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African American Adolescent Substance Use: The Roles of Racial Discrimination and Peer Pressure

Elizabeth Jelsma*, Fatima Varner

University of Texas at Austin

Abstract

Peer pressure to use drugs and alcohol is one of the strongest predictors of adolescent substance use. In addition to this normative stressor, African American adolescents often also face race-related stress in the form of racial discrimination, which has been linked to maladaptive coping responses such as substance use. The interaction of these stressors may help explain substance using behaviors for African American adolescents. The present study explored the relationship between eighth-grade school-based racial discrimination experiences, peer pressure to use drugs and alcohol, and gender to predict 11th-grade marijuana and alcohol use (N= 610; 49% female). Logistic regression analyses indicated teacher- and peer-perpetrated racial discrimination experiences were related to higher alcohol use. Eighth-grade peer pressure to use drugs moderated the relations between teacher- and peer-perpetrated racial discrimination and 11th-grade marijuana use. Overall, results indicate that school-based racial discrimination increases risk for adolescent substance use, and peer pressure moderates this relation for multiple types of racial discrimination. No moderation by gender was found. The importance of considering race-related stress in conjunction with more general adolescent stress to understand African American adolescent substance use is discussed.

Keywords

African American; adolescent; substance use; racial discrimination; peer pressure; gender

1. Introduction

Adolescence is often a time when experimenting with drugs and alcohol first begins (Botvin & Griffin, 2007; Hanna, Yi, Dufour, & Whitmore, 2001; Musher-Eizenman, Holub, & Arnett, 2003; Spear, 2000). Previous research has identified that typical precursors to adolescent substance use include high levels of stress and peer pressure (Chassin, Pitts, & Prost, 2002; Gil, Wagner, & Vega, 2000; Santor, Messervey, & Kusumakar, 2000). For

*Corresponding author at: Department of Human Development and Family Sciences, University of Texas at Austin. 108 E Dean Keeton St., Stop A2702, Austin, TX 78712. ejelsma@utexas.edu.

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Declarations of interest
none.

African American adolescents, normative adolescent stressors are often accompanied by race-related stressors, particularly racial discrimination (Benner, 2017). African American youths' racial discrimination experiences have been shown to increase risk for a variety of behavioral and psychological issues, including substance use (Brody, Kogan, & Chen, 2012).

Adolescents spend much of their time in schools and are significantly influenced by teachers and peers (Oberle, Schonert-Reichl, & Zumbo, 2011; Ryan, 2000; Waters, Cross, & Shaw, 2010). Within schools, experiencing race-related victimization and discrimination from teachers and peers is often a salient experience for African American teens (Benner & Graham, 2013; Chavous, Rivas-Drake, Smalls, Griffin, & Cogburn, 2008). As a mechanism for coping with stress, youth who experience high levels of racial discrimination often report increased levels of cigarette, drug, and alcohol use (Bennett, Wolin, Robinson, Fowler, & Edwards, 2005; Gibbons, Gerrard, Cleveland, Wills, & Brody, 2004; Kam, Cleveland, & Hecht, 2010; Kulis, Marsiglia, & Nieri, 2009). Recent research has begun to investigate the processes by which racial and ethnic minority youths' experiences of unfair treatment in schools relate to developmental outcomes, particularly if there are different outcomes based on who perpetrates the discrimination (e.g., teacher or peer). This research has produced equivocal findings, with some showing racial discrimination from teachers and school personnel to be more strongly linked to academic achievement, and discrimination from peers to be more linked to socioemotional and psychological well-being (Benner & Graham, 2013). Other studies show teacher-perpetrated discrimination to also be harmful to child and adolescent mental health and well-being (Szalacha et al., 2003; Umaña-Taylor, 2016; Wong, Eccles, & Sameroff, 2003). Very little research on school-based racial discrimination and African American adolescent substance use considers the role of discrimination perpetrator (e.g., teacher or peer). One goal of the current study is to uncover how African American adolescents' stress and coping behaviors may differ based on *who* they experience racial discrimination from at school.

In addition to being a strong influencer of adolescent substance use and delinquent behavior (Connolly, Schwartz, Nedelec, Beaver, & Barnes, 2015; Farrell, Kung, White, & Valois, 2000; Santor et al., 2000), experiencing peer pressure to use drugs or alcohol might be more nuanced for African American adolescents when considered contextually with negative race-related social experiences. Experiencing peer pressure and experiencing racial discrimination have both been separately determined as stressful experiences for youth and often positively related with adolescent substance use (Farrell et al., 2000; Gerrard et al., 2012; Gibbons et al., 2010, 2004, 2012; Santor et al., 2000). According to the stress-coping model of addiction, addictive substances reduce stress, increase positive mood, and function as a reward strategy for daily coping (Neblett, Terzian, & Harriott, 2010; Wagner, Myers, & McIninch, 1999; Wills & Filer, 1996), so youth who experience disproportionate stress during this sensitive developmental period may be more prone to adapting these maladaptive coping strategies. Indeed, experiencing race-related stress in adolescence has been shown positively related to substance use among African American and other ethnic minority adolescents (Benner, 2017; Hurd, Varner, Caldwell, & Zimmerman, 2014; Lorenzo-Blanco, Unger, Ritt-Olson, Soto, & Baezconde-Garbanati, 2013). The consideration of *additive stress* (coping with general *and* race-related stress) that racial and ethnic minority youth

often face has been largely left out of the existing research, prevention, and intervention of substance-using behaviors for adolescents (Unger, 2015).

Because experiencing peer pressure and racial discrimination from teachers and peers all occur within the adolescent's school and social environment, adolescent social dynamics may enhance the risk these stressors pose for African American adolescent substance use. It is possible that African American youth who experience race-based rejection in their schools are more susceptible to peer pressure to use drugs or alcohol, especially if they interpret engaging in these behaviors as a mechanism for social inclusion. Because social exclusion is strongly related to self-medicating behaviors like substance use (Fang, Li, Stanton, & Dong, 2003; Fite, Colder, Lochman, & Wells, 2007), experiencing race-based rejection may increase risk for substance use among racial and ethnic minority youth. Teens may anticipate further social exclusion if they *reject* peer pressure (Petraitis, Flay, & Miller, 1995), which could be an additional rationale for an already-isolated teen to succumb to peer pressure. To date, no known published studies have investigated the interactive processes of racial discrimination and peer pressure to understand African American adolescent substance use.

Another important contributor to adolescent substance use and experiences of racial discrimination at school is gender. Substance-using behaviors appear to shift as one develops through adolescence, with at least one study showing females using substances at higher levels in early adolescence, but males exhibiting greater changes over time and higher levels of use in mid-adolescence and early adulthood (Chen & Jacobson, 2012). Regarding school-based racial discrimination, some research indicates African American boys may experience more racial discrimination in the school context from teachers and peers (Chavous et al., 2008). Other studies have found no gender differences in frequency of experiencing school-based racial discrimination (Greene, Way, & Pahl, 2006; Sellers, Copeland-Linder, Martin, & Lewis, 2006). Similarly equivocal is the research on gender differences in the association between racial discrimination and substance use, with some studies showing no gender differences in the association between racial discrimination and substance use (Gibbons et al., 2004; Lorenzo-Blanco et al., 2013; Neblett et al., 2010; Whitbeck, Hoyt, McMorris, Chen, & Stubben, 2001), others showing stronger associations for females (Hurd et al., 2014; Lorenzo-Blanco, Unger, Ritt-Olson, Soto, & Baezconde-Garbanati, 2011), and still others showing stronger associations for males (Brody et al., 2012). Given that boys and girls may use substances and experience racial discrimination differently in school, general and race-related stress may influence adolescent substance use rates differently for boys and girls.

1.1 Current Study

The purpose of this study is to examine whether school-based racial discrimination experiences and peer pressure to use drugs and alcohol experienced in mid-adolescence (eighth grade) interact to influence African American adolescent substance use in late-adolescence (11th grade). Based on prior research indicating that experiencing racial discrimination in early adolescence can increase risk for substance use in later adolescence (Brody et al., 2012), the current study will test how peer pressure and gender moderate this association.

First, we hypothesized school-based racial discrimination and peer pressure experienced in mid-adolescence would be positively related to alcohol and marijuana use in late-adolescence. Second, we hypothesized two-way interactions between each type of racial discrimination (teacher- and peer-perpetrated) and peer pressure, such that peer pressure would exacerbate the effects of each type of discrimination on substance use. Finally, we hypothesized three-way interactions between each type of racial discrimination (teacher- and peer-perpetrated), peer pressure to use drugs or alcohol, and gender to predict 11th-grade substance use. Due to a robust literature demonstrating socioeconomic status (SES) to be related to substance-using behaviors, we controlled for family income and primary caregiver's education level in all analyses.

2. Method

2.1 Participants and Procedures

Data were analyzed from the Maryland Adolescent Development in Context Study (MADICS), a longitudinal study of 1482 adolescents and their families in one Maryland county (61% African American, 35% European American; Eccles, 1991). Out of 1700 adolescents initially selected via stratified sampling from 23 county middle-schools, 1482 participated in the initial survey. The study was designed to investigate the influence of context on individual behavior and to examine successful pathways through adolescence (Wong et al., 2003). Self-administered survey and interview data collection began in target youths' seventh-grade year in 1991 and were again collected in eighth grade (collected in 1993) and 11th grade (collected in 1996 and 1997). The MADICS contains a large proportion of African American youth (61%), making it uniquely equipped to investigate the influences of factors such as racial discrimination on adolescent development and well-being. Of the total original sample, 1060 families participated in the study in 1993, and 1057 families participated in 1996–1997. Sampling weights are not provided by the MADICS researchers.

Inclusion criteria for the current study included indicating “African American” on a self-administered survey in eighth grade and completing the eighth and 11th grade data collection. Of the total sample, 610 adolescents were included in the current study (49% female). Family demographic information such as family income and parent education were also collected from the youths' primary caregiver via interview and self-administered survey during the youths' seventh-grade year. Unlike many studies with African American families, the African American youth in this study represent a full range of socioeconomic status, with the median household income being \$45,000–\$49,000. In this subsample, 36% of the adolescents' primary caregivers (86% mother; 66% married) had a high school diploma or less, and 31% completed a 2- or 4-year college degree (see Table 1 for descriptive information).

2.2 Measures

Demographics.—Youths' primary caregivers reported on their total family income in 1991 during youths' seventh-grade year on a scale from 1 (less than \$5,000) to 16 (more

than \$75,000). Primary caregivers also reported their number of years of education. Years of education ranged from 7 to 22 years.

School-based racial discrimination.—Perceived racial discrimination from peers and teachers was assessed in eighth grade using items developed by the MADICS researchers (Wong et al., 2003). *Teacher-perpetrated discrimination* ($\alpha = .88$) was assessed by 5 items in which adolescents indicated how often they felt they were treated unfairly by their teachers due to their race (e.g., “How often do you feel that teachers grade you harder than they grade other kids because of your race?”). *Peer-perpetrated discrimination* ($\alpha = .84$) was assessed by 3 items in which adolescents indicated how often they felt racially discriminated against by their peers (e.g., “How often do you feel that kids do not want to hang out with you because of your race?”). All discrimination items used a 5-point scale with response options being 1 = *never*, 2 = *a couple times each year*, 3 = *a couple times each month*, 4 = *once or twice each week*, and 5 = *every day*. Items were averaged to create separate composite variables for teacher- and peer-perpetrated discrimination.

Peer Pressure.—*Peer pressure to use drugs* was assessed in adolescents’ eighth-grade year with “How many of your friends that you spend most of your time with put pressure on you to use drugs?” *Peer pressure to use alcohol* was assessed in adolescents’ eighth-grade year with “How many of your friends that you spend most of your time with put pressure on you to drink?”. Both items were on a 5-point response scale with options being 1 = *one of them*, 2 = *a few of them*, 3 = *about half of them*, 4 = *most of them*, 5 = *all of them*.

Substance Use.—In 11th grade, adolescents were asked about their frequency of alcohol and drug use in the past 6 months with 3 items using 5-point scales from 0 = *never*, 1 = *once or twice*, 2 = *3 or 4 times*, 3 = *5 to 9 times*, 4 = *10 to 19 times*, 5 = *more than 20 times*. *Alcohol use* was measured with the items “In the last 6 months, how often have you drank alcohol?” and “how often have you got drunk?”. Responses were dichotomized for logistic regression analyses. Participants who responded “never” to both alcohol items were coded as 0 (no alcohol use; 60.3%). Participants who responded between 1 and 5 to *either* item were coded as 1 (alcohol user; 39.7%). For *marijuana use*, adolescents were asked one item: “In the last 6 months, how often have you used marijuana (pot)?”. “Never” was coded as 0 (no marijuana use; 77.6%), and all other valid responses were coded as 1 (marijuana user; 22.4%).

Gender.—Adolescents self-reported their gender (dummy coded as 0= male and 1= female).

3. Results

3.1 Preliminary Analyses

Study variables and interaction terms were mean-centered to improve interpretability of results. Because of the skewed distribution resulting from low frequencies of substance use (22.4% used marijuana, 39.7% used alcohol or got drunk), dependent variables were dichotomized (0 = no alcohol or marijuana use, 1 = any alcohol or marijuana use). Data were prepared in SPSS v.25 and logistic regression analyses using logit link functions and

Full Information Maximum Likelihood (FIML) estimation were conducted in Mplus v.8. All variables had 15% or less missing data.

Using the CLUSTER command in Mplus, we clustered the participants by school, despite low intra-class correlations (ICC) indicating low between-school variance in marijuana use (ICC = 0.00; 95% CI = 0.00, 0.03) and alcohol use (ICC = 0.04; 95% CI = 0.00, 0.09). Ignoring a grouped structure based on low or zero ICCs can bias results, so a clustered data structure was retained (Nezlek, 2008). Descriptive statistics and bivariate correlations among study variables can be found in Tables 1 and 2. Bivariate correlation analyses revealed the expected associations between the predictor and outcome variables. Teacher- and peer-perpetrated discrimination and peer pressure to use drugs and alcohol were related to greater likelihood of marijuana and alcohol use in 11th grade.

3.2 Hypothesis Testing

Logit models were tested separately by outcome (alcohol or marijuana) and discrimination perpetrator (peer or teacher; see Tables 3–6).

Alcohol use.—Eighth-grade teacher-perpetrated discrimination ($b = .33, p = .01$) was related to greater likelihood of alcohol use (see Table 3). There were not significant interactions of teacher-perpetrated discrimination with peer pressure or gender for alcohol use. Peer-perpetrated discrimination ($b = .35, p = .02$) was related to greater likelihood of alcohol use in Model 1 (See Table 4). After including two-way and three-way interactions in Models 2 and 3, peer-perpetrated racial discrimination was no longer significant but peer pressure ($b = .63, p = .02$) significantly predicted likelihood of 11th-grade alcohol use. There were no significant interactions of peer-perpetrated discrimination with peer pressure or gender on alcohol use.

Marijuana use.—The association between eighth-grade teacher-perpetrated discrimination and likelihood of 11th-grade marijuana use was significantly moderated by eighth-grade peer pressure to use drugs in Model 2 ($b = -0.60, p = .03$; see Table 5). The significant interaction was probed at 1 standard deviation above and below the means using the techniques described by Dawson & Richter (2006). At low levels of eighth-grade peer pressure, higher teacher-perpetrated discrimination was associated with higher likelihood of 11th-grade marijuana use ($t = 0.79, p < .001$; see Figure 1). No three-way interaction with gender was found in Model 3.

The association between eighth-grade peer-perpetrated discrimination and likelihood of 11th-grade marijuana use was significantly moderated by eighth-grade peer pressure to use drugs ($b = -0.74, p = .003$; see Table 6). Post-hoc probing indicated that at low levels of eighth-grade peer pressure, higher peer-perpetrated discrimination was associated with higher likelihood of 11th-grade marijuana use ($t = 0.74, p < .001$; see Figure 2). No three-way interaction with gender was found.

4. Discussion

Adolescence is often when experimenting with drugs and alcohol first begins (Botvin & Griffin, 2007; Spear, 2000), and high levels of stress and peer pressure are known to be some of the strongest predictors of adolescent substance use (Chassin et al., 2002; Gil et al., 2000; Santor et al., 2000). For African American adolescents, normative adolescent stressors are often accompanied by race-related stressors (Benner, 2017), particularly racial discrimination. The current study provides a more nuanced understanding of how general and race-related stressors interact to explain substance use for African American youth. Peer pressure and school-based racial discrimination appear uniquely important in predicting adolescent substance use, and when considered together may illuminate more clearly the stressors African American youth face which may lead to maladaptive coping.

Peer-perpetrated and teacher-perpetrated racial discrimination experienced in eighth grade were both directly related to higher alcohol use in 11th grade. Previous research shows experiencing racial discrimination broadly often leads to higher alcohol consumption for African American adolescents (Terrell, Miller, Foster, & Watkins, 2006), however the current study demonstrates longitudinal consequences of experiencing school-based racial discrimination from teachers and peers for African American adolescent alcohol use. There was no evidence of peer pressure or gender moderating the relation between discrimination and alcohol use. Thus, school-wide efforts to eliminate racial bias among teachers and peers are needed to protect all racial and ethnic minority youth from experiencing race-based victimization in school and increased risk of alcohol use.

The relations between both eighth-grade teacher-perpetrated and peer-perpetrated discrimination and likelihood of 11th-grade marijuana use were significantly moderated by eighth-grade peer pressure to use drugs. Both types of discrimination were significantly related to likelihood of marijuana use only among youth who experienced low levels of peer pressure to use drugs. Higher school-based racial discrimination was associated with higher likelihood of marijuana use among adolescents with low peer pressure, approaching the likelihood of marijuana use among adolescents who had high peer pressure to use drugs. Perhaps there was a ceiling effect for adolescents who experienced high peer pressure, as their likelihood of using marijuana in 11th grade was high regardless of the level of school-based discrimination they experienced. These results are aligned with previous research indicating that peer pressure to use substances is one of the strongest predictors of adolescent substance use (Santor et al., 2000). Yet, in the absence of peer pressure, racial discrimination appears to be a risk factor that significantly increases marijuana use among youth who may otherwise not engage in such behavior. Interestingly, these processes appear similar for both adolescent boys and girls, as no moderation by gender was found. Thus, ensuring school environments are free of racial bias from both peers and teachers is an active measure that schools can take to reduce race-related stress for African American teens, which may decrease risk of youth using drugs to cope with added stress.

Regarding limitations of the current study, participants completed self-report measures, which are susceptible to social desirability bias. The analyses are also correlational, thus no causal inferences may be made. However, with data from two distinct time points, we were

able to detect directional effects of how eighth-grade experiences predicted later substance use in 11th-grade. Based on measures available from the MADICS dataset, peer pressure to use drugs and alcohol were each only measured with one item. Future research would benefit from assessing peer influences on substance use with multiple items. The sample reported low frequencies of racial discrimination and substance use, however this is not uncommon to find among adolescents and self-report data (Gibbons et al., 2010). This limitation was addressed by employing binary logistic regression to more accurately determine predictors of substance use for this sample. This study does not explain why processes differed for alcohol use and marijuana use. Perhaps rates and motives for use may differ based on access to marijuana versus alcohol for adolescents (Swendsen et al., 2012). Qualitative studies may elucidate why these processes differ for alcohol and marijuana. Finally, while remaining to be one of the largest publicly available datasets with comprehensive measures of normative African American adolescent development, the MADICS data used in the current study were collected in the 1990s. While societal and historical contexts surrounding racial discrimination and views of alcohol and marijuana from this time period may differ from today, more contemporary research has discovered similar rates of racial discrimination experiences and the deleterious effects of these experiences for adolescent substance use (Brody et al., 2012; Cheng & Mallinckrodt, 2015; Galliher, Jones, & Dahl, 2011; Gibbons et al., 2010, 2012; Hurd et al., 2014). Nonetheless, future research would benefit from collecting new data to better understand these processes for contemporary youth.

The present study draws important attention to race-related stress, in addition to normative adolescent stress, that African American youth often face and the longitudinal consequences of cumulative stress. This study expands on previous research of perpetrator-effects for school-based racial discrimination, and shows how experiencing discrimination from teachers and peers increases risk for drug and alcohol use for African American teens. School-based interventions focused on eliminating racial bias in schools have the potential to lower risk of substance use for racial and ethnic minority youth. School personnel and clinicians must also understand the unique stressors African American youth often face in order to provide culturally-competent prevention and intervention efforts to encourage healthy coping habits.

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Highlights

Experiencing racial discrimination in adolescence is related to higher alcohol use

Experiencing racial discrimination increased risk for marijuana use

Peer pressure moderates the influence of school-based racial discrimination for substance use

Figure 1.

The 2-way interaction of teacher-perpetrated discrimination and peer pressure to use drugs on log odds of 11th-grade marijuana use. *Note:* Simple slope for low peer pressure is significant ($t = .79, p < .001$). Simple slope for high peer pressure is not significant ($t = .06, p = .95$). Slopes are plotted at one standard deviation above and below the mean of the moderator (peer pressure).

Figure 2.

The 2-way interaction of peer-perpetrated discrimination and peer pressure to use drugs on log odds of 11th-grade marijuana use. *Note:* Simple slope low peer pressure is significant ($t = .74, p < .001$). Simple slope for high peer pressure is not significant ($t = -.22, p = .83$). Slopes are plotted at one standard deviation above and below the mean of the moderator (peer pressure).

Table 1.Descriptive Statistics ($N = 610$).

Variable	Min	Max	M(SD)	Freq(%)
8 th grade teacher-perpetrated discrimination	1.00	5.00	1.67(.86)	
8 th grade peer-perpetrated discrimination	1.00	4.67	1.44(.76)	
8 th grade peer pressure drugs	1.00	5.00	1.13(.51)	
8 th grade peer pressure alcohol	1.00	5.00	1.17(.60)	
11 th grade marijuana use	0.00	5.00	0.75(1.75)	
Never (in the past 6 months)				77.2%
Once or twice				7.8%
3 or 4 times				4.4%
5 to 9 times				2.4%
10 to 19 times				1.8%
More than 20 times				6.0%
11 th grade alcohol use	0.00	5.00	0.77(1.27)	
Never (in the past 6 months)				61.1%
Once or twice				20.0%
3 or 4 times				8.2%
5 to 9 times				5.2%
10 to 19 times				3.1%
More than 20 times				2.1%
11 th grade drunkenness	0.00	5.00	0.50(1.16)	
Never (in the past 6 months)				76.6%
Once or twice				11.5%
3 or 4 times				4.9%
5 to 9 times				2.8%
10 to 19 times				2.1%
More than 20 times				1.9%
Mother's highest level of education				
11 th grade or less				5.6%
Graduated high school				35.9%
Some college				16.6%
Graduated 2-year college				19.9%
Graduated 4-year college				11.0%
1 or 2 year Masters degree				10.0%
MD, Law, PhD, or other doctoral degree				1.0%

Table 2.

Bivariate correlations among study variables.

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Alcohol Use (11 th) ^a	-								
2. Marijuana Use (11 th) ^a		-							
3. Maternal Education	.05	.09*	-						
4. Annual Family Income	-.02	-.06	.02	-					
5. Teacher Discrimination (8 th)	.19***	.20***	.03	-.07	-				
6. Peer Discrimination (8 th)	.17***	.16***	.11**	-.08*	.68***	-			
7. Peer Pressure: Drugs (8 th)	.15***	.19***	.09*	.00	.22***	.29***	-		
8. Peer Pressure: Alcohol (8 th)	.14**	.10*	.04	-.04	.27***	.29***	.53***	-	
9. Female ^a	-	-	-.01	-.06	-.13**	-.16***	-.09*	-.16***	-

Note: $N = 610$.* $p < .05$.** $p < .01$.*** $p < .001$.^aAlcohol use, marijuana use, and female are binary variables.

Table 3.
Teacher-Perpetrated Racial Discrimination, Peer Pressure, and Gender Predicting 11th-grade Alcohol Use

Variables	Model 1			Model 2			Model 3		
	b	OR	OR 95% CI	b	OR	OR 95% CI	b	OR	OR 95% CI
Maternal education	0.08	1.08	(0.96, 1.23)	0.08	1.08	(0.95, 1.23)	0.08	1.08	(0.95, 1.23)
Annual family income	0.00	1.00	(0.96, 1.04)	0.00	1.00	(0.96, 1.04)	0.00	1.00	(0.96, 1.04)
8th-grade Teacher Discrimination	0.37 **	1.45	(1.14, 1.85)	0.32 **	1.38	(1.09, 1.75)	0.33 **	1.40	(1.10, 1.78)
8th-grade Peer Pressure	0.33	1.39	(0.94, 2.04)	0.44	1.55	(0.94, 2.57)	0.51	1.67	(0.96, 2.91)
Female	-0.14	0.87	(0.56, 1.35)	-0.15	0.86	(0.55, 1.35)	-0.21	0.81	(0.51, 1.30)
Teacher Disc x Peer Pressure				-0.07	0.93	(0.69, 1.26)	-0.16	0.85	(0.59, 1.22)
Teacher Disc x Female				0.11	1.12	(0.72, 1.74)	0.12	1.13	(0.72, 1.77)
Peer Pressure x Female				-0.19	0.82	(0.39, 1.72)	-0.50	0.60	(0.20, 1.78)
Teacher Disc x Peer Pressure x Female							0.38	1.46	(0.57, 3.73)

Note: Unstandardized logistic coefficients with odds ratios (OR). Model 1 includes covariates. Model 2 adds two-way interactions. Model 3 adds three-way interaction. $N = 610$.

* $p < .05$

** $p < .01$

*** $p < .001$

Table 4.
Peer-Perpetrated Racial Discrimination, Peer Pressure, and Gender Predicting 11th-grade Alcohol Use

Variables	Model 1			Model 2			Model 3		
	b	OR	OR 95% CI	b	OR	OR 95% CI	b	OR	OR 95% CI
Maternal education	0.07	1.07	(0.95, 1.21)	0.05	1.05	(0.93, 1.19)	0.05	1.05	(0.93, 1.19)
Annual family income	0.00	1.00	(0.96, 1.04)	0.00	1.00	(0.96, 1.04)	0.00	2.00	(0.96, 1.04)
8th-grade Peer Discrimination	0.35 *	1.42	(1.06, 1.90)	0.15	1.16	(0.83, 1.62)	0.18	1.20	(0.85, 1.70)
8 th -grade Peer Pressure	-0.34	1.40	(0.95, 2.07)	0.51 *	1.67	(1.05, 2.66)	0.63 *	1.88	(1.12, 3.14)
Female	-0.15	0.86	(0.56, 1.31)	-0.14	0.87	(0.56, 1.34)	-0.21	0.81	(0.51, 1.28)
Peer Disc x Peer Pressure				-0.08	0.92	(0.73, 1.16)	-0.22	0.81	(0.59, 1.11)
Peer Disc x Female				0.55	0.73	(1.00, 1.73)	0.51	1.66	(0.96, 2.86)
Peer Pressure x Female				-0.36	0.70	(0.35, 1.40)	-0.72	0.49	(0.19, 1.22)
Peer Disc x Peer Pressure x Female							0.55	1.73	(0.71, 4.22)

Note: Unstandardized logistic coefficients with odds ratios (OR). Model 1 includes covariates. Model 2 adds two-way interactions. Model 3 adds three-way interaction. $N = 610$.

* $p < .05$

**

$p < .01$

$p < .001$

Table 5.
Teacher-Perpetrated Racial Discrimination, Peer Pressure, and Gender Predicting 11th-grade Marijuana Use

Variables	Model 1			Model 2			Model 3		
	b	OR	OR 95% CI	b	OR	OR 95% CI	b	OR	OR 95% CI
Maternal Education	0.18 *	1.19	(1.02, 1.39)	0.19 *	1.21	(1.04, 1.41)	0.19 *	1.21	(1.04, 1.41)
Annual family income	-0.02	0.98	(0.94, 1.02)	-0.02	0.98	(0.94, 1.02)	-0.02	0.98	(0.94, 1.02)
8th-grade Teacher Discrimination	0.39 **	1.48	(1.16, 1.88)	0.37 *	1.45	(1.07, 1.96)	0.36 *	1.43	(1.06, 1.94)
8 th -grade Peer Pressure	0.46 *	1.59	(1.10, 2.30)	1.06 ***	2.87	(1.63, 5.07)	0.98 **	2.67	(1.49, 4.78)
Female	-0.70 **	0.50	(0.29, 0.84)	-0.72 **	0.49	(0.29, 0.83)	-0.69 *	0.50	(0.29, 0.87)
Teacher Disc x Peer Pressure				-0.60 *	0.55	(0.32, 0.95)	-0.51	0.60	(0.34, 1.05)
Teacher Disc x Female				0.12	1.12	(0.70, 1.81)	0.11	1.11	(0.68, 1.82)
Peer Pressure x Female				-0.37	0.69	(0.32, 1.51)	-0.08	0.93	(0.22, 3.89)
Teacher Disc x Peer Pressure x Female							-0.44	0.65	(0.17, 2.54)

Note: Unstandardized logistic coefficients with odds ratios (OR). Model 1 includes covariates. Model 2 adds two-way interactions. Model 3 adds three-way interaction. $N = 610$.

* $p < .05$

**

$p < .01$

$p < .001$

Table 6.
Peer-Perpetrated Racial Discrimination, Peer Pressure, and Gender Predicting 11th-grade Marijuana Use

Variables	Model 1			Model 2			Model 3		
	b	OR	OR 95% CI	b	OR	OR 95% CI	b	OR	OR 95% CI
Maternal Education	0.16 *	1.18	(1.01, 1.38)	0.16 *	1.17	(1.00, 1.37)	0.16 *	1.18	(1.01, 1.37)
Annual family income	-0.02	0.98	(0.94, 1.02)	-0.03	0.98	(0.94, 1.02)	-0.03	0.98	(0.94, 1.02)
8th-grade Peer Discrimination	0.24	1.27	(0.97, 1.67)	0.16	1.17	(0.85, 1.61)	0.18	1.19	(0.87, 1.64)
8th-grade Peer Pressure	0.49 **	1.64	(1.13, 2.38)	1.11 ***	3.04	(1.74, 5.30)	1.32 ***	3.74	(2.01, 6.96)
Female	-0.73 **	0.48	(0.29, 0.81)	-0.70 **	0.50	(0.29, 0.84)	-0.77 *	0.47	(0.26, 0.84)
Peer Disc x Peer Pressure				-0.52 **	0.60	(0.44, 0.82)	-0.74 **	0.48	(0.29, 0.78)
Peer Disc x Female				0.43	1.53	(0.84, 2.79)	0.39	1.48	(0.80, 2.72)
Peer Pressure x Female				-0.23	0.79	(0.28, 2.28)	-0.92	0.40	(0.10, 1.63)
Peer Disc x Peer Pressure x Female							0.55	1.73	(0.68, 4.43)

Note: Unstandardized logistic coefficients with odds ratios (OR). Model 1 includes covariates. Model 2 adds two-way interactions. Model 3 adds three-way interaction. $N = 610$.

* $p < .05$

** $p < .01$

*** $p < .001$.