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Family Factors and Mediators of Substance Use Among African American Adolescents

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Abstract

This study uses a sample of 424 African American 8th- and 12th-grade students (mean age = 16.55; 65.1% girls) in the United States to examine how family protective factors explain cultural and school protective factors that prevent substance use. Questionnaires were administered between 2007 and 2009. Using structural equation modeling, results indicated that cultural and school factors partially mediated the relationship between family factors and lifetime substance use. School factors fully mediated the relationship between cultural factors and lifetime substance use. The findings suggest that parents promote cultural attributes, which in turn promotes school achievement, and in turn contributes to lower substance use. Limitations of the study, and implications for future research and prevention programs are discussed.

Keywords

risk factor; protective factor; promotive factor; cultural factors; school factors; parental monitoring; family cohesion; acculturation; ethnic identity; racial socialization; classroom climate; achievement motivation

Introduction

African American children and adolescents use drugs at a lesser rate and initiate drugs later in life than do most of their ethnic group counterparts (Centers for Disease Control and Prevention, 2010). These lower prevalence rates suggest that there are valuable strengths and assets within the African American community that contribute to less substance use and other positive developmental outcomes. Historically, research has focused on cultural deficiencies of African Americans without understanding or highlighting how cultural factors relate to strength, resilience, and protection (King, 1997). However, recent studies have drawn on a strengths perspective to highlight positive factors that may contribute to the healthy development of African American youth. Specifically, the growing literature

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provides evidence that individual-level school factors (Clark, Belgrave, & Nasim, 2008), familial factors (Clark, Nguyen, Belgrave, & Tademy, 2011; Wallace & Muroff, 2002), and cultural factors (Belgrave et al., 2010; Brook & Pahl, 2005), among other factors, positively influence healthy development and prevent substance use.

Although previous research has examined cultural factors, family factors, and school factors, relatively few studies have focused on these factors collectively. The current study used a risk and protective factor resiliency framework to examine how family factors explain individual-level cultural values and school factors that prevent tobacco, alcohol, and marijuana use (hereafter referred to as *substance use*) among 8th- and 12th-grade African American students. Findings offer practical implications for practice, research, and preventive interventions for African American children and families that may be useful for other groups that experience high rates of substance use during childhood and adolescence.

Prevalence of Adolescent Substance Use: Ethnic Differences

Although there is a decline in substance-use rates among most ethnic groups, survey results continue to indicate that use of most drugs is generally less prevalent among African American students compared with Whites and Hispanics. For instance, in 2009, lifetime smoking among adolescents (Grades 9–12) was most prevalent among Hispanics, followed by Whites and Blacks (48%, 47%, and 43%, respectively; Centers for Disease Control and Prevention, 2010). Within this same age group, Hispanics reported higher rates of lifetime alcohol use than Whites and Blacks (77%, 74%, and 68%, respectively). However, lifetime marijuana use was highest among African Americans (38%), followed by Hispanics (36%) and Whites (34%). In general, African American youth tend to use drugs at lower rates than either White or Hispanic youth.

Theoretical Framework

We relied on the risk and resilience framework (Fraser, Kirby, & Smokowski, 2010; Hawkins, Catalano, & Miller, 1992) as a foundation for understanding the relationship between risk and protective factors. Risk factors are defined as “any influences that increase the chances for harm, or more specifically, influences that increase the probability of onset, digression to a more serious state, or maintenance of a problem condition” (Fraser et al., 2010, p. 14). It is important to distinguish promotive factors from protective factors. Promotive factors influence positive outcomes independent of risk, whereas protective factors lower the chances of negative outcomes in the presence of risk. Considering these definitions, parenting and cultural factors have both promotive (direct) and protective (indirect) effects, although many studies have tended to use the term *protective factor*, even when finding promotive effects.

There are two reasons why it is important to better understand the mechanisms by which promotive and protective factors influence substance use among African American adolescents. First, although African American youth use many gateway drugs less frequently during childhood and adolescence, the rate of substance use among African American youth increases during early adulthood and eventually converges or surpasses the rates of most of their ethnic group counterparts (Geronimus, Neidert, & Bound 1993; Reardon & Buka,

2002; Watt, 2008). For example, Geronimus and colleagues (1993) found that although the prevalence of current smoking is higher among White women during childhood and adolescence, smoking rates converge by age 25 and may cross over by age 30. This paradoxical phenomenon helps to maintain race/ethnic health disparities. Second, African Americans tend to experience more severe drug-related consequences than their counterparts (Barnes & Welte, 1986; Ellickson & Morton, 1999; Fagan, Moolchan, Lawrence, Fernander, & Ponder, 2007; Oetting & Beauvais, 1990; Wallace & Muroff, 2002). These disparities demonstrate that exploring promotive and protective factors, such as family cohesion and acculturation among this population, is clearly warranted.

Family, Cultural, and School Factors

The family domain is a salient influence in the development of healthy youth. First, the family offers protective effects against substance use for African American adolescents (Wallace & Muroff, 2002). Second, familial factors can promote positive outcomes in cultural and school domains (Belgrave et al., 2010). In turn, these cultural values and school domains can protect youth from substance use.

There is evidence that familial factors such as family cohesion (e.g., Duncan, Tildesley, Duncan, & Hops, 1995), parental monitoring (e.g., Clark et al., 2011), and parent–adolescent relationship (e.g., Clark, Belgrave, & Abell, 2012) are protective factors and help to prevent substance use among African Americans. For example, Clark et al. (2012) found that parental monitoring moderated the impact of peer risky behavior on substance use among 5th-, 8th-, and 12th-grade students.

Familial influences also promote cultural values that are necessary in the development of well-adjusted youth. African American families play a key role in transmitting attitudes, values, and beliefs about lifestyles based on cultural knowledge of adult competencies needed to function appropriately in the United States (Harrison, Wilson, Pine, Chan, & Buriel, 1990). Cultural factors may play an important role in explaining less substance use among African Americans. Cultural factors in this study refer to proximal cultural variables (e.g., acculturation, ethnic identity, and racial socialization) that are individual-level psychological constructs. Adherence to cultural values can predict lower levels of substance use among African American youth. The socialization of African American–relevant cultural variables includes acculturation, ethnic identity, and racial socialization, and these factors may influence substance use.

Racial socialization refers to the implicit and explicit messages and behaviors that families provide children about being an African American and how to function in the United States. Racial socialization relates to African American parents teaching children how to effectively deal with and respond to perceived prejudice and discrimination (Hughes & Chen, 1999; Murray, 2000). Other researchers have found that parents may buffer their children from discrimination (e.g., Simons et al., 2006), and this may be done through racial socialization. Through the process of racial socialization, African American parents help their children to self-regulate and activate strategies that are necessary to achieve goals despite the presence of obstacles. This instilled self-regulation can also support African American children in resisting peer pressure and temptation to engage in substance use. In addition, racial

socialization has been found to be a protective factor for African American children and is thought to be protective because it provides affirmation for being Black in a racist world (Stevenson, Cameron, Herrero-Taylor, & Davis, 2002).

Acculturation refers to the

extent to (and the process through) which ethnic-cultural minorities participate in the cultural traditions, values, beliefs, assumptions, and practices of the dominant White society (acculturated), remain immersed in their own cultures (traditional), or participate in the traditions of their own culture and the dominant White culture as well (bicultural). (Landrine & Klonoff, 1994, p. 104)

African American adolescents who are considered highly traditional remain immersed in their culture and are less acculturated, and thus may be protected from more normative substance use found in the dominant White culture (Nasim, Corona, Belgrave, Utsey, & Fallah, 2007). Conversely, Nasim and colleagues (2007) found that African Americans who endorsed traditional cultural characteristics such as racial socialization were more likely to smoke cigarettes and marijuana, suggesting that traditional cultural attributes may be risk factors for some gateway drugs. Nasim and colleagues found that traditional religious beliefs were protective factors against tobacco and marijuana use. The present study aimed to better understand whether and how traditional cultural factors work together with family and school factors to influence substance use among African American adolescents.

Ethnic identity refers to a “self-identification with a specific ethnic group; the sense of belonging and attachment to such a group; the perceptions, behaviors, feelings a person has because of such memberships; and involvement in the cultural and social practices of the group” (Phinney & Kohatsu, 1997, p. 420). Studies have found a protective effect for ethnic identity on substance use among African American adolescents. For example, Belgrave and Corneille (2007) found a direct relationship between ethnic identity and intention to use drugs. Brook and Pahl (2005) found ethnic identification to moderate the impact of rebellious attitudes on adolescent substance use, while Belgrave and Corneille found a moderating effect of ethnic identity on neighborhood risk against substance use. Other researchers have reported that the protective effect of ethnic identity against substance use is minimal. For instance, Brook, Balka, Brook, Win, and Gursen (1998) found that among African American youth, ethnic identity only predicted 4% of the variance in substance use.

Thomas, Caldwell, Faison, and Jackson (2009) suggest that racial and ethnic identity may protect adolescents against perceptions of discrimination in the classroom, enabling them to perform well and succeed in measures of academic achievement. As a result, we included a measure of classroom climate in the present study to capture students’ perceptions of fairness and equality in the classroom. In addition, cultural constructs, such as racial and ethnic identity, are positively linked to school achievement (Smith, Levine, Smith, Dumas, & Prinz, 2009).

African American families also promote school-related factors such as a youth’s academic behaviors. We define school factors as a set of proximal individual-level psychological constructs (e.g., achievement motivation, school commitment, and perceptions of classroom

climate). Research shows that adolescents' commitment to school and motivation to achieve are linked to family factors such as family cohesion and parental monitoring (Annunziata, Hogue, Faw, & Liddle, 2006). Adolescents from cohesive families tend to receive more support and monitoring from their parents (Kliewer et al., 2006) than do those from less cohesive families. Among African American families and youth, family cohesion is predictive of academic effort, interest in school, academic achievement, and academic engagement (Annunziata et al., 2006; Seidman et al., 1995). Furthermore, school factors, such as academic achievement, predict lower levels of substance use among African American youth (Clark et al., 2008).

Last, we propose that individual-level factors related to academic domains can protect African American youth from substance use. Some studies have provided evidence for the negative relationships between individual-level school factors (e.g., achievement motivation) and substance use, and have suggested that academic involvement prevents adolescents from engaging in delinquent behaviors (Gottfredson, Gerstenblith, Soule, Womer, & Lu, 2004; Tarter, Sambrano, & Dunn, 2002). For instance, Problem Behavior Theory suggests that problem behaviors such as academic failure and substance use co-occur (Jessor & Jessor, 1977). It is plausible that academic achievement increases a sense of self-efficacy, which in turn lowers stress and a reliance on drugs as a way of coping with stress (Werner & Johnson, 2004).

To this end, research has indicated that family factors directly and indirectly predict cultural and school factors, and substance use among African American adolescents. We examined the relationships among these variables in the present study.

Present Study

The present study builds on a body of literature that has examined the protective and promotive role of family, school, and cultural variables by exploring the mediating role of cultural and school factors in the relationship between family factors and adolescent substance use. Our aim was to explore family influences on adolescent substance use. We hypothesized that cultural and school factors will partially mediate the relationship between family factors and adolescent substance use. That is, family factors will be positively associated with cultural factors and school factors but negatively associated with lifetime substance use. In addition, cultural factors will be positively associated with school factors, and school factors will be negatively linked to lifetime substance use. Furthermore, we hold that the relationship between cultural factors and lifetime substance use will be fully mediated by school factors.

Method

Participants

The analysis sample included two cohorts of 8th- ($n = 193$) and 12th-grade ($n = 231$) students ($N = 424$) living in the Southeastern United States who self-identified as African American. Researchers employed purposive sampling. This current study uses data collected at Time 1 (baseline) during the spring of 2006, although data were collected at three

assessment points. The mean age of the participants was 16.55 years ($SD = 2.10$), with a range of 9 to 21 years. The sample consisted of 279 (66%) females and 145 (34%) males; the majority (243; 57%) lived in urban areas, whereas 181 (43%) lived in rural areas.

Procedure

The university's Institutional Review Board approved this study. Trained researchers and research assistants collected data in public school systems during regular school hours. Students were recruited from four middle schools and four high schools. During recruitment meetings, researchers provided an overview of the study and described consent and assent forms. An alternative consent form was given to students who provided valid identification verifying that they are 18 years or older. Schoolteachers and counselors collected consent and assent forms, which were then submitted to research staff. The questionnaire was administered to students in a designated area. Usually the designated area was the cafeteria, but sometimes questionnaires were administered in a media room, auditorium, multipurpose room, or private classroom. Researchers seated students far enough apart to ensure privacy. Following protocol, a survey prompt was read aloud that included information about how to complete the survey and reminded students that their participation was voluntary and their responses were confidential. Small incentives (e.g., US\$10 gift cards to a local department store) were provided to students for participating.

Measures

Family cohesion.—Family cohesion measured four aspects of family relationship characteristics thought to distinguish risk for serious antisocial behavior: cohesion, beliefs about family, structure, and deviant beliefs. The 12-item measure developed by Tolan, Gorman-Smith, Huesmann, and Zelli (1997), uses a 4-point Likert-type scale to indicate responses ranging from 1 = *not at all true* to 4 = *almost always or always true*. A sample item from this scale includes, "Family members ask each other for help." Higher scores indicate higher levels of family cohesion. The Cronbach's alpha was .82.

Parental monitoring.—Participants completed a modified version of Silverberg's Parental Monitoring Scale (PMS; Silverberg & Small, 1991). The PMS assesses parental monitoring by asking whether youth perceive their parents or guardians as usually aware of their activities after school. Participants responded to items using a Likert-type scale format with choices ranging from 1 = *never* to 3 = *always*. Higher scores indicated higher levels of perceived parental monitoring. An example from this scale includes "When you go out, how often do your parents know where you are going?" Cronbach's alpha was .70.

Mother–adolescent relationship and father–adolescent relationship.—Quality of the mother–adolescent relationship and quality of the father–adolescent relationship was measured using the Network of Relationship Inventory (NRI), which assesses adolescents' perceptions of their relationships with their mothers, fathers, or guardians (Furman & Buhrmester, 1985). The NRI consists of 20 items rated on a 4-point Likert-type scale. The scale is divided into two subscales of 10 items each; one subscale assesses the quality of the mother–adolescent relationship, and the other subscale assesses the quality of the father–adolescent relationship. An example of an item is, "How often do you talk about personal

things with your mother (or father)?” In the current sample, the Cronbach’s reliability coefficient was .79 for the NRI Mother–Adolescent Relationship subscale and .88 for the NRI Father–Adolescent Relationship subscale. Higher scores indicate higher perceived quality of the mother–adolescent and father–adolescent relationship.

Ethnic identity.—Ethnic identity was measured using the five-item affirmation subscale of the Multigroup Ethnic Identity Measure (MEIM; Phinney, 1992). The affirmation scale captures positive feelings about a respondent’s group. The MEIM assesses ethnic identity affirmation through statements such as, “I participate in cultural practices of my own group, such as special food, music, or customs.” Response options are recorded on a 4-point scale that ranges from 1 (*strongly disagree*) to 4 (*strongly agree*). Higher scores indicate higher levels of ethnic identity affirmation. Cronbach’s alpha for this sample was .71.

Acculturation.—Measurement of Acculturation Strategies for People of African Descent (MASPAD) is a 22-item multidimensional instrument designed to assess acculturation strategies along the dimension of beliefs and behaviors (Obasi, 2005). These items measure a variety of aspects of African American culture, including religious beliefs and practices, family practices, cultural superstition, racial segregation, and family values. Youths are asked to indicate the extent to which they agree or disagree with statements such as, “It is vital for me to be actively involved in the Black community.” Participants respond to items on a 6-point Likert-type scale, ranging from 1 = *strongly disagree* to 6 = *strongly agree*. Low scores indicate an orientation toward mainstream society, whereas high scores are indicative of African American cultural immersion. Cronbach’s alpha for this sample was .87.

Racial socialization.—Racial socialization was assessed using the Cultural Pride Reinforcement subscale of the Scale of Racial Socialization Adolescent Version (Stevenson, 1994). This nine-item subscale assesses the different types of racial socialization messages, particularly preparation for bias. The nine-item scale was used to measure the extent to which parents engaged in certain behaviors that prepared their children for the experience of racial bias. A sample item from this scale includes, “Teaching children about Black history will help them to survive a hostile world.” Students rated each item on a 7-point Likert-type scale, ranging from 1 = *strongly disagree* to 7 = *strongly agree*. Cronbach’s alpha for this sample was .75.

Classroom climate.—Classroom Climate scale is a seven-item scale that measures student perceptions of classroom psychosocial environment and assesses student perceptions of student–teacher relationships. Youth are asked to indicate the extent to which they agree or disagree with a series of statements such as, “Teachers treat students with respect.” Response options are on a 4-point scale ranging from 1 = *strongly disagree* to 4 = *strongly agree*. Cronbach’s alpha was .79.

Achievement motivation.—Achievement motivation was assessed using the Self-Efficacy for Academic Learning and Performance subscale of the Motivated Strategies for Learning Questionnaire (Pintrich & DeGroot, 1990). Our six-item modified version assesses students’ confidence in attaining educational and career goals. Youth are asked to indicate the extent to which they agree or disagree with a series of statements such as, “I believe I

will receive an excellent grade in my classes.” Response options are on a 4-point scale, from 1 = *strongly disagree* to 4 = *strongly agree*. Higher scores indicate higher levels of achievement motivation. Cronbach’s alpha was .83.

Commitment to school.—Commitment to school was assessed using a modified eight-item version of the Commitment to School measure (Thornberry, Lizotte, Krohn, Farnworth, & Jang, 1991). School commitment measures the extent to which students feel loyal and committed to the school. Items in this measure assess youth’s agreement about the importance of schoolwork and dedication to school. Youth are asked to indicate the extent to which they agree or disagree with a series of statements such as, “You like school a lot.” Response options are on a 4-point scale ranging from 1 = *strongly disagree* to 4 = *strongly agree*. Higher scores reflect higher commitment to school. Cronbach’s alpha was .71.

Lifetime cigarette use.—Lifetime cigarette use was measured using an item adapted from the National Survey on Drug Use and Health (Substance Abuse and Mental Health Services Administration [SAMHSA], 2005). Youth were asked to respond with either a *yes/no* answer to the item, “Have you ever tried cigarette smoking, even one or two puffs?”

Lifetime alcohol use.—Lifetime alcohol use was measured using an item adapted from the National Survey on Drug Use and Health (SAMHSA, 2005). Youth are asked to respond to the item, “During your life, on how many days have you had at least one drink of alcohol?” Using a six-item response scale, a response of *I have never had a drink of alcohol* was coded as 0 and a response of *30 or more days* was coded as 6.

Lifetime marijuana use.—Lifetime marijuana use was measured using an item adapted from the National Survey on Drug Use and Health (SAMHSA, 2005). Youth were asked to respond to the item, “During your life, how many times have you used marijuana?” Using a six-item response, a response of *I have not used marijuana* was coded as 0, and a response of *100 or more times* was coded as 6.

Data Analysis Strategy

To test the study’s hypotheses, we ran structural equation modeling (SEM). We relied on whole constructs and their respective measures to serve as manifest indicators for some of our latent variables (family factors, cultural factors, and school factors). Therefore, we used a total aggregation approach in which all items from a single measure were summed into a single indicator for the appropriate latent variables. The family factors latent variable includes the following indicators: parental monitoring, mother–adolescent relationship, and father–adolescent relationship. The cultural factors latent variable includes the indicators of acculturation, racial socialization, and ethnic identity. The school factors latent variable includes the indicators of classroom climate, achievement motivation, and commitment to school. For the lifetime substance-use latent variable, we relied on the total disaggregation approach as each item served as an indicator.

To examine the mediating role of cultural factors and school factors in the link between family factors and lifetime substance use, we conducted SEM analysis with latent variables. First, a measurement model was tested (confirmatory factor analysis using SEM), and then

the hypothesized structural model was examined. In addition, we compared the hypothesized model with two alternative models: (a) the structural null model that retained only the measurement model and (b) the saturated model that included the direct effect of cultural factors on lifetime substance use. Each comparison was conducted separately, allowing comparisons of nested models using the chi-square difference test. LISREL 8.80 was used to test all models.

The hypotheses are presented schematically in Figure 1. The structural model specifies that family factors will be positively associated with cultural factors and school factors but negatively associated with lifetime substance use. Cultural factors will be positively associated with school factors, and school factors will be negatively linked to lifetime substance use. We predicted that the relationship between family factors and lifetime substance use would be partially mediated by cultural and school factors. We believe that the relationship between cultural factors and lifetime substance use will be fully mediated by school factors.

Results

Preliminary analyses were conducted to screen data for violations of assumptions. For descriptives of the study variables, refer to Table 1. Following general guidelines for fit indices (Garver & Mentzer, 1999; Hu & Bentler, 1999), goodness of fit was assessed by the comparative fit index (CFI), the nonnormed fit index (NNFI), and the root mean squared error of approximation (RMSEA). Guidelines suggest that CFI and NNFI values of .90 or above and RMSEA values less than .08 reflect acceptable fit. Overall, the composite model displayed acceptable global fit, $\chi^2(60, N=424) = 171.62, p = .0$. The RMSEA was .06, and the RMSEA's 90% confidence interval was .05 to .08. The NNFI was .93. The CFI was .95, indicating good fit.

Measurement Model

In examining the measurement model, all indicators loaded significantly onto their latent constructs, supporting the measurement model's adequacy. All loadings of manifest indicators on corresponding latent constructs were significant at $\alpha = .05$. Refer to Table 2 for standardized factor loadings. Overall, the squared multiple correlations for y variables and for x variables ranged from .23 to .55. All parameters in the theta delta and theta epsilon matrix were significant at the .05 level.

Structural Model

The structural model provides support for the study's hypotheses. Family factors were significantly and positively associated with cultural factors and school factors but negatively associated with lifetime substance use. Cultural factors had a significant and positive influence on school factors, and school factors were negatively linked to lifetime substance use, providing evidence for the fully mediating role of school factors on cultural factors and adolescent substance use. The results also provide support for the partially mediated relationship between family factors and lifetime substance use as mediated by cultural factors and school factors. Refer to Figure 2 for standardized path coefficients. The squared

multiple correlations for structural equations are presented in smallest to greatest as follows: cultural factors (.18), lifetime substance use (.29), and school factors (.53).

Alternative Models

The theoretical model was compared with a structural null model using a chi-square difference test. Results showed that the theoretical model provided better model fit from the structural null model, $\chi^2(5) = 239, p < .05$, so we retained our theoretical model.

The theoretical model was compared with the saturated model, which included an additional direct path from the cultural factors latent variable to the lifetime substance-use latent variable. The theoretical model and the saturated model were compared using a chi-square difference test for nested models. Results showed that the inclusion of a path linking the cultural factors latent variable to the lifetime substance-use latent variable did not improve the model fit, $\chi^2(1) = 2.1, p > .05$, so the theoretical model was retained as beta (3,1) in the saturated model was nonsignificant.

Discussion

We examined the mediating role of cultural factors and school factors in the relationship between family factors and lifetime substance use. As expected, family factors were significantly and positively associated with cultural factors and school factors but negatively associated with lifetime substance use. These findings support the literature that suggests that family factors predict cultural factors (e.g., Harrison et al., 1990), school factors (e.g., Annunziata et al., 2006), and substance use (e.g., Clark et al., 2011).

Importantly, we found that familial influences give rise to positive outcomes found in cultural and school domains that also influence substance use. The types of familial influences that we examined included elements that facilitate family communication (e.g., family cohesion or quality of the parent–adolescent relationship) and constitute as indices of the interpersonal milieu found at home (Olson et al., 1983). Effective family communication enables African American parents to transmit messages that aid in the development of the adolescent. African American parents are faced with the difficult task in that they must socialize their children to function competently in a potentially racist and discriminating environment (Harrison et al., 1990; Hughes & Chen, 1999; Murray, 2000). For example, a qualitative study by Thornton (1997) found emergent themes in socialization messages such as *minority status* (e.g., accepting one's "color"), the *mainstream experience* (e.g., working hard to get a good education), and the *Black cultural experience* (e.g., Black heritage, history, and traditions). The results of our study echo what Thornton found by indicating that effective family practices can equip African American adolescents with cultural and school-related qualities that will help them to become successful in navigating through a potentially prejudiced environment and leading to lower substance-use prevalence.

The results of our study indicated that cultural factors had a significant and positive influence on school factors, and school factors were negatively linked to lifetime substance use, providing evidence for the fully mediating role of school factors on cultural factors and adolescent substance use. These cultural factors and school factors have been previously

found to be protective against adolescent substance use (e.g., Brook & Pahl, 2005; Clark et al., 2008). Our findings indicate that cultural processes may shape school-related concepts for the adolescent. Previous studies examining the link between culture and school factors suggest that adolescents who are racially socialized achieve higher grades than students who are not provided with the same insight (Bowman & Howard, 1985; Sanders, 1997). Another study by Wong, Eccles, and Sameroff (2003) sheds light on the protective role of ethnic identity and racial socialization on African American adolescent's academic adjustment. The authors found that as levels of ethnic identity increased, greater perceived discrimination was related to smaller decreases on grade point average. In addition, Neblett, Philip, Coqburn, and Sellers (2006) found that concepts related to racial socialization practices were positively linked to academic outcomes. Essentially, the internalization of a positive racial and ethnic self may help to protect adolescents from the negative impact of discrimination on academic functioning, thus decreasing the adolescent's reliance on drug-related coping mechanisms. The findings of our study add to our understanding of the emerging research on cultural factors and substance use. Mediating relationships between cultural factors and substance use, with school factors as the mediator, have not been reported in prior studies. Our findings point to the importance of continued research.

Limitations and Future Directions

Several limitations of this study must be noted. A purposive sampling framework was used, and as such, the findings cannot be generalized to adolescents outside of the Southeastern United States. Because this study required active parental consent, it is possible that participating students differ from nonparticipating students. This study also relied exclusively on students' self-reports. The use of cross-sectional data for testing our hypotheses is also a study limitation; longitudinal data would have provided a more definite test of our hypothesis. Therefore, we do not imply causality.

In addition, although religiosity is indirectly assessed in our measure of acculturation, the inclusion of religiosity as a separate indicator may have strengthened our model. Belgrave, Brome, and Hampton (2000) found that African American youth who attended religious services were less likely to use drugs, including tobacco, than their peers who did not attend religious services. In addition, we collapsed alcohol, tobacco, and marijuana use into one latent variable although these behaviors may constitute different domains of substance use. However, these were all single-item substance-use measures, and CFA techniques would have produced weak latent variables using the mentioned items as indicators. In addition, the study's sample size would have underpowered a model with three outcomes. Future research should incorporate multiple-drug outcomes and examine potentially different protective mechanisms for specific substance-use behaviors.

Despite these limitations, the findings of this study contribute to understanding how family factors, cultural factors, school factors, and substance use operate to explain substance use among African American adolescents. We know little about these processes for this population. These findings have implications for preventive interventions, suggesting that such interventions aim to strengthen family factors, such as parental monitoring and family cohesion; cultural factors, such as ethnic identity and racial socialization; and school factors,

such as commitment to school and academic motivation. Despite the historical tendency to omit cultural variables from studies, the present study found that cultural variables may be salient in understanding academic achievement and substance use among African American adolescents. The findings of this study are consistent with other studies purporting family, cultural, and school factors to be protective of substance use (Belgrave et al., 2010; Clark et al., 2011). Future research should examine a more complete set of cultural and family variables to better identify which family variables explain specific cultural variables as it relates to substance use. Future research should also use a longitudinal design so that the mediating processes found in the present preliminary study can be further investigated.

Our study addresses the processes through which salient protective and promotive factors work together to explain substance use among African American adolescents. Our findings affirm that family, cultural, and school factors, among other factors, operate together to influence adolescents' decisions to engage in or refrain from using drugs.

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Figure 1.
Study's hypotheses

Figure 2.
Theoretical model with path coefficients
* $p < .05$.

Table 1.

Descriptives of Study Variables

Measure	<i>M</i>	<i>SD</i>	Minimum	Maximum
Family cohesion	2.96	0.53	1	4
Parental monitoring	2.31	0.47	1	3
Mother–adolescent relationship	3.12	0.52	1	4
Father–adolescent relationship	2.68	0.72	1	4
Ethnic identity	2.59	0.64	1	4
Acculturation	3.99	0.67	2	6
Racial socialization	5.31	0.88	3	7
Classroom climate	2.48	0.60	1	4
Achievement	4.11	0.57	2	5
Commitment to school	3.14	0.45	2	4

Table 2.

Standardized Factor Loadings

	Latent variables			
	Endogenous	Exogenous		
	Family factors	Cultural factors	School factors	Lifetime drug use
LX family cohesion	0.72			
Parental monitoring	0.56			
Mother–adolescent	0.7			
Father–adolescent	0.5			
LY ethnic identity		0.64		
Acculturation		0.66		
Racial socialization		0.48		
Classroom climate			0.55	
Achievement motivation			0.64	
Commitment to school			0.74	
Lifetime cigarette use				0.65
Lifetime alcohol use				0.67
Lifetime marijuana use				0.63

Note: LX = lambda x matrix; LY = lambda y matrix.