavior	High	.380	.001	3.99	1
	Low	.460	.001		
Parenthood status → Risk behavior	High	.007	.938	4.98	1
	Low	.350	.001		