



HHS Public Access

Author manuscript

Subst Abus. Author manuscript; available in PMC 2019 April 30.

Published in final edited form as:

Subst Abus. 2006 June ; 27(1-2): 47–52. doi:10.1300/J465v27n01_06.

Racial/Ethnic Differences in the Protective Effects of Self-Management Skills on Adolescent Substance Use

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Abstract

A variety of cognitive and behavioral self-management skills have been posited as protective in terms of adolescent substance use. This study examined whether these skills measured in the 7th grade served a protective function in 9th grade substance use across ethnically diverse samples of adolescents. Participants consisted of Black ($n = 461$) and Hispanic ($n = 320$) urban youth and White suburban youth ($n = 757$). Structural equation modeling indicated that a second order Self-Management Skills latent factor consisting of first order latent factors of Decision-Making, Self-Regulation, and Self-Reinforcement skills was protective for adolescent substance use across racial/ethnic subgroups. However, Self-Management Skills were more strongly protective for suburban White youth and less protective for urban minority youth. These findings are consistent with previous research showing that predictive power of risk and protective factors derived from psychosocial theories varies widely across racial/ethnic subgroups of youth and is weaker among racial/ethnic minority youth compared to White youth. An important next step is to broaden the focus of etiology research from individual-level determinants to studying adolescent substance use behavior in the context of the cultural background and primary social settings of young people, such as family, school, and community environments.

Keywords

Adolescence; substance use; race; protective factors

The adolescent population in the United States is becoming increasingly ethnically and racially diverse and will continue to do so for decades to come, as will the population at large (1). Despite this, there has been little comparative research on developmental processes over the course of the teenage years for youth from different racial/ethnic backgrounds. In

particular, research is needed to increase our understanding of the common and unique sets of risk and protective factors for adolescent problem behaviors across subgroups of young people during the transition to adolescence, when a number of such behaviors first appear.

A variety of self-management skills have been found to be protective for adolescent substance use and related problem behaviors including decision-making and problem solving skills, behavioral self-control, and cognitive self-regulation strategies (2,3). The better youth are at confronting, actively struggling with, and mastering life problems through the use of their own social, cognitive, and behavioral skills, the more resilient they appear to be to both negative social influences as well as various internal motivational forces (e.g., affect regulation) that promote substance use. Furthermore, skills building interventions that focus on competence enhancement are increasingly recognized as an important way of helping young people successfully meet developmental challenges and avoid a variety of negative outcomes including substance use (4,5).

National and regional survey data demonstrate that there are substantial racial/ethnic differences in prevalence rates for adolescent alcohol, tobacco, and marijuana use. Black youth usually report lower levels of substance use relative to White or Hispanic youth (6–8). While the reasons for these differences are likely to be multifactorial, research is needed to determine if competence-based etiologic models are appropriate for all youth or whether the protective effects of competence skills differ across subgroups of youth. In addition to the normative challenges of adolescence, urban minority youth often must contend with exposure to crime and violence, poverty, and a lack of educational and occupational resources and opportunities (9,10). Despite this, most of these youth transition successfully through adolescence, suggesting that protective factors play a central role in buffering these youth from risk. The literature on psychosocial resilience illustrates how youth raised in unfavorable environments manage to develop competence in a variety of life domains (11,12). Although competence skills are likely to be important for all youth, they may play a particularly important role in promoting resilience among urban minority youth because highly competent youth that are more successful in conventional developmental tasks may be more optimistic regarding future life options and perceived “future selves” (13).

A goal of the present study is to test whether competence-based etiologic models of substance use are applicable across racial/ethnic subgroups of youth. In particular, we examine whether cognitive and behavioral self-management skills, taught in some contemporary primary prevention programs for adolescent substance abuse, are protective for later substance use among diverse subsets of youth. We focus on early adolescents because it is during these years that primary prevention programs for substance abuse are typically provided.

METHOD

Sample

The present study included two samples of junior high school students (total N = 1,538). The first sample consisted of suburban White students (n = 757) from 19 schools in upstate New York, and a second sample consisted of urban Black (n = 461) and Hispanic (n = 320)

students from 19 schools in New York City. Participants were selected from the untreated control groups as part of two larger school-based drug prevention trials. Based on self-reported race/ethnicity, over 90% of the suburban sample consisted of White students and over 90% of the urban sample consisted of Black and Hispanic students. For comparison purposes, students reporting other racial/ethnic backgrounds were excluded from the respective samples. A small number of classrooms in the urban sample were bilingual and were excluded from the present study. In the suburban White sample, 52% of students were male and 77% lived in two-parent families. In the urban minority sample, 40% were male and 54% lived in two-parent families.

Procedure

In both of the larger prevention studies, all 7th grade regular education classrooms in each of the participating schools were eligible to participate in the intervention trial. Students completed a self-report questionnaire that assessed a variety of attitudes, intentions, and behaviors related to substance use. Unique identification codes were used rather than names to emphasize the confidential nature of the survey, and students were assured that their responses would not be made available to school personnel, teachers, or parents.

Questionnaires were administered during a regular classroom period by a team of several data collectors who were members of the same racial/ethnic groups as the participating students. Carbon monoxide breath samples were collected from students before they completed the questionnaire, a procedure that has been found to enhance the veracity of self-reported substance use data (14). Reviews of the scientific literature have concluded that surveys in school settings can provide highly reliable data for research on substance use among youth (15).

Following a baseline assessment in the 7th grade, students were surveyed again in the 8th and 9th grades. Because the prevalence rates for alcohol, tobacco, and marijuana use were relatively low during the initial years of the larger studies, we modeled substance use in the 9th grade as the primary outcome of interest.

Measures

Decision-Making Skills ($\alpha = .82$) were assessed using four items from the Coping Assessment Battery (16), which assesses applied information-gathering strategies that individuals may use when confronted with a specific problem (e.g., “I get the information I need to make the best choice”). Response categories ranged from 1 (never) to 5 (almost always).

Self-Regulation Skills ($\alpha = .74$) were assessed using four items from the Rosenbaum Self-Control Schedule (17). The Self-Control Schedule measures cognitive strategies that individuals may use in specific situations to manage anxiety or distress (e.g., “If I am feeling sad, I try to think about pleasant things”). Response categories ranged from 1 (never true) to 5 (almost always true).

Self-Reinforcement Skills ($\alpha = .75$) were assessed using five items from the Frequency of Self-Reinforcement Attitudes Questionnaire (18). These items assess self-statements one makes to reinforce one’s own behavior, such as “I silently praise myself even for small

achievements” and “The way I achieve my goals is by rewarding myself every step along the way.” Response categories ranged from 1 (strongly disagree) to 5 (strongly agree).

Substance Use—Indicators of cigarette, alcohol, and marijuana use were used to reflect a latent construct of Substance Use. For each substance, one item assessed the frequency of engaging in the behaviors on a scale from 1 (never) to 9 (more than once a day).

We have previously reported the psychometric properties of measures used in this study (19,20), and have found that the measures of self-management skills are significantly correlated with other risk and protective factors for adolescent substance (21).

RESULTS

Attrition analyses were conducted to examine the proportion of each sample that dropped out over the two-years of follow-up in each sample. Approximately 23% and 33% of the initial suburban White and urban minority samples, respectively, did not complete the follow-up assessment in the 9th grade. Furthermore, substance users at baseline were more likely to drop out compared to non-users in both samples. These findings suggest that the study samples were at lower than average risk and therefore the present results are limited in that they may not be generalizable to all adolescents. Furthermore, the parameter estimates may be conservative due to the potential restriction in the range of the substance use outcomes.

As shown in Table 1, rates of substance use differed by race/ethnicity. Rates of lifetime and past month use of cigarettes, alcohol, and marijuana use in the 9th grade were consistently highest for suburban White youth compared to the two urban minority samples. As shown in Table 2, correlational analyses at the baseline assessment showed that the indicators of Self-Management Skills were more strongly protective in terms of substance use with suburban White youth, less so with urban Black youth, and least with urban Hispanic youth.

As shown in Figure 1 structural equation modeling indicated that a second order Self-Management Skills latent factor consisting of first order latent factors of Decision-Making, Self-Regulation, and Self-Reinforcement Skills was protective for the combined sample in terms of Adolescent Substance Use ($\beta = -.25$, $p < .001$) and the model had a good fit to the data (Robust CFI = .96, RMSEA = .035). However, multigroup SEMs by race/ethnicity indicated that the Self-Management Skills factor was more strongly protective for suburban White youth ($\beta = -.27$, $p < .001$; Robust CFI = .95; RMSEA = .037) compared to urban Black youth ($\beta = -.16$, $p < .01$; Robust CFI = .98; RMSEA = .027) and urban Hispanic youth ($\beta = -.07$, $p = ns$; Robust CFI = .97; RMSEA = .027). The proportion of variance in Adolescent Substance Use explained by the Self-Management Skills second order factor ranged from $R^2 = .07$ for suburban White youth, $R^2 = .03$ for urban Black youth, and $R^2 = .01$ for urban Hispanic youth.

DISCUSSION

The present study examined whether self-management skills were protective for substance use among racial/ethnic subgroups of adolescents. Self-management skills were defined as

the common variance among measures of decision-making, self-regulation, and self-reinforcement skills, and substance use as the common variance among indicators of smoking, alcohol use, and marijuana use frequency. Findings indicated that the prevalence rates for substance use varied widely across racial/ethnic categories, consistent with previous epidemiological data (7), and that Self-Management Skills were most strongly protective for suburban White youth and significantly less protective for urban minority youth. Similarly, the proportion of variance in substance use explained by Self-Management Skills was highest among suburban White youth and less strongly predictive for urban minority youth.

These findings are consistent with previous research showing that the risk/protective factors derived from psychosocial theories vary widely across racial/ethnic subgroups of youth, and that the predictive strength of these variables is weaker among racial/ethnic minority youth compared to White youth (22,23). The finding that only a modest proportion of variance in substance use was explained by the model may reflect the fact that the self-management skills model included only a small subset of individual-level predictors. A variety of ethnic or culture-specific factors that may contribute to substance use behavior and/or psychosocial resilience among urban minority youth were not included in the model. For example, research has shown moderate positive associations between ethnic identity and various facets of psychosocial functioning including self-esteem, coping effectiveness, and self-evaluation (24). To the extent that a strong sense of ethnic identity contributes to the formation and crystallization of one's identity, a crucial developmental task of adolescence (25), it may serve a protective function. Furthermore, other larger macro-level etiologic factors, such as neighborhood characteristics and socioeconomic factors, were not included, and these ecological variables may explain a larger proportion of variance in substance use among urban minority youth. Thus, in addition to examining the extent to which competence-based etiological models can account for substance use across ethnically heterogeneous subgroups of youth, it is important to consider various ethnic-specific factors that may enhance resilience within these subgroups. Furthermore, these findings suggest that an important next step is to broaden the focus of etiology research from individual-level determinants to studying adolescent substance use behavior in the context of one's cultural background and primary social settings, such as family, school, and community environments. Because individual-level factors appear to explain a relatively small proportion of variance in substance use across subgroups of youth, this suggests that prevention programs that focus on individual-level factors should be complemented by family and community interventions as well as legal and policy initiatives that facilitate change at the larger societal level.

Acknowledgments

This research was supported by grants DA14964 and CA96467 from the National Institutes of Health.

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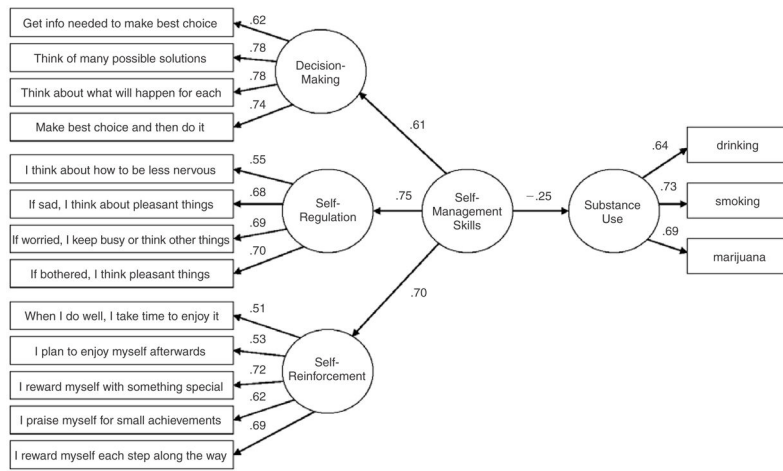


FIGURE 1.
Self-Management Skills and Adolescent Substance Use

TABLE 1
Rates of Smoking, Drinking, and Marijuana Use, by Race/Ethnicity in the 9th Grade

Sample	N	Cigarettes			Alcohol			Marijuana		
		Ever Use (%)	Past Month Use (%)	Ever Use (%)	Past Month Use (%)	Ever Use (%)	Past Month Use (%)	Ever Use (%)	Past Month Use (%)	
White	757	47.2	17.4	78.2	31.7	20.3	6.6	20.3	6.6	
Black	461	12.8	2.4	42.7	20.4	6.3	1.7	6.3	1.7	
Hispanic	320	20.3	3.1	52.2	13.4	2.8	0.3	2.8	0.3	
All	1538	31.3	9.9	62.2	24.5	12.5	3.8	12.5	3.8	

TABLE 2
Correlations of Self-Management Skills with Substance Use, by Race/Ethnicity

Sample	N	Decision Making		Self-Regulation		Self-Reinforcement	
		r	p	r	p	r	p
White	757	-.233	.000	-.168	.000	-.097	.008
Black	461	-.097	.037	-.043	.359	-.050	.282
Hispanic	320	-.078	.162	-.046	.411	-.017	.766
All	1538	-.176	.000	-.128	.000	-.092	.000