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Work and Sexual Trajectories among African American Youth

José A. Bauermeister, MPH, PhD[1], **Marc A. Zimmerman, PhD**[2], **Gilbert C. Gee, PhD**[3], **Cleopatra Caldwell, PhD**[2], and **Yange Xue, PhD**[2]

[1]HIV Center for Clinical and Behavioral Studies, Columbia University and New York State Psychiatric Institute, New York, New York

[2]Department of Health Behavior and Health Education, School of Public Health, University of Michigan, Ann Arbor, Michigan

[3]Department of Community Health Sciences, School of Public Health, University of California, Los Angeles, California

Abstract

The beneficial and/or deleterious effects of employment on youth and well-being have been highly contested. We explore whether work influences youths' sexual risk correlates in a sample of African Americans [N=562; 55% females; *M* = 14.5 years (*SD*=0.6)] followed longitudinally from adolescence to early adulthood. We used growth curve modeling to test the association between number of hours worked and condom use, sex partners' age differences, and number of partners over time. Working a greater number of hours was associated with less condom use, with the effect varying by youths' GPA. Working a greater number of hours was associated with older sex partners among female youth. We found no association between work and number of partners. Our findings suggest that working during adolescence and early adulthood increased participants' sexual activity, thus lending some support for the work consequences perspective. We discuss the implications for future research and youth development programs.

Keywords

Adolescent development; work; employment; sexuality; African American; HIV/AIDS

Introduction

Approximately 9 million adolescents and young adults in the United States acquire a sexually transmitted infection (STI) every year. Youth aged between 15-24 account for half of all new STIs each year (AGI, 2005), and over half of the 30,000 newly diagnosed HIV cases reported yearly in the United States (Hariri & McKenna, 2007). Among those affected by HIV, there continues to be unequal prevalence across the US, with African Americans, ages 13 to 24, accounting for 55% of all HIV infections in this age stratum (CDC, 2006).

The two developmental periods of greatest risk for contracting and transmitting HIV, adolescence (11 to 18) and early adulthood (19 to 25), are characterized by several developmental transitions that prepare youth to adopt adult roles and responsibilities. Among these transitions, initiation of adult activities such as participation in the workforce are common

Corresponding Author: José A. Bauermeister, MPH, PhD, Department of Health Behavior & Health Education, School of Public Health, University of Michigan, 109 S. Observatory, SPH I, Room 3706, Ann Arbor, MI 48109-2029, Phone: (734) 615-8414, jb2855@columbia.edu.
Emails: marcz@umich.edu, gilgee@ucla.edu cleoc@umich.edu, yxue@umich.edu

during mid to late adolescence (ages 13 to 18) (Mortimer, Harley & Staff, 2002). While labor force participation is often limited during adolescence so that youth attend and complete high school, some youth may work a greater number of hours because they have dropped out of high school and/or need to contribute to the household income. By early adulthood, however, youths' participation in the workforce becomes less restrictive and is a part of settling into their adult responsibilities (ages 19 to 25).

Researchers have explored the positive and negative effects of employment on youth development for more than two decades (Greenberger & Steinberg, 1986; Shanahan, Finch, Mortimer, & Ryu, 1991; Mortimer, Harley, & Staff, 2002). Two developmental perspectives, *work benefits* and *work consequences*, have been put forth recently to help inform this debate (Bauermeister, Zimmerman, Barnett, & Caldwell, 2007). The *work benefits* perspective hypothesizes that the integration of adolescents and young adults into the labor force facilitates the formation of their adult identities through opportunities for increased personal responsibility, financial independence, and exposure to adult roles and expectations (Mortimer, Harley, & Staff, 2002; Irwin, Burg, & Uhler-Cart, 2002). The *work consequences* perspective, however, suggests that employment distracts youth from involvement in school and extracurricular activities, and promotes adult roles and responsibilities that they may be unprepared to handle. In addition, employment may overburden youth if they work over 20 hours per week and increase their likelihood of coping through health-compromising behaviors such as cigarette and alcohol use (Johnson, 2004; Miller, Kelder, Cooper, Basen-Engquist, & Tortolero, 2003). Researchers, however, have not studied the effect of work force participation on the trajectory of youths' sexual risk over time. Understanding how participation in the work force is associated with the development of sexual practices among youth who are transitioning from adolescence into early adulthood can help inform interventions that adress multiple ecological levels.

Does Work Provide an Environment of Sexual Risk or Promote Healthy Sexual Development?

Given that labor force participation exposes youth to the adult world, employment may lead youth to perceive that they have attained an adult status and/or may provide a context that increases youths' likelihood to establish sexual relationships with partners who may be older and more sexually experienced. Youth who perceive themselves as more developmentally mature due to their participation in the workforce may accelerate their sexual onset or establish relationships with older partners; both are associated with sexual risk behavior in adolescence (REF). Rich and Kim (2002), for instance, found that current and cumulative work was associated with a greater likelihood of sexual intercourse onset among a representative sample of females, with the association being stronger for youth working 20 or more hours per week. In addition, working had different outcomes depending on adolescents' race/ethnicity. Compared to their non-Hispanic White counterparts, working was associated with increased pregnancies among African Americans and decreased pregnancies among Hispanics. It is as likely, however, that participating in the workforce may increase youths' aspirations about the future and lead to delays of sexual onset and consistent condom use. Furthermore, youth who earn their own money while working may increase their opportunities to access protective social resources such as access to medical care and money to buy family planning products (including condoms). In fact, advocates of the work benefits perspective suggest that youths' sexual health outcomes increase with greater work participation because youth may be more likely to become career-oriented and be likely to use condoms in order to delay childbearing. Kraft and Coverdill (1994), for example, found increased work participation increased birth control use among a nationally representative of women. Yet, few studies have examined these relationships over a long period of time that also includes the vital transitional period to young adulthood. Thus, we have limited information on the long term effects of working during high school or the persistence of those effects.

Given the focus on family planning, these studies have focused on the association between youth employment and pregnancy outcomes among female participants (Rich & Kim, 2002; Kraft & Coverdill, 1994), limiting the possibility of exploring how gender moderates this relationship. Women, on average, earn less because they are over represented in less prestigious occupations (US Department of Labor, 2007), have lower control of their work environments (Hall, 1991), or are underemployed (Wingood & DiClemente, 2002). Connell (1987) and, more recently, Wingood and DiClemente (2002) have examined how unequal power imbalances exist between men and women. In their Theory of Gender and Power, Wingood and DiClemente (2002) postulated that gender-based health disparities increase women's risk for STIs/HIV through unequal economic returns in the labor market. These economic returns and cultural valuations of masculinity/femininity may favor men and result in social and sexual power inequities. Female youth may have to delay their college aspirations if they get pregnant, may be more likely to be sexually harassed in the workplace, and may place them at greater risk for STIs/HIV because of limited access to promotive sexual behaviors (e.g., consistent condom use). Given these gender inequalities, employment during adolescence and early adulthood may influence men and women differently.

While these studies have provided important data on family planning outcomes, a more comprehensive understanding of the association between workforce participation and sexual risk practices (e.g., number of partners, condom use, and having an older partner) during adolescence and young adulthood is needed. At present, it is unknown whether youth employment increases risks (work consequences), decreases risks (work benefits), and/or has no effects on youths' sexual practices (Buhi & Goodson, 2007). Furthermore, considering several sexual practices may elucidate whether employment has positive and negative effects over time. While employment itself may not have a direct effect on youths' sexual behavior, participating in the labor force during adolescence and young adulthood may provide a context where youths explore their sexuality. For example, employment may increase youths' interest in having sex with older partners, yet simultaneously it could increase youths' confidence and ability to negotiate safer sex. Therefore, prospective studies are needed to examine how employment influences sexual behavior over time, to test if these effects vary across different behaviors as youth transition from adolescence into young adulthood (Bauermeister et al., 2007), and to study the latency of those effects.

In addition, most studies exploring employment's effects on well-being during adolescence and early adulthood have focused on samples of predominantly White participants (Mortimer, Uggen, & Staff, 2004). Consequently, these studies have been limited in describing racial and time variations in adolescents' and young adults' sex behaviors. Studies of African American youth are desirable for several reasons. First, African American youths are at greater risk for early sexual debut, unintended pregnancies, and STIs/HIV infection (Ford & Lepkowski, 2002). Recent estimates by the Center for Disease Control (2008) suggest that African American youth are two times as likely to have a STI. Second, African American youth have been understudied as a population and require greater attention in the scientific literature (Johnson, 2004). Finally, compared to any other race or ethnic group in the United States, African Americans have the highest unemployment rate (i.e., unemployed and looking for a job in the past 6 months), with a current season-adjusted rate of approximately 8.5% (US Department of Labor, 2007). While Whites ages 16 to 19 reported a rate of participation in the labor force (i.e., employed or actively seeking work in the past 6 months) of approximately 45% for the 2007 fiscal year, African Americans reported a labor force rate of 31%. Similarly, the unemployment rate among 16 to 19 year old African Americans (31%) was twice as high as that of Whites (14%). The striking differences in labor force participation and unemployment rates between White and African American youth raise questions related to the equitable development of both groups within health-promotive social contexts. Prospective studies on the effects of employment among African American adolescents and young adults will help

researchers to understand whether labor force participation has beneficial or negative effects on the sexual development of this racial group over time.

A study that addresses the limitations is necessary to inform innovative approaches to HIV prevention among youth. This study contributes to this literature by (a) examining the association between employment trajectories and youths' sexual behavior through adolescence and into young adulthood; (b) testing whether gender moderates the association between work and sexual development; and (c) accounting for developmental differences in the association between adolescence and young adulthood in a sample of African Americans.

Study Objectives and Hypotheses

Our study had three aims. First, we explored whether work intensity (e.g., the number of hours worked) across adolescence and early adulthood was associated with various sexual risk correlates (e.g., number of partners, inconsistent condom use, and sex partner age differences). Congruent with the work consequences perspective, we expected increases in work intensity would be associated with higher sex risk correlates over time. Second, we tested whether work intensity had the same association across various sex practices. Congruent with the work consequences perspective, we expected greater work intensity to increase exposure to potential sex partners (e.g., number of partners and sex partners' age differences). Following the work benefits perspective, however, we expected greater work intensity to decrease unprotected sexual contact (e.g., inconsistent condom use) even if youth were more sexually active. Finally, we explored whether the relationship between work and sexual risk factors varied after accounting for psychosocial characteristics consistently associated with sexual risk (e.g., age, gender, academic achievement, parents' socioeconomic status, and family structure). We hypothesized that the effect of work intensity patterns on sex would be strongest for females and participants of lower socioeconomic status across all behaviors, matching the highest at-risk groups for HIV infection rates in the U.S.

Method

This study is based on an eight-year longitudinal study of youth from mid-adolescence to the transition into young adulthood. Participants in this study were recruited based on their risk for school dropout. To be eligible for the study, participants had a grade point of 3.0 or lower at the end of the eighth grade, were not diagnosed by the school as having emotional or developmental impairments, and identified as African American, White, or Bi-racial (African American and White). Data were collected from 850 adolescents beginning their ninth grade (Wave 1: 1994) in four public high schools in a Midwestern city. Previous studies with the same sample have found adolescents had a more even distribution of GPA by their senior year (Zimmerman, Caldwell, & Bernat, 2002). Waves 1 through 4 correspond to the participants' high school years (1994-1997). We did not collect data the year between Waves 1-4 and 5-8; thus, Waves 5 through 8 correspond to the second, third, fourth, and fifth years post-high school (1999-2002).

Sample

Fifty percent of the original sample was female. Adolescents self-reporting as African American constituted eighty percent of the sample in Wave 1 (n = 681). We focus our analyses on this African American subsample. Eighty-nine African American participants were dropped from our analyses due to missing data on the work measures. Missing information on hours worked per week during two or more of the first four Waves diminished our ability to test our hypothesis that the effects of number of hours worked during adolescence influence sexual development. In addition, we excluded an additional 30 participants who reported that their sexual debut occurred prior to age 9 or their last sex partner was under the age of 9 because

the age indicated for these behaviors may represent coding errors or unusual sexual engagement. Excluded participants were more likely to be male ($\chi^2_{(1)} = 26.41$, $p < .001$), older ($t_{(679)} = 5.02$, $p < .001$), younger at first sexual intercourse ($t_{(337)} = 2.64$, $p < .01$), reporting more sexual partners ($t_{(402)} = 3.12$, $p < .01$), and reported greater lifetime sexual intercourse ($t_{(424)} = 3.43$, $p < .001$). The mean age at Wave 1 for the remaining 562 African American participants (55% female) in this study was 14.5 years (*SD*=.60).

Procedure

Structured face-to-face interviews were conducted with students at school, or in a private room in a community setting such as a neighborhood center, church, or our local research office if participants could not be found in school. Waves 5 through 8 interviews were mostly conducted in community settings. On average, each interview lasted 50-60 minutes. After the interview portion of the protocol, participants completed a self-administered paper and pencil questionnaire about alcohol and substance use, sexual behavior and other sensitive information. The study had a 90% response rate by Wave 4 and a 68% response rate by Wave 8.

Measures

We included three different operationalizations of sexual risk (number of sex partners, inconsistent condom use, and age difference between youth and their sexual partner) in order to test whether we obtained similar results when exploring the effects of participants' employment on sexual risk correlates during adolescence and early adulthood years. We present the mean and standard deviation for each sex behavior across all Waves in Table 1.

Time-varying covariates

Number of sex partners: Participants self-reported the number of sex partners in lifetime at Wave 1 and the number of sex partners in the previous year in subsequent Waves using an open-ended question.

Inconsistent Condom Use: Across all Waves, participants self-reported their condom use over the previous year. Participants could respond on a 5-point scale ranging from 1(Almost never) to 5(Always). We reverse coded the measure to reflect greater risk.

Age difference from sex partner: Participants were asked to report the age of their last sexual partner through an open-ended question at each Wave ("The last time you had sex, how old was your partner?"). We then created an age difference score by subtracting participant's age from partner's age at each Wave. Partner's age was not collected at Wave 1.

Work Intensity: We asked participants to report the number of hours per week they worked for each Wave. Response categories were 0=None, 1=Less than 10 hours, 2=11-20 hours, 3=21-30 hours, and 4=More than 30 hours. Table 2 presents the distribution of number of hours worked per week by sex across for each Wave.

Moderating Variables

Demographic characteristics: Demographic characteristics were collected from participants at Wave 1. Participants were asked to report their date of birth and sex. Age was computed for each Wave by subtracting the interview date to their date of birth.

Family structure: We used two indicators for family structure: parents' marital status and household composition. At Wave 1, participants were asked if their biological parents were married to each other, separated from each other, divorced from each other, or never married to each other. We created dummy variables for each category and assigned a missing value if

participants reported one or both parents were deceased. Respondents were also asked to list the people with whom they lived and their type of relationship (e.g., mother, father, stepdad, grandmother). Based on their open-ended answers, we created three dummy variables for each of the following types of household compositions: "Lives with mom and dad/stepdad", "Lives only with mom" or "Lives with extended family".

Parents' socioeconomic status: We used two indicators of socioeconomic status. Participants were asked to report their mother's highest level of schooling: 1=completed grade school and/or some high school, 2=completed high school, 3=had some vocational or training school and/or some college, 4=completed college, and 5=attended graduate or professional school after college. Responses of "Deceased", "No contact" and "Don't know" were coded as missing.

In addition, participants reported the occupations of both parents. Occupations were assigned a prestige score (Nakao & Treas, 1994). The highest occupational group received a score of 64.38 (professional), and the lowest group received a score of 27.84 (private household worker). If scores were available for both parents, the higher prestige score was used for analysis. Parents of youth were mostly blue-collar workers from the local factories. The mean prestige score in this subsample was 40.04 (*SD* = 10.12).

Academic Attainment: At the beginning of Wave 2, respondents were asked "Which grade best describes your average grade last year?" We created a four-level ordinal variable so that higher grades represented higher scores: 1 = D/F (69 or below), 2 = C (70 to 79), 3 = B (80 to 89), & 4 = A (90 to 100). We also computed highest educational attainment by Wave 8 to determine who had dropped out of high school. We created a dummy variable to identify high school dropouts by combining the "GED or high school diploma" and "some college" categories into 0= Completed High School category (*N* = 452; 80.4%) or 1 = High School Dropout category (*N* = 62; 11.0%).

Data Analytic Strategy

Multilevel modeling allows the total variance to be divided into within-individual variation (level-1 model; i.e., change over time) and between-individual variation (level-2 model; e.g., differences by moderating characteristics like sex, socioeconomic status, and family structure). Contrary to repeated measure regressions or structural equation modeling, multilevel modeling does not exclude participants if they are missing data across Waves. We used HLM 6.0 (SSI, 2004) because the EM algorithm within hierarchical linear modeling (HLM) does not require full data across all Waves for each participant in order to compute growth estimates (Raudenbush & Bryk, 2002).

Because this study covers the adolescent and the early adulthood periods, different growth rates may exist for each developmental period (see (*) [masked to preserve anonymity] for piecewise model fit statistics for this sample). Piecewise growth curve models offer better substantive and analytically appropriate model specifications for longitudinal studies across different developmental periods (Chou, Yang, Pentz, & Hser, 2004); therefore, we parceled the growth parameters into adolescent (Waves 1-4) and early adulthood (Waves 5-8) piecewise estimates (see Appendix A for piecewise coding). We also included a quadratic term of a linear growth parameter when an outcome had a curvilinear trend.

Is work associated with youths' sexual risk correlates?—The Level-One Model assumes the within-variation for participant *i*'s outcome (Y_{ti}) at each Wave can be modeled by estimating participants' baseline score on the outcome (π_{0i}), growth parameters for the outcome and/or other time-varying predictors (π_{pi}), and a within-individual random error term (e_{ti}), where *t* is the Wave of each observation, *i* is the individual, and *p* is a particular growth

parameter for each Wave. We computed a different growth model for each outcome (e.g., number of sex partners, inconsistent condom use, and sex partner age differences).

We included work intensity as a time-varying covariate ($Hours_{ti}$) to test whether a change in hours worked over time was associated with sex behavior over time, after adjusting for participants' baseline score in Wave 1 (π_{0i}) and the linear and quadratic piecewise time dimensions. We then included a quadratic term for the work intensity covariate to acknowledge the change in work as youth transition into adulthood. We adjusted for individuals' growth by treating them as fixed effects to increase the stability of the models and the reliability of the time-dependent measures (Raudenbush & Bryk, 2002). We present an example of a curvilinear piecewise Level-One model for adolescence and young adulthood that also includes the number of hours worked across all eight Waves as a time-varying covariate in Equation 1 below.

$$\text{SexRisk}_{ti}=\pi_{0i}+\pi_{1i}PW_{1i}+\pi_{2i}PW^{2}{}_{1i}+\pi_{3}PW_{2i}+\pi_{4}PW^{2}{}_{2i}+\pi_{5i}\text{Hours}_{ti}+e_{\text{ti}} \quad \text{(EQ 1)}$$

What factors moderate the relationship between work and sex risk correlates?—In the Level-Two model, we treated the baseline score at Wave 1 ($\boldsymbol{\pi_{0i}}$: individuals' baseline score in ninth grade) and the work intensity covariate ($\boldsymbol{\pi_{5i}}$: individual variation in the association between hours worked and sexual risk behaviors over time, after adjusting for different growth rates) as random effects. A random effect at baseline acknowledges that participants may start with differing risk profiles (e.g., some participants may be older or they come from different SES backgrounds). Similarly, variation in the work predictor acknowledges that the association between work intensity and a sex behavior over time may have different slopes due to moderating characteristics (i.e., males vs. females, dropped out vs. completed high school). If the slope of hours worked did not vary at random, we restricted its variance and kept it as a covariate in the growth model when significant. We tested moderators in a stepwise fashion. For example, a hypothesis of the study was that gender moderated the association between hours worked over time and sex practices. As shown in Equation 2, we tested this moderation by including gender as a between-individual predictor of the association between hours worked ($\boldsymbol{\pi_5}$) and sex risk over time, after adjusting for their initial score ($\boldsymbol{\pi_0}$).

$$\begin{aligned}\pi_{0i}&=B_{00}+B_{01}\,(\text{Sex})+r_{0i}\\ \pi_{5i}&=B_{50}+B_{51}\,(\text{Sex})+r_{5i}\end{aligned} \quad \text{(EQ 2)}$$

To avoid the loss of participants in the Level-Two analyses, we used mean imputation to assign a value to those with missing values on mother's educational and socioeconomic status. Following Cohen, West, Aiken, & Cohen (2002) approach, however, we created a dummy variable that indicated if a participant's score had been imputed and entered this variable in our HLM analyses. If the variable was significant, it was included in the final model to adjust for differences between observed and imputed values. Given the number of variables in these analyses, we present a final growth curve model with predictors found to be significant ($p < .05$) for each outcome.

Results

Number of sex partners

At baseline, participants reported having had between one and three sexual partners in their lifetime (see Table 3). We found, however, that the number of partners at baseline varied across gender, GPA, and dropping out of high school. Females reported fewer partners than males. Having a higher GPA in ninth grade was associated with youth reporting fewer partners at

baseline. Youth who would dropout of school (by Wave 8) reported fewer lifetime partners at Wave 1 than participants who would complete high school. We found no differences in lifetime number of partners at Wave 1 by respondents' age, family structure, or parents' socioeconomic status.

Number of sex partners was best modeled by piecewise linear growth terms. The mean number of sex partners was steady during adolescence and began decreasing during the early adulthood years. Work intensity across both periods was not associated with youths' number of partners nor did the growth trajectories have a significant random effect.

Inconsistent Condom Use

On average, participants who were sexually active at Wave 1 reported using condoms (see Table 4). We found, however, that baseline condom use varied by gender, GPA, parents' marital status, and household composition. Female participants were more likely to report inconsistent condom use than males at baseline. Youth reporting lower academic achievement were more likely to report inconsistent condom use. Youth with married parents reported more inconsistent condom use than youth with separated parents, yet we found no baseline differences among youth whose parents were divorced or were never married. Furthermore, we found youth living with their mother reported more inconsistent condom use than those living with both parents, yet we observed no baseline differences for youth living with their extended family. We found no differences by respondents' age, or parents' educational attainment and occupational prestige score.

We modeled inconsistent condom use with linear and quadratic growth terms in adolescence and early adulthood. Inconsistent condom use increased across the adolescent and early adulthood years, with the growth decelerating toward the end of the early adulthood waves (see Figure 1).

We found work intensity was linearly associated with inconsistent condom use during adolescence and early adulthood. Youth working greater number of hours were more likely to report inconsistent condom use over time. We found, however, youths' GPA had a crossover interaction effect on this relationship. As shown in Figure 1, high intensity workers (21 hours or more per week) reported greater inconsistent condom use than low intensity workers (20 hours or less per week) and non-workers. While low intensity workers having an A GPA reported less inconsistent condom use than low intensity workers reporting a C GPA, high intensity workers having an A GPA reported more inconsistent condom use than their high intensity counterparts reporting a C GPA. We found no other moderating effects in the relationship between work and inconsistent condom use. The quadratic work covariate was non-significant and did not vary at random.

Sex Partner Age Differences

Participants who were sexually active at Wave 2 (baseline for this measure) reported sexual partners of similar age (see Table 5). We found, however, that initial partner age difference varied by gender and age. Compared to males, female participants reported having partners approximately a year older. At Wave 2, we also found youth who were oldest in their cohort were also more likely to report having younger partners (by approximately a year). We found no differences by respondents' age and grade point average, family structure, or parents' socioeconomic status.

We found sex partner's age difference was modeled best using a linear term for the adolescent and the early adulthood years, respectively. As shown in Figure 2, we found no mean growth

in age differences during adolescence and an overall tendency to date older partners during the early adulthood years.

Work intensity was associated with sex partners' age differences. We found, however, that gender and age moderated this relationship. We found that the association between work and partner age differences had an additive effect for females. As shown in Figure 2, working greater number of hours increased the age difference across adolescence and early adulthood for female youth. Similar to the baseline finding, respondents working greater number of hours were more likely to report larger sex partner age differences (e.g., older sex partners over time) if they were older than other youth in this cohort (figure not shown). The quadratic work covariate was non-significant and did not vary at random. We found no other moderating effects in the relationship between work and partner age differences.

Discussion

Participation in the labor force is one of the social exposures introduced as adolescents transition into young adulthood. While some research has found employment may have positive effects on youth development (Bauermeister et al., 2007), no prospective studies have explored the association between employment trajectories and sexual behaviors across adolescence and young adulthood. While we expected to find working increased youths' number of partners, we found no association between work intensity and youths' self-reported number of partners across adolescence and early adulthood. The absence of an association, however, only provides partial (if any) support for the work benefits perspective. While it is plausible that working accelerates youths' desire to settle down, we would expect to see a decline in the number of sex partners to support this explanation as youths worked more hours across adolescence and early adulthood. By Wave 8, however, only 6% of youth in our sample reported being married. Consequently, we were unable to test whether working during adolescence and early adulthood led youth to settle down sooner. Future research that explores whether working increases youths' likelihood to settle into adult roles and leads to different partnership dynamics (i.e., participating in a monogamous relationship and becoming parents sooner) would be useful.

Our results offer some support for the work consequences perspective. Youth working greater number of hours during adolescence and early adulthood reported greater sexual risk correlates (e.g., greater inconsistent condom use and large age gaps between youth and their sex partners). This is particularly troublesome given that condom use and partner age are common risk factors of STI/HIV transmission in this age group (Ford & Lepkowski, 2004). Inconsistent condom use increased during adolescence and early adulthood, with female youth reporting fewer condom use occasions than males. This is not surprising as condom use is a difficult behavior to adopt and maintain, even when youth may be motivated to engage in safer sex behaviors (Crosby, DiClemente, Wingood, et al., 2002). Because adolescents' attitudes and their confidence (i.e., self-efficacy) to use condoms consistently are strong predictors of intention to use condoms (Salazar, Crosby, DiClemente et al., 2005; DeLamater, Wagstaff, & Havens, 2000), future research needs to explore whether participation in the workforce increases youths' motivation to use condoms consistently even if it does not translate perfectly into the actual behavior.

Female participants working greater number of hours over time reported having older sex partners. Compared to non-working counterparts, female youth working more hours reported older sex partners across both developmental periods. One possibility for this association is that working youth are exposed to a greater number of sexually-active adults than youth who do not work. Another possibility is that working youth may pair-up with older partners in an effort to settle down sooner. Could having older partners help explain the relationship between

working greater number of hours and inconsistent condom use? Future research exploring whether the association between work and inconsistent condom use is mediated by sex partners' age differences would be useful.

Even after accounting for the number of hours worked across both developmental periods, we found that African American females were at greater risk than their male counterparts. Our results seem to suggest that greater participation in the labor force, as measured by number of hours worked, may further influence these gender-based inequities. Consequently, an examination of employment and sexual development must also consider sex differences as a social context for understanding findings. Taken together, these findings support Wingood and DiClemente's (2002) Theory of Gender and Power and highlight how gender-based differences may be associated with sexual power inequities and increasing women's greater risk for STIs/HIV because their ability to engage in safer sex may be limited. Research that explores how and why female youth experience these risks more than their male counterparts is necessary to create gender-specific prevention programs. One possibility to explain these gender differences may be that males and females have different types of jobs or carryout different tasks at the workplace. Work type, wages, and quality may help identify differences in youth work and development (Mortimer et al, 2002). Adolescents working poor quality jobs, for example, may differ from those working in high quality jobs, regardless of the number of hours worked. Unfortunately, we did not have information about the quality or type of job that youth worked across adolescence; but future research that includes this information would be informative.

It is useful to note that, while our study suggests some support for both perspectives, our findings require replication. As a note of caution, for example, the associations found between work and sexual activity could be confounded by adolescents' motivation to work. Adolescents' decisions to work because they need to contribute to the household income, for example, may place them in a different work trajectory than adolescents who decide to work in order to buy their first car and assert their independence. Consequently, the associations found between different work trajectories and sexual activity may disappear once youths' motivations for working have been included in the analyses. While we tested for differences across socioeconomic status, family structure, and academic achievement, we cannot rule out alternative explanations.

Several additional limitations should be noted. First, the study's findings may not be generalizable because participants in this study were recruited based on their risk for school dropout (e.g., GPA lower than 3.0 during eighth grade). Nonetheless, previous studies with the same sample have found adolescents had a more even distribution of GPA by wave 4 (12^{th} grade) of the study (Zimmerman, Caldwell, & Bernat, 2002). Second, we were unable to account for the quality or type of job that adolescents worked while in high school (Mortimer et al., 2002). Work type, wages, and quality may help identify differences in adolescent work and development. Adolescents working poor quality jobs, for example, may differ from those working in higher quality jobs, regardless of work intensity. Future research exploring how these factors may mediate or moderate the work and developmental transitions relationship would be useful. This work will be essential in order to inform policy initiatives adequately.

These limitations not withstanding, this study builds on knowledge about the effects of work on adolescent development in several ways. First, the study focused on a large sample of African American adolescents. Few studies of adolescent employment have studied a large African American sample without constraining their analyses to comparisons across races or ethnicities (Johnson, 2004). Second, the availability of data for participants across 8 Waves allowed for the exploration of the relationship of adolescent and early adulthood employment and sex behaviors during the high school years and transition to young adulthood. Third, we

explored the potential differences in work's effects across multiple sexual behavior outcomes. Finally, we tested two competing hypotheses on the effects of work on adolescent risk behaviors in a sample of urban African American youth. This was especially critical because most previous research in this area included predominantly White samples even though significant racial disparities in youth employment exist and African American youth are at greater risk for STI/HIV infection than White youth.

Overall, the results of this study suggest that working greater number of hours during adolescence may have some deleterious effects on sexual risk behaviors into young adulthood. Sex education programs and prevention efforts for adolescents and young adults, respectively, may benefit by focusing on working youth and specifically addressing risks posed by work settings such as exposure to older co-workers and adult roles. Researchers have found that interventions that focus on specific subpopulations may be especially helpful (e.g., Gazabon Morokoff, Harlow, Ward & Quina, 2007; Zimmerman, Palmgreen, Noar, Lustria, Lu, & Horosewski, 2007). Thus, programs that consider the role of adult co-workers as natural mentors, for example, may help youth engage in health promotive behaviors and could help prevent risky sex behaviors. The development and testing of an ecological intervention that focuses on HIV risk factors such as their mental health and substance use (Bauermeister et al., 2007), their work environment and exposure to older adults, and youths' sexual behavior may be a promising approach for youth development and HIV prevention alike.

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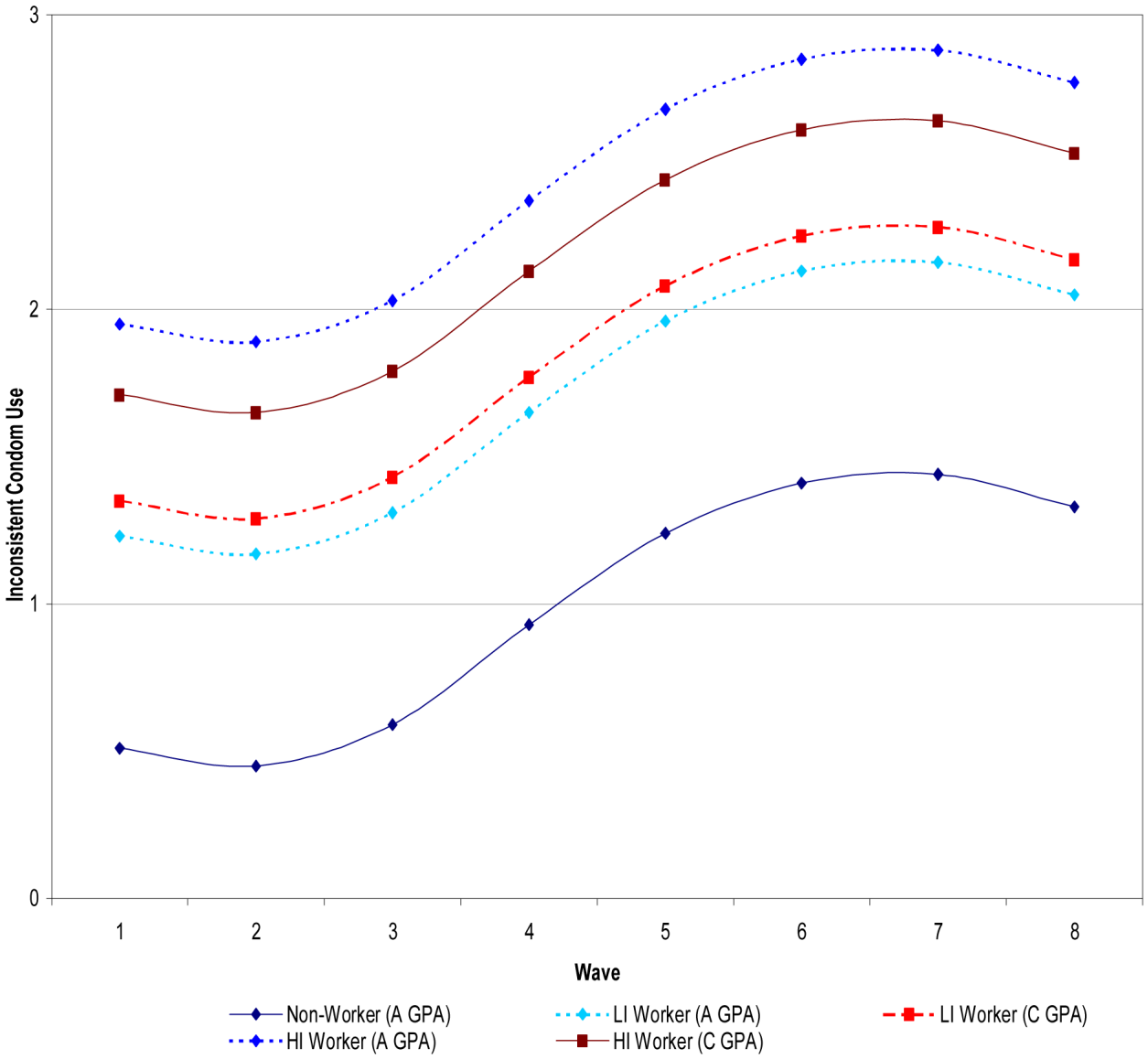

Figure 1.
Inconsistent Condom Use by GPA among African American youth across adolescence and early adulthood. LI = low intensity (20 hours or less); HI = high intensity (21 hours or more).

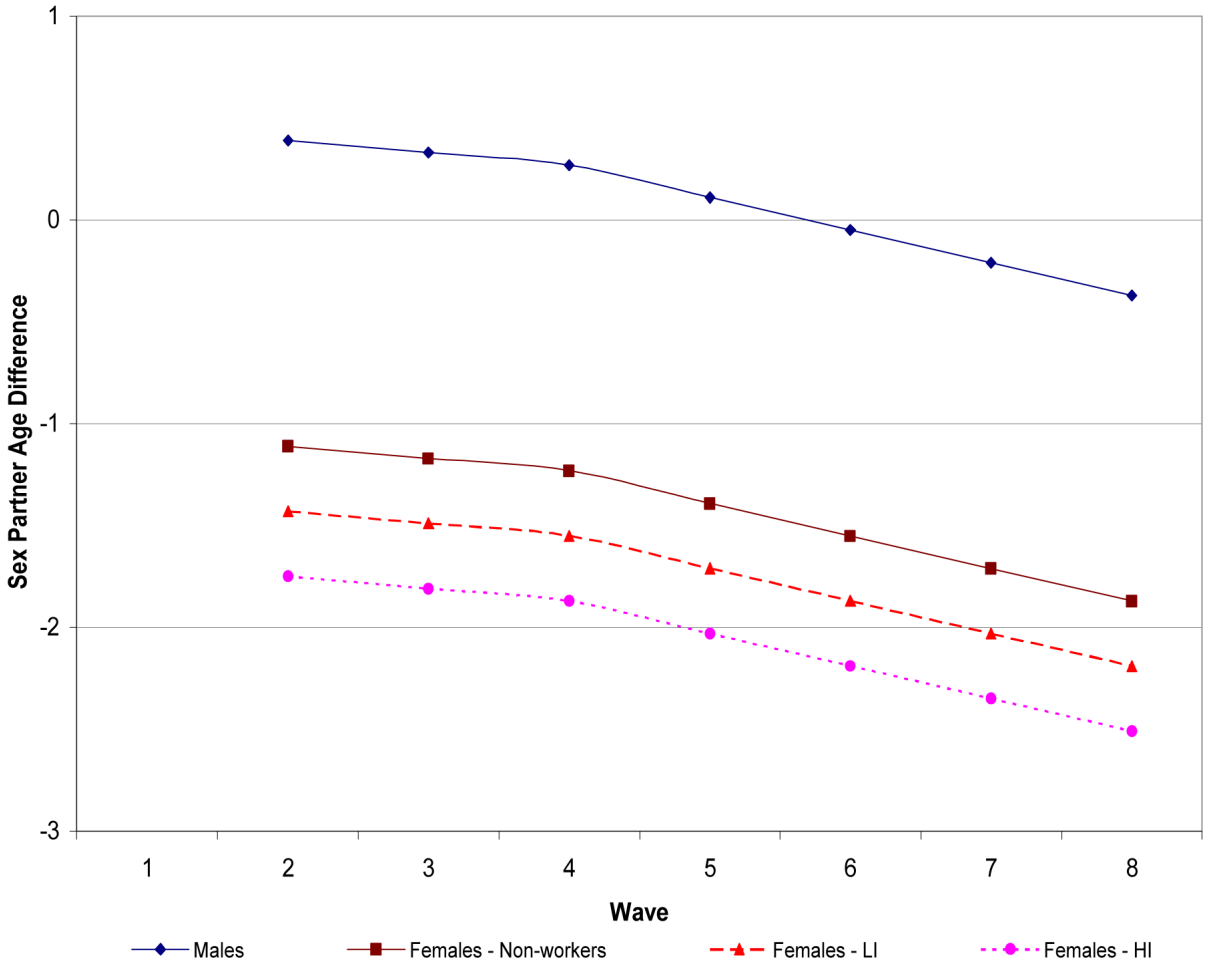

Figure 2.
Effects of Work Intensity on Sex Partner Age Differences among African American youth across adolescence and early adulthood. The effect of work was only predictive for female youth [LI = low intensity (20 hours or less), HI = high intensity (21 hours or more)].
Note. Measure created by subtracting participant's age at the time of interview from the reported age of their last sexual partner in each Wave (e.g., Participant's age - Sex Partner's Age). Partner's age was not collected at Wave 1.

Table 1

Descriptive Statistics for sexual behavior measures by gender across all Waves

		MALES					
		Number of partners		***Inconsistent Condom Use*** [a]		***Sex Partner Age Differences***	
Wave (Age)		**Mean(*SD*)**	**N**	**Mean(*SD*)**	**N**	**Mean(*SD*)**	**N**
1	14	2.89 (4.14)	228	1.80 (1.25)	170	--- [b]	---
2	15	2.72 (3.80)	234	1.48 (.92)	176	.14 (1.66)	171
3	16	2.79 (3.81)	227	1.46 (.80)	169	-.04 (2.25)	166
4	17	2.53 (2.93)	213	1.86 (1.13)	175	.06 (2.23)	179
5	19	2.80 (4.95)	166	2.30 (1.39)	138	-.44 (3.11)	138
6	20	2.21 (2.44)	185	2.13 (1.41)	157	-.08 (2.99)	154
7	21	2.27 (2.76)	155	2.48 (1.54)	139	.24 (2.85)	135
8	22	2.10 (2.66)	163	2.34 (1.58)	137	.30 (3.51)	144
		FEMALES					
		Number of partners		*Inconsistent Condom Use*[a]		*Sex Partner Age Differences*	
Wave (Age)		Mean(*SD*)	N	Mean(*SD*)	N	Mean(*SD*)	N
1	14	1.46 (1.97)	291	1.85 (1.27)	168	--- [b]	---
2	15	1.31 (1.67)	299	2.02 (1.37)	192	-1.30 (2.31)	193
3	16	1.63 (2.32)	300	2.25 (1.39)	217	-1.36 (2.45)	221
4	17	1.53 (1.61)	266	2.55 (1.42)	220	-1.33 (2.55)	238
5	19	1.67(1.67)	249	2.94 (1.54)	222	-2.04 (3.40)	218
6	20	1.38 (1.26)	249	2.99 (1.61)	217	-2.06 (3.56)	216
7	21	1.40 (1.18)	236	2.98 (1.57)	198	-2.69 (4.31)	198
8	22	1.37 (1.06)	239	2.8 (1.65)	193	-2.78 (4.69)	206

Note. Wave 1 measures assess youths' lifetime history on the outcome; all other Waves refer to occurance in the previous year.

[a] Variable is reverse coded (1=Always use condom; 5=Never use condom).

[b] Measure created by subtracting participants' age at the time of interview from the reported age of their last sexual partner in each Wave (e.g., Participants' age - Partners' age). Partners' age was not collected at Wave 1.

Table 2

Distribution of number of hours worked per week for males and females across all Waves

MALES						
Wave	**None N(%)**	**< 10 hours N(%)**	**11-20 hours N(%)**	**21-30 hours N(%)**	**31+ hours N(%)**	**Total**
1	220 (87.6%)	19 (7.6%)	6 (2.4%)	5 (2.0%)	1 (0.4%)	251
2	217 (86.5%)	12 (4.8%)	16 (6.4%)	6 (2.4%)	0 (0%)	251
3	158 (63.5%)	14 (5.6%)	37 (14.9%)	29 (11.6%)	11 (4.4%)	249
4	149 (59.8%)	13 (5.2%)	37 (14.9%)	27 (10.8%0	23 (9.2%)	249
5	57 (33.9%)	1 (0.6%)	8 (4.8%)	20 (11.9%)	82 (48.8%)	168
6	65 (34.4%)	3 (1.6%)	10 (5.3%)	13 (6.9%)	98 (51.9%)	189
7	56 (34.6%)	4 (2.5%)	8 (4.9%)	18 (11.1%)	76 (46.9%)	162
8	53 (31.4%)	4 (2.4%)	12 (7.1%)	13 (7.7%)	87 (51.5%)	169
FEMALES						
	None N(%)	< 10 hours N(%)	11-20 hours N(%)	21-30 hours N(%)	31+ hours N(%)	Total
1	280 (90%)	21 (6.8%)	8 (2.6%)	1 (0.3%)	1 (0.3%)	311
2	260 (83.6%)	16 (5.1%)	24 (7.7%)	7 (2.3%)	4 (1.3%)	311
3	210 (67.7%)	13 (4.2%)	46 (14.8%)	30 (9.7%)	11 (3.5%)	310
4	175 (57.6%)	11 (3.6%)	65 (21.4%)	31 (10.2%)	22 (7.2%)	304
5	93 (37.2%)	8 (3.2%)	15 (6.0%)	35 (14.0%)	99 (39.6%)	250
6	79 (30.7%)	3 (1.2%)	12 (4.7%)	41 (16.0%)	122 (47.5%)	257
7	84 (34.4%)	2 (0.8%)	15 (6.1%)	42 (17.2%)	101 (41.4%)	244
8	90 (37.2%)	9 (3.7%)	14 (5.8%)	25 (10.3%)	104 (43%)	242

Table 3

Effects of Hours Worked on Number of Sex Partners

Fixed Effects	**Coefficient**	**SE**	**t-ratio**	
Mean Score at Wave 1, π_0				
Base, β_{00}	2.69	0.18	15.31	***
Female, β_{01}	-1.09	0.14	-7.84	***
GPA, β_{02}	-0.39	0.08	-4.68	***
Did not complete high school, β_{03}	-0.44	0.22	-2.00	**
Mean growth in adolescence, π_1	-0.001	0.05	-0.05	
Mean growth in early adulthood, π_2	-0.09	0.03	-2.72	**
Hours worked, π_3	-0.01	0.03	-0.12	
Random Effects	Variance	df	χ^2	
Score at Wave 1, r_{oi}	1.49	557	1560.17	***
Level-1 error, e_{ti}	5.43			
Average reliability		λ		
Mean score at wave 1, π_0		0.64		

* $p < .10$

** $p < .05$

*** $p < .01$

Table 4

Effects of Hours Worked on Inconsistent Condom Use

Fixed Effects	**Coefficient**	**SE**	**t-ratio**	
Mean Score at Wave 1, π_0				
Base, β_{00}	1.47	0.10	15.23	***
Female, β_{01}	0.55	0.07	7.56	***
Separated Parents, β_{02}	-0.37	0.15	-2.45	**
Divorced Parents, β_{03}	-0.01	0.12	-0.04	
Parents Never Married, β_{04}	-0.10	0.11	-0.95	
Lives with Mom, β_{05}	0.16	0.09	1.76	*
Lives with Extended Family, β_{06}	0.16	0.11	1.42	
GPA, β_{07}	-0.24	0.07	-3.33	***
Mean growth in adolescence, π_1	-0.16	0.09	-1.70	*
Mean acceleration during adolescence, π_2	0.10	0.03	3.35	***
Mean growth in early adulthood, π_3	0.38	0.08	4.67	***
Mean acceleration during the early adulthood, π_4	-0.07	0.02	-3.74	***
Hours worked, π_5				
Base, β_{50}	0.01	0.02	0.75	
GPA, β_{51}	0.08	0.02	3.37	***
Random Effects	Variance	df	χ^2	
Score at Wave 1, r_{oi}	0.41	431	648.77	***
Hours worked, r_{5i}	0.04	437	625.43	***
Level-1 error, e_{ti}	1.45			
Average reliability		λ		
Mean score at Wave 1, π_0		0.29		
Hours worked, π_5		0.26		

* $p < .10$

** $p < .05$

*** $p < .01$

Table 5

Effects of Hours Worked on Sex Partner Age Differences

Fixed Effects	**Coefficient**	**SE**	**t-ratio**	
Mean Score at Wave 2, π_0				
Base, β_{00}	0.39	0.15	2.58	**
Age, β_{01}	0.50	0.20	2.54	**
Female, β_{02}	-1.50	0.21	-7.23	***
Mean growth in adolescence, π_1	-0.06	0.08	-0.69	
Mean growth in emerging adulthood, π_3	-0.16	0.06	-2.89	***
Hours worked, π_4				
Base, β_{40}	-0.02	0.05	-0.41	
Age, β_{41}	-0.17	0.07	-2.58	***
Female, β_{42}	-0.14	0.07	-2.00	**
Random Effects	Variance	df	χ^2	
Age Difference at Wave 2, r_{oi}	2.49	537	1419.46	***
Level-1 error, e_{ti}	7.23			
Average reliability		λ		
Mean score at Wave 2, π_0		0.60		

* $p < .10$

** $p < .05$

*** $p < .01$

Appendix A

Piecewise Coding Scheme	Wave							
(Number of Partners & Condom Use)	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Adolescence Linear Piecewise	0	1	2	3	3	3	3	3
Adolescence Quadratic Piecewise	0	1	4	9	9	9	9	9
Early Adulthood Linear Piecewise	0	0	0	0	1	2	3	4
Early Adulthood Quadratic Piecewise	0	0	0	0	1	4	9	16
	Wave							
(Sex Partner Age Difference)	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Adolescence Linear Piecewise	0	0	1	2	2	2	2	2
Adolescence Quadratic Piecewise	0	0	1	4	4	4	4	4
Early Adulthood Linear Piecewise	0	0	0	0	1	2	3	4
Early Adulthood Quadratic Piecewise	0	0	0	0	1	4	9	16