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Permalink

<https://escholarship.org/uc/item/1zb183xq>

Journal

Vulnerable Children and Youth Studies, 18(2)

ISSN

1745-0128

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Publication Date

2023

DOI

10.1080/17450128.2022.2089794

Peer reviewed



HHS Public Access

Author manuscript

Vulnerable Child Youth Stud. Author manuscript; available in PMC 2024 January 01.

Published in final edited form as:

Vulnerable Child Youth Stud. 2023 ; 18(2): 149–155. doi:10.1080/17450128.2022.2089794.

Alcohol, drug use, and sexual risk among young African American women in North Carolina: Is educational attainment protective?

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Abstract

Previous research shows that educational attainment is a protective factor for substance use and sexual risk among adolescents and young adults. Evidence also shows that this relationship may differ by race/ethnicity and gender. This study aimed to elucidate the relationship between educational attainment, substance use and sexual risk among African American women in emerging adulthood. This study uses cross-sectional data from 646 African American women (aged 18 to 25) enrolled in a randomized trial of a behavioral HIV risk-reduction intervention. At enrollment, participants completed a risk behavior assessment via audio-computer assisted self-interview and provided a urine sample for drug screening. Bivariate logistic regression analyses were conducted to examine substance use and sexual risk factors associated with educational attainment: completing some college or more vs. completing high school or less). Participants who completed some college or more (52%) were more likely to report heavy alcohol use (four or more drinks in one day) in the past 30 days (OR=1.48; $p=0.014$) and more likely to report alcohol or other drug use just before or during last sex (OR=1.43; $p=0.026$) compared with participants who completed high school or less. Completing some college or more was protective for having a positive urine screen for cocaine (OR=0.43; $p=0.018$) and reporting condomless sex at last sex (OR=0.71; $p=0.041$). Differences in positive marijuana screens, reporting a previous STI, or reporting their partner used alcohol or other drugs at last sex were not statistically significant. The findings reveal notable differences in the magnitude and direction of associations between

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Declaration of Interest

The authors report no conflicts of interest.

educational attainment and substance use and sexual risk. Although educational attainment is subject to change because of the frequent pursuit of education during emerging adulthood, the findings may have important implications for tailoring HIV risk-reduction interventions to key populations, such as African American women.

Keywords

education; social determinants; substance use; STI; HIV

Introduction

Adolescence and young adulthood are periods of frequent engagement in risky behavior. According to national estimates, 37% of 18- to 25-year-olds in the United States report engaging in binge drinking within the past month and 24% report any illicit drug use (Substance Abuse and Mental Health Services Administration (SAMHSA), 2017). Substance use is linked to risky sexual behavior, including condomless sex (Browne et al., 2014) and having multiple sex partners (Cavazos-Rehg et al., 2011), particularly among young women (Ritchwood, Ford, DeCoster, Sutton, & Lochman, 2015). Although African Americans report lower levels of substance use than other racial and ethnic groups (Centers for Disease Control and Prevention (CDC), 2017), the sexual health consequences of alcohol and other drug (AOD) use can be more severe for this population. Compared with their White peers, for example, young African Americans who use AODs experience disproportionately higher levels of HIV and sexually transmitted infections (STIs) (Hallfors, Iritani, Miller, & Bauer, 2007). Examining factors that may produce or mitigate these disparities is critical for public health.

Educational attainment is a key social determinant of health (Cohen & Syme, 2013; Woolf, Johnson, Phillips, & Philipsen, 2007). Like other markers of socioeconomic status, educational attainment is protective because it is associated with higher levels of knowledge that translate into higher income, better employment, and more disposable income to engage in health-enhancing behaviors (Phelan, Link, & Tehranifar, 2010). For example, young adults with a college or post-baccalaureate degree are less likely to report binge drinking and marijuana use (Skalamera & Hummer, 2016). However, educational attainment may be differentially protective for African Americans across a range of health behaviors (Farmer & Ferraro, 2005). Consequently, it is important to understand the role of educational attainment on risk behaviors among young African American women.

The relationship between educational attainment, substance use, and sexual risk among young African American women is not well explored. A study conducted with 16- to 19-year-old African American women who had left school prior to graduation and reported AOD use found that women who reported low educational prospects were at increased risk of having multiple sex partners, more frequent AOD use, and exchanging sex for other resources (Raiford et al., 2014). However, only limited information exists that assesses the relationship between educational attainment and these behaviors across a wider educational

gradient from high school through completion of college. Examining these relationships may help guide the development of interventions.

This study aimed to examine the relationship between educational attainment and sexual and substance use risk behavior among young African American women.

Materials and Methods

This study uses baseline data from the North Carolina Young Women's CoOp, a randomized trial implemented in three North Carolina county health departments. The study reached 652 African American young women (aged 18 to 25) who reported recent AOD use and condomless sex. The full eligibility criteria and additional study details were reported in the study protocol (Browne et al., 2018). This study was approved by the RTI Institutional Review Board and received approval to conduct research at each public health department. This study was registered in [ClinicalTrials.gov](https://clinicaltrials.gov/ct2/show/study/NCT02965014) (Identifier: NCT02965014).

At enrollment, participants answered sociodemographic and HIV-related risk behavior assessment questions (Wechsberg, 1998) via audio computer-assisted self-interviewing (ACASI) to allow for privacy and limit socially desirable responses. After this assessment, participants provided a urine sample for a drug screening.

Measures

Biological and self-reported substance use and sexual risk variables were examined as outcomes. Drug screens for marijuana and cocaine, the two most prevalent drugs at enrollment, were each coded as a Positive (1) or Negative (0) screen. Heavy alcohol use was assessed through one question asking participants how many days in the past month were four or more alcoholic beverages consumed—based on one of the National Institute on Alcohol Abuse and Alcoholism (NIAAA) women-specific thresholds for heavy drinking (National Institute on Alcohol Abuse and Alcoholism (NIAAA), 2020). Responses of one or more days were recoded into Yes for heavy alcohol use. Condomless last sex was measured by one question assessing the use of a condom during the participant's last act of sexual intercourse and coded as Yes (1) or No (0). Two variables for impaired last sex—defined as AOD use just before or during the last time they had sex—were assessed. One question asked whether the participant was impaired and another asked whether their partner was impaired. Lastly, one question asked whether participants had ever had a positive STI test result; those who did not report ever being tested for an STI were treated as missing, as their status was not known. A smaller subset of participants was used for this variable only.

The independent variable was educational attainment—the highest level of education completed by the participant at the time of enrollment. This ordinal variable was recoded into a dichotomous variable: completed some college or more as compared with high school or less (referent).

Analyses

Descriptive statistics were run to examine frequencies and missingness. Very few data were missing for the variables of interest (less than 1%); consequently, a complete case analysis

was done, resulting in 646 participants. This sample was used for all analyses apart from the positive STI test outcome, which used a smaller subset of participants ($N = 434$). Bivariate logistic regression analyses were conducted on the noted dichotomized variables to examine if baseline substance use and sexual risk were associated with educational attainment: completing some college or more as compared with completing high school or less. Analyses were conducted in Stata MP/IC Version 16, and the threshold of $p < .05$ was used to determine statistical significance.

Results

Participant characteristics are shown overall and by educational attainment in Table 1. Two thirds of participants screened positive for marijuana, and over half of participants (54%) reported heavy drinking in the past month. Sexual risk behaviors were frequent, with 66% of participants reporting condomless last sex, and 41% of participants reporting they or their partner used AODs at last sex. An almost equal proportion of participants reported their highest level of educational attainment as some college or more (52%) or high school or less (48%).

Participants who completed some college or more were more likely to report heavy alcohol use (four or more drinks in one day) in the past 30 days ($OR = 1.48$; $p = 0.014$) and more likely to report AOD use just before or during last sex ($OR = 1.43$; $p = 0.026$) when compared with participants who completed high school or less (Table 2). However, completing some college or more was associated with reduced odds of having a positive urine screen for cocaine ($OR = 0.43$; $p = 0.018$) and reporting not using a condom at last sex ($OR = 0.71$; $p = 0.041$). Statistically significant differences were not observed with having a positive urine screen for marijuana, reporting a previous STI positive result in one's lifetime, or reporting their partner used AODs just before or during last sex.

Discussion

The current study is one of only a few to examine these associations among young African American women whose educational attainment may be differentially associated with their risk behavior compared with other races or ethnic groups. This study found notable differences in the magnitude and direction of the relationship between educational attainment and substance use and sexual risk for certain risk factors. Higher educational attainment was associated with increased risk of AOD use just before or during sex and with heavy drinking in the past month. However, for condomless sex and recent cocaine use, higher educational attainment was protective. Previous research has indicated that African American women in college are less likely to engage in condomless vaginal sex than White women in college (Hall, Erausquin, Nichols, Tanner, & Brown-Jeffy, 2019). Our findings indicate that college attendance may be protective against condomless sex among African American women. These findings support previous research demonstrating the nuanced and complex relationship between education and other social determinants and substance use and sexual risk behaviors (Paschall, Bersamin, and Flewelling 2005).

The pursuit of education is frequent during emerging adulthood (Shavers, 2007). Consequently, educational attainment may have different magnitude and direction in later stages of adulthood once it is less subject to change. Additionally, the data analyzed were cross-sectional; consequently, these findings only present associations. However, all but one of the outcome variables (STI result) assessed recent risk and therefore are not likely to occur temporally before the exposure of educational attainment.

Our findings underscore the importance of not overlooking the diversity across and within study populations, as doing so may mask significant relationships. Elucidating these relationships also has implications for intervention development, adaptation, and tailoring. This study found that women with an education level of some college or more had greater odds of heavy alcohol use and impaired sex, suggesting these risks may be important to consider when reaching young women with higher levels of educational attainment. Real-time tailoring of interventions based on participants' characteristics and risk based on programmed algorithms have shown efficacy *among* a diversity of key populations (Zule et al., 2013) and may be ideal to address the diversity *within* key populations.

Acknowledgements

This research was supported by the U.S. National Institutes of Health, National Institute on Drug Abuse (NIDA) grant R01DA 041009 (Wechsberg [contact] & Browne). The content is solely the work of the authors and does not necessarily reflect the views of NIDA. The authors would like to thank Jeffrey Novey for his editorial support, in addition to the county health departments for their collaboration and space for study operations, the research staff for their contributions to the study, and the research participants for their involvement in the study.

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Table 1.

Participant characteristics at baseline, by educational attainment (N = 646)

Variable	High School or Less (n = 312)		Some College or More (n = 334)		Total (N = 646)	
Sociodemographic						
Age, mean (SD)	21.0	(2.4)	21.2	(2.1)	21.1	(2.2)
	N	%	N	%	N	%
Currently in school	104	(33.3)	226	(67.7)	330	(51.1)
Currently unstably housed	57	(18.3)	29	(8.7)	86	(13.3)
Have child(ren)	149	(47.8)	85	(25.4)	234	(36.2)
Currently employed	154	(49.4)	221	(66.2)	375	(58.0)
Food Insecurity	78	(25.0)	88	(26.3)	166	(25.7)
Substance Use						
Marijuana positive screen	213	(68.3)	215	(64.4)	428	(66.3)
Cocaine positive screen	25	(8.0)	12	(3.6)	37	(5.7)
Heavy alcohol use	153	(49.0)	196	(58.7)	349	(54.0)
Sexual Risk						
Condomless last sex	219	(70.2)	209	(62.6)	428	(66.3)
Impaired last sex, self	115	(36.9)	152	(45.5)	267	(41.3)
Impaired last sex, partner	119	(38.1)	147	(44.0)	266	(41.2)
Previous positive STI Result *	94	(50.5)	114	(46.0)	208	(47.9)

* Only out of the participants who reported testing for an STI (N = 434).

Table 2.Unadjusted associations between educational attainment and substance use and sexual risk (N = 646) ¹

Outcomes	Unadjusted	
	OR (95% CI)	<i>p</i> -value
Marijuana positive screen	0.84 (0.61, 1.16)	0.295
Cocaine positive screen	0.43 (0.21, 0.87)	0.018
Heavy alcohol use	1.48 (1.08, 2.01)	0.014
Condomless last sex	0.71 (0.51, 0.99)	0.041
Impaired last sex, self	1.43 (1.04, 1.96)	0.026
Impaired last sex, partner	1.27 (0.93, 1.75)	0.130
Previous positive STI result *	0.83 (0.57, 1.22)	0.346

¹Referent group = High School or Less

* Only out of the participants who reported testing for an STI (N = 434).

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