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Racial Identification, Racial Composition, and Substance Use Vulnerability Among African American Adolescents and Young Adults

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Abstract

Objective—Two studies examined racial identity (RI) as a protective factor against substance-related cognitions and substance use among Black adolescents and young adults living in high versus low percentage Black social environments.

Method—Using structural equation modeling techniques, Study 1 examined longer term effects of RI on substance use cognitions and behaviors among 720 Black adolescents. Study 2 examined the impact of RI and percentage Black peer environment on alcohol use among 203 Black young adults.

Results—Study 1 revealed that RI was prospectively associated with lower levels of perceived friends' use and lower favorability of the substance user prototype and, in turn, lower substance willingness and use, but only among Black adolescents in predominantly White neighborhoods. These adolescents also reported greater access to substances. In Study 2, low RI Black young adults who reported predominantly White peer environments reported the highest levels of alcohol use.

Conclusions—These findings highlight the importance of RI among Black youth and the impact of the social context on the health risk behaviors of adolescents and young adults. This research also demonstrates the utility of social psychological models, such as the prototype–willingness

model, to examine mediating and moderating effects of individual differences and contextual factors on health risk cognitions and behavior. Theoretical and applied implications of the results are discussed.

Keywords

racial identity; substance use; racial composition; prototype–willingness model

A consistent finding in substance use research is that White adolescents smoke, drink, and use drugs more than do Black adolescents (e.g., Strycker, Duncan, & Pickering, 2003; White, Nagin, Replogle, & Stouthamer-Loeber, 2004). White youth also report greater access to substances, which, in turn, is associated with higher levels of use (Gillmore et al., 1990; Johnston, O'Malley, & Terry-McElrth, 2004). This finding has puzzled researchers because risk factors for substance use, such as poverty and lower education levels, are usually higher in segregated environments, where many Black adolescents and young adults live (e.g., Biafora & Zimmerman, 1998). Some research suggests that racial differences in substance use may be moderated by context. For example, both White and Black youth living in primarily White contexts typically begin using substances at earlier ages and use more throughout their teens than those in more segregated contexts (e.g., Chen & Killeya-Jones, 2006). In addition, among Black youth, integrated (predominantly White) environments reduce the deterrent effects of ethnicity on cigarette use (Johnson & Hoffmann, 2000). Thus, more contact with the majority White group is associated with more exposure to substances among Black adolescents, which is associated with higher levels of use.

The amount of contact Black youth have with Whites is increasing: Segregation levels in the United States have decreased over the past 20 years (Iceland & Scopilliti, 2008). On the plus side, Blacks living in predominantly White environments tend to have higher incomes, lower crime rates, and higher levels of educational attainment (Johnson & Hoffmann, 2000). On the other hand, minorities exposed to these environments may lose some of the mental and physical health benefits associated with being close to others of their own race, such as higher levels of self-esteem and lower levels of substance use (e.g., Kandel, Kiros, Schaffran, & Hu, 2004; Postmes & Branscombe, 2002). Very little research, however, has examined protective and risk factors associated with the racial composition of the social environments of Black adolescents and young adults on health-related outcomes (Postmes & Branscombe, 2002).

Racial Identity

One protective factor that may interact with the racial composition of the social environment is *racial identity* (RI). RI refers to an aspect of self-concept and social identity that derives from one's knowledge of group membership and the value attached to that membership (Tajfel, 1981). Self-identification as a group member along with a sense of belonging and pride in one's group are suggested to be key aspects of RI, which is associated with higher levels of psychological well-being (e.g., Phinney, Cantu, & Kurtz, 1997; Sellers, Caldwell, Schmeelk-Cone, & Zimmerman, 2003). RI is an important aspect of self-concept for young Blacks, especially in contexts in which they are in the minority and, consequently, more conscious of their race (Dutton, Singer, & Devlin, 1998; Jaret & Reitzes, 1999). In addition, RI is associated with higher self-esteem among minority adolescents and young adults in ethnically diverse settings, but not among those in less diverse environments (Phinney et al., 1997; Umaña-Taylor & Shin, 2007).

RI and Substance Use

Although Black youth engage in lower levels of substance use than White youth, they experience a disproportionate number of negative effects due to substance use compared with other racial groups (e.g., French, Finkbiner, & Duhamel, 2002). Thus, it is important to understand malleable individual difference factors that may be protective against social pressures to use among Black youth. RI has been cited as a factor that protects against substance use (e.g., Brook, Balka, Brook, Win, & Gursen, 1998). Minority adolescents and young adults who have high levels of RI appear to be able to resist or delay substance use initiation, have more negative attitudes toward substances, and are more likely to perceive substance use as being nonnormative among their racial group than are youths who have low levels of RI (e.g., Belgrave, Brome, & Hampton, 2000; Corneille & Belgrave, 2007; Pugh & Bry, 2007). For example, Black youth who felt more positive about their racial group reported less alcohol use, especially among those for whom race was more central to their identity (Caldwell, Sellers, Bernat, & Zimmerman, 2004). In addition, identification with Black friends enhances the protective effects of low peer use and high perceived drug risk, and buffers against risk factors for use such as rebelliousness and being offered drugs (Brook et al., 1998; Brook & Pahl, 2005). Consistent with this, prevention programs that enhance RI are effective at preventing or delaying substance use. An example is the Strong African American Families Program, which includes the promotion of RI among Black adolescents and is effective in delaying use (Brody et al., 2004; Gerrard et al., 2006; Wills et al., 2007). More generally, it has been suggested that RI buffers the negative effects of integration on the well-being of Blacks (Postmes & Branscombe, 2002).

Although it appears to be an important protective mechanism, most research on RI has been conducted in relatively segregated environments, mostly with inner-city youth. In addition, although researchers have suggested that it would be useful to examine mediated and moderated paths from RI to use, as well as interactions between RI and the social environment, relatively few have done so. The present studies examined how individual differences in RI interact with environmental segregation (neighborhood and peer) in predicting substance use vulnerability. In Study 1, two factors thought to mediate the effects of RI on substance vulnerability—perceived friends' use and perceptions of the typical substance user (prototype)—were examined. Study 1 also examined the long-term protective effects of RI against these risk factors and substance use among adolescents living in predominantly White or Black neighborhoods. Study 2 examined the protective effects of RI on alcohol use among young adults reporting a predominantly White or Black peer (vs. neighborhood) environment. For both studies, we predicted that RI would be a protective factor against substance vulnerability (Study 1) and use (Studies 1 and 2) among Black adolescents (Study 1) and young adults (Study 2), especially among those in predominantly White social environments.

The Prototype–Willingness Model

To examine the effects of RI on substance use, we used the prototype–willingness (prototype) model of health risk behavior (see Gerrard et al., 2008; Gibbons, Gerrard, & Lane, 2003). This model is a modified dual-processing model that focuses on the cognitions that mediate the effects of environmental factors on substance use. A central tenet of the model is that not all health behaviors are planned or intentional, especially if they involve risk (cf. Ravis, Sheeran, & Armitage, 2006). Instead, many risky behaviors are *reactions* to risk-conducive social situations. These reactions are captured in a proximal antecedent that is unique to the model, *behavioral willingness*, which is defined as an openness to risk opportunity—what one would be willing to do in a riskconducive situation. Willingness is affected by social and heuristic factors, including descriptive norms (i.e., perceived friends'

use), and prototypes, which are the images young people associate with the behavior (Gerrard et al., 2008). Willingness is more influenced by contextual factors (e.g., social influence) than is intention, and so is a better predictor of adolescent health behavior (Gerrard et al., 2008; Gibbons et al., 2004). For these reasons, we employed willingness as an indicator of substance use vulnerability in Study 1.

Study 1

Having peers who use substances is one of the most potent risk factors for adolescent substance use (e.g., Andrews, Tildesley, Hops, & Li, 2002). In addition, Orozco and Lukas (2000) found that the best predictor of drug use vulnerability among Black males was socialization with someone of a “different” ethnic group. Having friends who engage in substance use is also associated with more favorable images (prototypes) of users, which, in turn, predicts greater willingness to use (Gibbons et al., 2004). Given higher levels of use among White adolescents and greater availability in these environments, we assumed that Black adolescents in predominantly White environments would be less influenced by the perceived use of their peers if they had higher levels of RI, which is associated with less substance use (e.g., Pugh & Bry, 2007). In addition, previous research has shown that the promotion of RI among Black adolescents reduces positive images (prototypes) of users (Gerrard et al., 2006). Thus, it was expected that RI among adolescents in mostly White environments would be associated with less positive images of users. Together, these two factors (lower levels of perceived friends’ use and less positive images) should lead to less substance-related willingness and use over time.

The first study is part of the Family and Community Health Study (FACHS), which was designed to examine the impact of contextual influences on the health of African American families. Mplus was used to examine the indirect and buffering effects of RI on substance use cognitions and behaviors among FACHS adolescents living in low and high percentage Black environments. Most previous studies examining the effect of RI, as well as substance use, among Black adolescents have been cross-sectional and conducted in urban environments. FACHS is a longitudinal study conducted in rural communities, suburbs, and small metropolitan areas. For the current study, we used U.S. Census reports to examine the racial composition of the counties where FACHS participants lived. *Predominantly White* refers to communities with fewer than 50% Black residents, of which the majority are White.

We predicted that the indirect paths from RI to Time 2 (T2) willingness and T3 use through perceived friend use and user images would be stronger among the adolescents in predominantly White versus predominantly Black environments. All relations were examined controlling for factors related to use: socioeconomic status (SES), neighborhood risk (Boardman, Finch, Ellison, Williams, & Jackson, 2001; Brody et al., 2001), and gender (e.g., Johnston, O’Malley, Bachman, & Schulenberg, 2006). We also controlled for factors associated with both substance use and level of RI: effective parenting (Caldwell et al., 2004; Cleveland, Gibbons, Gerrard, Pomery, & Brody, 2005) and self-concept (Parker & Benson, 2004; Phinney et al., 1997).

Method

Participants—A total of 889 families, 467 in Iowa and 422 in Georgia, were recruited for participation. Families were recruited from 259 block group areas ($M = 3$ families per area), which are clusters of blocks defined by the U.S. Census Bureau. Seventy-two percent of the families approached participated; the majority of those who declined did so because of time constraints. The sample varied in terms of racial composition and SES level. Community coordinators and/or school liaisons compiled lists of all families in the area that included an

African American child age 10 to 12 at T1 ($M = 10.5$; 54% female). Potential participant families received an introductory letter and a recruitment phone call (for a description of the FACHS sample and recruitment, see Brody et al., 2001; Simons et al., 2002). The adolescents and their primary caregivers (85% were the biological mothers) were interviewed simultaneously but separately. All interviewers were African American; most lived in the communities where the study took place. Interviews were conducted in participants' homes or nearby locations. The interviews included a computer-assisted personal interview. Adolescents were paid \$70 and their primary caregivers received \$100 at each wave. T2 occurred approximately 20 months after T1 ($M\text{ age} = 12.4$ years); T3 occurred approximately 36 months after T2 ($M\text{ age} = 15.6$ years). The procedure and interviews were the same at T1 and T2, but minor changes were implemented at T3; for example, adolescents entered their responses on a keypad. Of the 889 families, 779 participated at T2 (retention rate = 88%) and 767 (86%) remained at T3. Full information maximum likelihood technique, which allows for the inclusion of all available participants by estimating model parameters and standard errors from all available data, was used when estimating our models in Mplus (Muthén & Muthén, 2006). This resulted in a final sample of 720 (341 boys) adolescents.

Measures—The measures and the waves at which they were assessed are listed below. Factor analysis and internal consistency analysis were used to verify scale structures.

Racial identification (T1): RI was measured using seven items from the Multigroup Ethnic Identity Measure (Phinney, 1992). The items came from the Affirmation/Belonging and the Behavior subscales; for example, “You have a strong attachment toward your ethnic group” and “You feel good about your ethnic background,” followed by a scale from 1 = *strongly disagree* to 4 = *strongly agree*. The seven items were used as indicators of the latent RI construct ($\alpha = .75$).

Percentage Black (T1): Census data were used to determine the proportion of Blacks living in the adolescents' block group area (e.g., Seaton & Yip, 2009). These environments were classified as high or low percentage Black based on a median split ($Mdn = 50.2\%$).

Perceived friends' use (T2): Friends' use was assessed using the stem “During the past 12 months, how many of your close friends have used (...)?” followed by tobacco, drugs (prescription, nonprescription, and inhalants), and alcohol, each with a 3-point scale (1 = *none of them*, 2 = *some of them*, 3 = *all of them*; e.g., Ge et al., 2006; Wills et al., 2007). These items were indicators of a latent construct of perceived friends' use ($\alpha = .82$).

Substance user image (T2): The adolescents were presented with a definition of a prototype and then asked to “(...) think about the type of kid your age who (...)” “smokes cigarettes,” “frequently drinks alcohol,” and “uses drugs.” They were then asked to rate the favorability of each of these three images using seven adjectives: *popular*, *smart*, *cool*, *good looking*, *childish*, *careless*, and *dull/boring* (the last three were reversed; 1 = *not at all* to 4 = *very*). Participants were asked how similar they were to each image (1 = *not at all* to 4 = *very*). Similarity was multiplied by favorability for each substance (Gerrard et al., 2006). The three products were then used as indicators of the latent construct (overall $\alpha = .89$).

Willingness to use (T1, T2): Willingness was measured with a pair of items for each substance, worded as in previous studies (e.g., Ge et al., 2006). The section began with a description of a hypothetical scenario: “Suppose you were with a group of friends and there were some [cigarettes/alcohol/drugs] there that you could have if you wanted.” This statement was followed by a light and a heavier use question for each substance (e.g., “How

willing would you be to take some and use it/drink one drink/take some and use it?” and “How willing would you be to smoke more than one cigarette/have more than one drink/use enough to get high?”), each accompanied by a 3-point scale (1 = *not at all*, 2 = *kind of*, 3 = *very*). These six items were used as indicators for the willingness latent construct (overall α : T1 = .74, T2 = .83).

Substance use (T1, T3): Adolescents reported whether in their lifetime and in the past year they had ever smoked cigarettes, used marijuana, drank alcohol, and had three or more drinks at one time (0 = *no*, 1 = *yes*; e.g., Ge et al., 2006; Gibbons et al., 2004). Responses for each substance were summed and log transformed, and the three indices were used as indicators of the latent variable (α s = .66, .84).

Control variables

Neighborhood risk (T1): Adolescents reported the frequency of six different problems in their neighborhoods (e.g., crime, gang violence; 1 = *never*, 2 = *sometimes*, 3 = *often*; α = .72; Gibbons et al., 2004).

Primary caregiver SES (T1): SES was assessed using the primary caregiver’s report of family income and his or her education level (1 = *less than a high school diploma* to 10 = *graduate degree*), which were standardized and averaged (α = .73; e.g., Houlihan et al., 2008).

Self-concept (T1): The adolescents rated themselves on the following five adjectives: *popular*, *smart*, *cool*, *good looking*, and *boring* (reversed) from 1 (*not at all*) to 4 (*very*; α = .53; Houlihan et al., 2008).

Effective parenting (T1): Three subscales assessed the adolescents’ perceptions of parenting (Cleveland et al., 2005). Monitoring was assessed with five items (e.g., “How often does your [parent] know what you do after school?” 1 = *never* to 4 = *always*). Communication was examined with three items assessing perceptions of how often their parents discussed substance use with them (1 = *never* to 4 = *many times*). The Warmth scale included nine items (e.g., “How often in the last 12 months did your [caregiver] let you know she really cares about you?” 1 = *never* to 4 = *always*). The three subscales were combined (overall α = .81).

Substance availability (T1-T3): Three items asked adolescents how available each substance (cigarettes, alcohol, drugs) was for them (e.g., “Do you think you could get drugs if you wanted to?”) on 3-point, 4-point, and 5-point scales (respectively) from *definitely not* to *definitely could*. These items were standardized and averaged (α s: T1 = .67, T2 = .82, T3 = .85).

Data analysis—Analyses of variance (ANOVAs) were first conducted to examine differences in perceived substance availability in the low versus high percentage Black environments. Mplus was then used to estimate the hypothesized relations. A confirmatory factor analysis was conducted to determine whether the observed measures loaded on the constructs as hypothesized. The full model included the T1 exogenous variables (RI, willingness, use) and allowed for estimations of their potential direct and indirect effects on T2 willingness and T3 use through perceived friends’ use and images of substance users. State, neighborhood risk, gender, self-concept, effective parenting, and SES were included as covariates and paths were estimated from each of them to every other variable in the model. To examine the anticipated moderation effects of percentage Black residents, we conducted multigroup analyses in which the hypothesized moderated effects from RI were

estimated separately for adolescents from high and low percentage Black environments. Each model was then compared with a model in which all paths were invariant (held constant across groups). We then examined the mediated effects from RI to willingness and use.

Results

Descriptive statistics, correlations, and ANOVAs—Table 1 presents means, standard deviations, and correlations for each indicator split by percentage Black. Mean percentage Black in the low Black neighborhoods was 21.5% ($SD = 16.18$); in the high Black neighborhoods, it was 70.5% ($SD = 12.05$). At T1, less than 9% had tried a substance. By T3, 36% reported they had used alcohol, 20% marijuana, and 19% cigarettes in their lifetime; 40% reported at least some use by their friends at T2. T1 use was associated with higher T2 perceived friends' use and willingness ($ps < .05$). RI was associated with higher levels of self-concept and effective parenting and less neighborhood risk ($ps < .01$). Among the adolescents in predominantly White environments, RI was correlated with lower use and willingness at T1, and lower perceived friends' use, lower willingness, and more negative user images at T2 ($ps < .05$). A repeated measures ANOVA performed on substance availability revealed a main effect for percentage Black: Adolescents in predominantly White environments reported greater availability across Waves 1–3, $F(1, 720) = 5.33, p = .02$. No main effects or interactions were found for RI.

Structural equation modeling (SEM): Measurement and directional single-group model—The measurement model fit the data well; $\chi^2(298, N = 720) = 425.17$, comparative fit index (CFI) = .97, root mean square error of approximation (RMSEA) = .024. All factor loadings were significant and $>.50$. The SEM was specified according to the relations outlined in the hypotheses. The single-group model also fit the data well: $\chi^2(307, N = 720) = 445.69$, CFI = .97, RMSEA = .025. It explained 63% of the variance in T2 willingness and 14% of the variance in T3 use. All specified paths in the single-group model were significant ($ps < .05$).

SEM: Multigroup models

Racial composition as a moderator: We first examined whether RI was more protective for adolescents in the White environments. We examined the RI \rightarrow T2 willingness relation stacked on percentage Black, controlling for all exogenous variables (including T1 willingness and use) without the inclusion of our proposed mediators. Because this relation was fully mediated (see below), it is not shown in Figure 1. The model allowing this path to vary by group had a significantly better fit than one in which the path was constrained to be equal, $\chi^2(1) = 9.74, p < .002$. As expected, the path was significantly stronger (negative) among adolescents in mostly White environments, $b = -.08, t = -2.56, p = .01$, vs. $b = .04, t = 1.52, ns$.¹ The indirect effect from RI to T3 use, through T2 willingness, was significant only for adolescents in these environments, $b = -.03, t = -2.34, p < .02$, vs. $b = .02, t = 1.47, ns$. Thus, RI was protective against an increase in willingness only in predominantly White environments.

Perceived friends' use and substance user image—We then tested our hypothesized model, with the direct RI \rightarrow T2 perceived friends' use and RI \rightarrow T2 user image paths estimated separately for high and low percentage Black groups against a model in which all paths and correlations were constrained to be equal between the two

¹Because methodologists recommend that the product of the unstandardized paths be used to quantify indirect effects (e.g., Preacher, Rucker, & Hayes, 2007), we include these for all indirect paths in the text. The standardized coefficients are reported for all direct effects (paths); and for clarity purposes, they are reported for indirect paths for the mediation model in Table 3.

environments (see Figure 1).^{2,3} The multigroup model fit the data well: $\chi^2(712, N = 720) = 968.41, p < .001$; CFI = .95, RMSEA = .03. Our hypothesized model was a significant improvement from the model with no multigroup paths, $\Delta\chi^2(2) = 14.51, p < .001$. T1 use was associated directly with greater favorability of the T2 user image ($\beta = .16, p < .01$) and indirectly (through T2 images and willingness) with higher T3 use ($\beta = .03, p < .01$). T1 willingness predicted T2 willingness ($\beta = .15, p < .01$), and it also predicted higher levels of perceived friends' use at T2 ($\beta = .19, p < .001$). In addition, T2 user image was associated with higher levels of T2 willingness (controlling for T1 willingness) and higher reports of friends' use ($ps < .001$). Perceived friends' use was positively associated with T2 willingness ($\beta = .37, p < .001$). Finally, T2 willingness was strongly associated with T3 use ($\beta = .35, p < .001$).

The RI \rightarrow T2 perceived friends' use path was significantly stronger among adolescents in low percentage Black environments ($b = -.17, p < .002$, vs. $b = .05, ns$; see Table 2); $\Delta\chi^2(1) = 9.47, p < .002$. The RI \rightarrow T2 user image path was also stronger among these adolescents ($b = -.16, p < .03$, vs. $b = .09, ns$); $\Delta\chi^2(1) = 7.09, p < .01$. Thus, RI was a protective factor against perceived friends' use and having a favorable user image and, in turn, against increases in willingness and future use only among adolescents in mostly White environments.

Moderated mediation through risk cognitions: Mplus, using the Delta method, was again employed to separate the indirect effects—RI \rightarrow T2 willingness and RI \rightarrow T3 use—through user image and perceived friends' use by high and low percentage Black environments. First, as expected, the indirect effect from RI to T2 willingness was significant among adolescents in the White environments ($b = -.07, p < .002$), but not the Black environments ($b = .04, ns$; see Table 2). In addition, the indirect effects of RI on T2 willingness through perceived friends' use ($b = -.03, p < .004$, vs. $b = .01, ns$) and through user image ($b = -.04, p = .03$, vs. $b = .02, ns$) were only significant for adolescents in environments with fewer Blacks. Second, as predicted, the overall indirect effect from RI to T3 use was also significant only for the adolescents in environments with fewer Blacks ($b = -.03, p < .005$, vs. $b = .01, ns$). Similarly, the indirect effect from RI to T3 use, through T2 perceived friends' use and willingness, was significant only for the adolescents in environments with fewer Blacks ($b = -.02, p = .007$, vs. $b = .00, ns$). Finally, the indirect RI \rightarrow T3 use path through the T2 user image and T2 willingness was also significant only for the adolescents in the mostly White neighborhoods ($b = -.02, p < .04$, vs. $b = .01, ns$). In short, the indirect effects provide further evidence that RI was protective against willingness and future use only in environments with fewer Blacks.

Discussion

These findings demonstrated that the long-term benefits of RI vis-à-vis substance use were found only among adolescents in predominantly White environments, where substance availability was higher. In this group, RI was prospectively associated with lower levels of perceived friends' use, less favorable perceptions of the typical substance user, and lower levels of willingness and, in turn, actual use over time. Thus, this study shows that the benefits are found both directly, on relevant cognitions, and indirectly, on substance use behavior, over a 5-year period. In addition, the RI effects existed controlling for factors related to use: effective parenting, neighborhood risk, gender, SES, self-concept, and previous use cognitions and behaviors. A question remaining is whether the protective

²The results of the model are similar for both genders when examined separately.

³For purposes of clarity and statistical design, we report multigroup models separating adolescents into high versus low percentage Black environments. We also ran SEMs in which interaction terms were created with continuous percentage Black and RI. The interactions were significant alone and together in the model ($\beta s > .1, ps < .05$).

impact of RI will also be evident among an older sample of young adults who are engaging in higher levels of use. In addition, the second study examined the impact of participants' immediate social context, that is, the race of their friends and peers, rather than just the overall composition of their neighborhoods. Although the racial make-up of the neighborhood and peer group is correlated (Saporito & Sohoni, 2006), it is important to examine the racial composition of peers, who are most influential with regard to substance use patterns among young adults (Andrews et al., 2002).

Study 2

Study 2 attempted to extend and replicate the findings of Study 1 by examining whether RI is a stronger buffer against alcohol use among Black young adults reporting predominantly White versus Black peer environments. Rates of alcohol use are highest between the ages of 18 and 25 years and are higher among White than Black young adults; moreover, heavy use is associated with several adverse health effects (Substance Abuse and Mental Health Services Administration, 2009), making it an important substance to examine. We predicted that young adults with higher percentages of Black peers would report lower levels of alcohol use than those with lower percentages of Black peers. We also hypothesized that among Black young adults, higher RI would buffer the effect of having a predominantly White peer environment on reports of alcohol use. Analyses controlled for gender (males use more) and age, which are associated with substance use (Johnston et al., 2006). We also controlled for self-esteem, which some have found to be correlated with RI (e.g., Phinney et al., 1997), and use (Parker & Benson, 2004) to demonstrate the unique protective effects of RI.

Method

Participants and procedure—Participants were recruited through advertisements in newspapers around the Washington, DC, metropolitan area. They were told that they would be completing a phone-based survey examining the relations among RI, health, personality, and the social environment. Of approximately 230 respondents, 203 Black young adults (114 women; M age = 21.5 years, SD = 1.9) met the criteria for participation (African American, ages 18 to 25 years). Seventy-five percent had attended or were enrolled in college. They were paid \$10.

Measures

Black peer environment: Participants were asked, on a 0–100% scale, what percentage of their friends were African American/Black.⁴

Racial identity: To assess RI, we slightly modified five items from Phinney's (1992) Affirmation and Belonging scales. Instead of using the term *ethnic*, the items referred to Black or racial identity and were followed by a scale from 1 = *strongly disagree* to 7 = *strongly agree* (α = .79). Representative RI items include “You feel a strong attachment (sense of belonging) toward other Black people” and “You feel good about your racial background.”

Self-esteem: Self-esteem was measured with five items from the Rosenberg Self-Esteem scale (e.g., “On the whole, I am satisfied with myself; Rosenberg, 1989; α = .61).

⁴Participants who said fewer than 75% of their friends were Black were asked in an open-ended format the race of the majority of those in the environment who were not Black. Eighty-nine percent said White.

Alcohol use: Participants were asked how often they had drunk a lot (drank more than 4/5 [females/males] drinks in one sitting) in the past 6 months (1 = *never*, 7 = *more than 8 times*).

Results

Descriptive statistics, correlations, and ANOVAs—Table 3 presents the means, standard deviations, and correlation matrix. Mean percentage Black peer environment was 65% ($SD = 26.3$). Seventy-five percent of participants reported drinking a lot in one sitting at least once in the past 6 months. A higher percentage Black peer environment was negatively associated with reports of alcohol use ($p < .01$). RI was not significantly associated with percentage Black peer environment ($p > .1$).

Analyses for alcohol use—Mplus (Muthén & Muthén, 2006) was used to examine the hypothesized Percentage Black Peer Environment \times RI interaction, controlling for self-esteem, age, and gender. We calculated a just-identified model, which was specified according to the hypotheses. To avoid multicollinearity and to facilitate interpretation, we standardized all variables in the model. None of the controls was a significant predictor of alcohol use ($ps > .1$), but RI was associated with lower use, $\beta = -.16$, $t = -2.14$, $p < .05$. A significant main effect was also found for peer environment: Those reporting a higher percentage of Black peers reported lower use, $\beta = -.20$, $t = -2.68$, $p < .01$. The predicted Percentage Black \times RI interaction was also significant, $\beta = .24$, $t = 3.33$, $p = .001$. The slopes of this interaction were plotted with predicted values representing high and low ($+1/-1$ SD) RI and percentage Black peer environment (Aiken & West, 1991; see Figure 2). The slope for RI on use was significant only among those reporting more integrated peer environments, $b = -.41$, $t = -3.75$, $p < .001$.^{5,6,7}

Discussion

As with Study 1, RI was protective against substance use among Blacks in a predominantly White social environment. Study 2 found that having a higher percentage of Blacks in one's peer environment was protective against reported alcohol use. However, RI was only a significant protective factor against alcohol use among the young adults who reported having fewer Black peers in their social networks. Moreover, the results were significant controlling for self-esteem, which has been associated with higher RI and lower levels of substance use (e.g., Parker & Benson, 2004; Phinney et al., 1997). These findings demonstrate the importance of examining how peer racial context and RI interact in predicting substance use.

General Discussion

Although research has examined RI as a potential protective factor against substance use cognitions, relatively little attention has been paid to the effects of racial composition of the social environment on the health and well-being of minorities (Postmes & Branscombe, 2002). Previous research has shown that the social environment of adolescents and young adults helps shape their substance use behavior and cognitions. The current studies demonstrate that for adolescents and young adults, RI moderates the potentially negative (facilitating) effects of social environments with fewer Black residents and fewer Black

⁵We also asked participants to report percentage Black classmates, coworkers, and neighborhood. The pattern of results was similar when these measures, individually or combined, replaced peer environment.

⁶RI and level of assimilation to the mainstream culture also interacted in Study 2, such that those with high levels of assimilation ideology and low RI reported the highest willingness (space limitations prevent a full description).

⁷It is worth noting, as in Study 1, that the same interaction results were found when we replaced use with willingness to drink a lot in the future $\beta = .30$, $p = .01$).

peers. Even though levels of RI did not differ among the participants in mostly White versus mostly Black environments, the protective effect of RI was found only among those in mostly White environments where (in Study 1) users and substance availability were reported to be more common.

Why Is RI Protective?

There appear to be several ways in which RI protects these Black adolescents in our studies. First, Study 1 demonstrated that RI appears to reduce affiliation with substance-using peers and also favorability of and similarity to their image of the typical user. Second, RI protects both directly and indirectly against willingness to use, as well as actual use (Studies 1 and 2). Our findings remained when controlling for self-esteem and self-concept, demonstrating that RI is independent of these aspects of the self. We believe that there are several reasons why RI is a buffer, especially in risky peer and neighborhood social contexts. First, RI is associated with lower perceived stress and more positive feelings about the self as a minority (e.g., Phinney et al., 1997; Sellers et al., 2003). Second, Black cultural norms emphasize the development of bonds with one's family and racial group, which enhance feelings of belonging and support (Boyd-Franklin, 2003; Phinney, 1990). Feelings of support, in turn, are associated with lower levels of substance use cognitions and behaviors. Among Black adults, remaining culturally traditional is associated with less alcohol use (Klonoff & Landrine, 1999). It also may be the case that Blacks in integrated environments are motivated to debunk stereotypes of Blacks as users (Pugh & Bry, 2007). Finally, it has been suggested that individuals with high RI may have more effective coping skills in situations in which they experience more race-related stress, which is the case in more integrated environments (Sellers & Shelton, 2003). In fact, our research has found that RI is protective against racial discrimination (Stock, Gibbons, Walsh, & Gerrard, 2011). In short, Black youth high in RI—especially those in social situations associated with pressures to use—are better able to resist use.

Substance Use Intervention Implications

The results illustrate the importance of an ethnic-based approach to adolescent and young adult substance use prevention that includes a culture's normative beliefs and behaviors. In this case, bolstering RI might reduce the risk factors for substance use and enhance the effects of protective factors (e.g., Brook et al., 1998). Substance use prevention programs that encourage Black adolescents to be proud of their race, in part because Black adolescents use substances less, can increase negative attitudes toward use and refusal efficacy and lower willingness and use (Brody et al., 2004; Gerrard et al., 2006). The current studies suggest that these programs may be especially effective for adolescents and young adults in predominantly White neighborhoods or peer environments. These results also have implications for substance use prevention programs. More specifically, the relation between RI and future use was mediated by risk cognitions, and previous research has shown that cognitions such as willingness and risk images are malleable and impact future risk behavior (e.g., Gerrard et al., 2006). It is important to identify the potential of RI to moderate the relations among risk factors and substance-related cognitions, thereby acting as a buffer against psychological, behavioral, or social risks (Brook et al., 1998).

Limitations

There are several limitations of the current studies that should be acknowledged. First, although reports of other-race peers in the neighborhood were associated with more interracial friendships and the racial make-up of the schools they attend (DuBois & Hirsch, 1990; Saporito & Sohoni, 2006), knowing the race of the adolescents' classmates would have been useful in Study 1. It would have also been beneficial to have more information about the friends in both studies, including their frequency of use and risk images. In

addition, the number of participants in Study 2 reporting drinking a lot in one sitting is high, but appears to be consistent with national norms among this age group (Substance Abuse and Mental Health Services Administration, 2009) and among separate samples of Black young adults from the same region (Stock, Gibbons, Peterson, & Gerrard, in press). In addition, the present studies assume that RI formation preceded substance-related cognitions and use, but this cannot be determined from the data. Finally, we do not have measures of percentage Black for each wave of Study 1. Thus, we cannot assess the effect of changes in racial composition. This should be addressed in future research and should include samples from additional regions in the United States.

Future Directions

There are differing opinions regarding the definition of RI. Some researchers suggest that RI is a complex multidimensional construct, and not all of those dimensions of RI are protective (e.g., Cross, 1991; Sellers, Rowley, Chavous, Shelton, & Smith, 1997). However, Phinney's (1992) scale has been noted to be a reliable measure of in-group identification (Postmes & Branscombe, 2002), and racial-group belonging and affirmation may be more likely to act as a buffer than other dimensions of RI, because it is associated with feeling good about the self (e.g., Greene, Way, & Pahl, 2006). Future research should include additional measures from the Multidimensional Inventory of Black Identity (Sellers et al., 1997), and examine how these measures change over time in relation to social factors and subsequent risk behaviors.

On a related note, assimilation into the mainstream culture can be a risk factor for substance use among Blacks (Klonoff & Landrine, 1999). Additional research is needed to examine the health cognitions and behaviors of minority adolescents who experience the stress of trying to fit into multiple cultures. It may be that those with low RI in more integrated contexts experience unique stressors. Future studies should examine this and the role of RI vis-à-vis several measures of racial composition (e.g., neighborhood, schools) with other minority groups and in more ethnically diverse environments. Finally, prospective and experimental research should further examine the interaction between individual difference variables, such as RI, and community-level factors (e.g., community cohesion) that may serve as a protective factor in certain social contexts.

Conclusion

These studies illustrate the important buffering effect that RI has on the substance use risk of Black adolescents and young adults in integrated (neighborhood and peer) environments. Specifically, RI is prospectively associated with less reported peer use, positive images of users, and willingness and substance use, but only among those in mostly White environments. In addition, RI is protective against alcohol use among young adults who report having fewer Black peers. These findings have implications for interventions designed for Black adolescents, especially for those who live in predominantly White environments, and demonstrate the utility of social psychological models, such as the prototype-willingness model, in examining the mediating and moderating effects of RI and contextual factors on health cognitions and behavior.

Acknowledgments

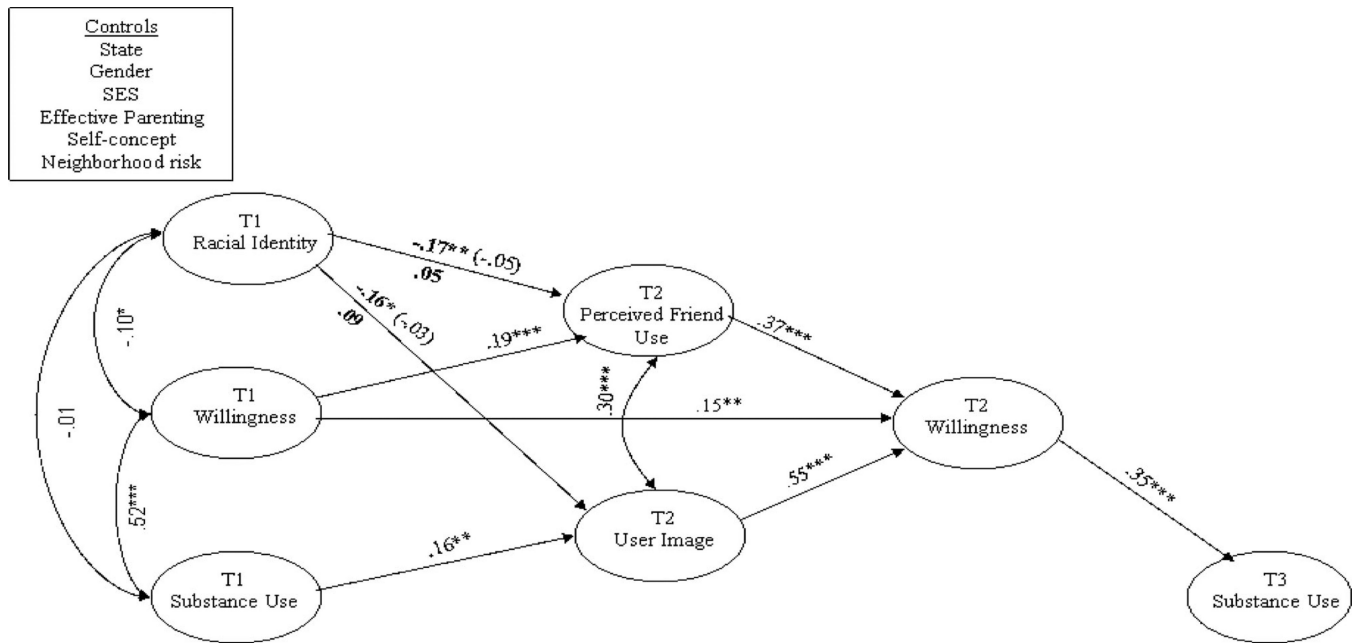
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$\chi^2(712) = 968.41, p < .001, N = 720$
 CFI = .95, RMSEA = .03
 * $p < .05$; ** $p < .01$; *** $p < .001$
 Low % black (n = 356)
 High % black (n = 364)

Figure 1. A model of risk cognitions and risk behavior (Study 1). For the stacked paths, the unstandardized coefficients for the low percentage Black environments are above the line and for high percentage Black environments they are below the line (for standardized betas, see Table 2); the standardized coefficients for the entire sample for these paths are included in parentheses. All other coefficients are standardized. SES = socioeconomic status; CFI = comparative fit index; RMSEA = root mean square error of approximation; T = time.

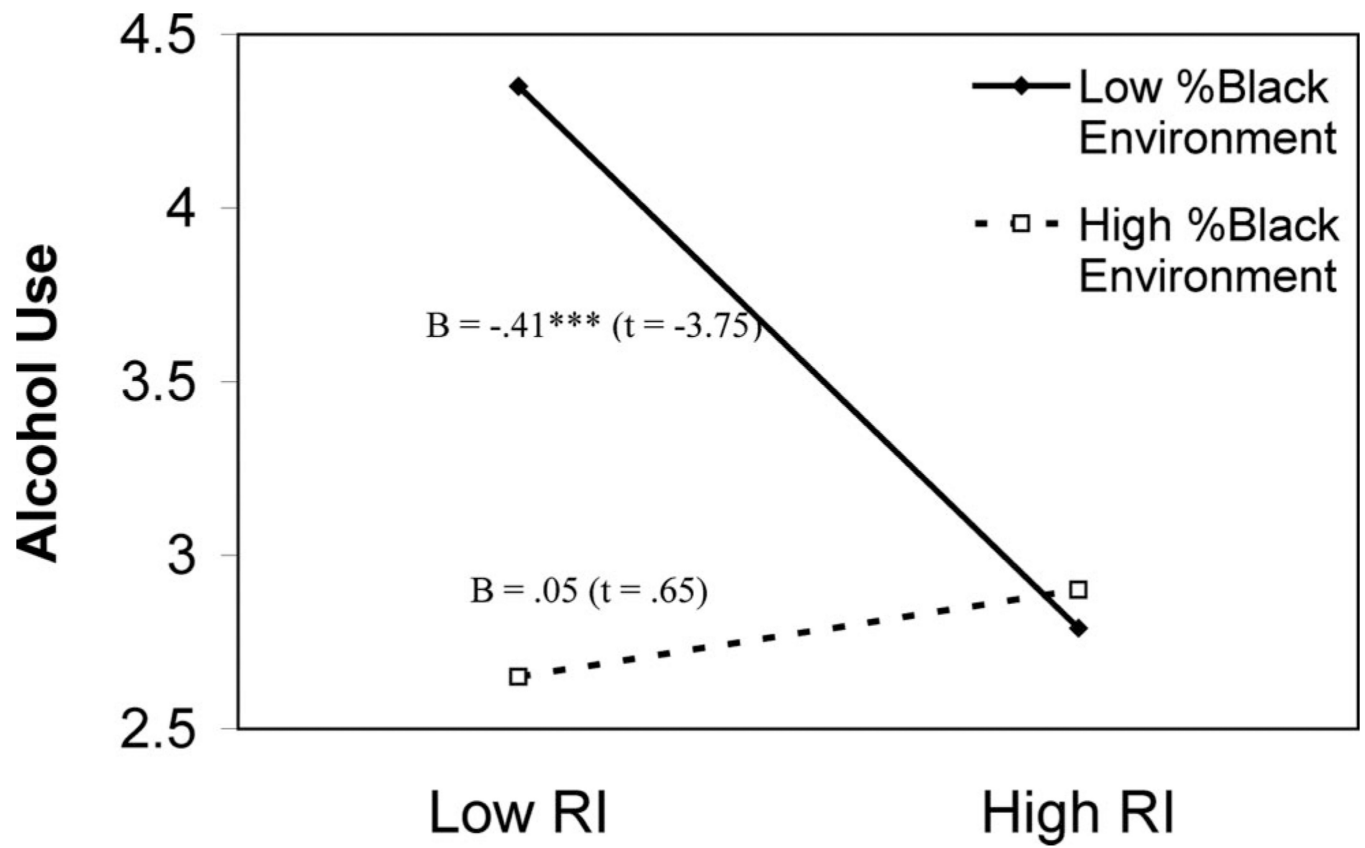


Figure 2. Interaction between racial identity (RI) and percentage Black peers on alcohol use. Mean levels are +1 and -1 *SD* (Study 2).

Table 1
Means, Standard Deviations, and Correlations for Indices in Low and High Percentage Black Environments: Study 1

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. T1 racial identity	—	-.05	-.03	-.11*	.17**	.10*	.21***	-.02	-.09	.06	.05	.04	.08
2. T1 substance willingness	-.12*	—	.34***	.01	-.01	-.08	-.28***	-.02	-.05	.15**	.16**	.24***	.12*
3. T1 substance use	-.13*	.37***	—	.09	.05	.01	-.25***	.01	-.03	.16**	.14**	.22***	.07
4. T1 neighborhood risk	-.11*	.07	.06	—	-.11*	-.17**	-.04	-.01	.03	.13*	.03	.03	-.01
5. T1 self-concept	.18***	-.08	-.15**	.01	—	.21***	.12*	-.06	.00	.04	.03	-.03	.01
6. T1 primary caregiver SES	-.01	-.02	-.07	-.19***	.10*	—	.08	.01	.05	.02	.01	.00	.02
7. T1 effective parenting	.23***	-.18***	-.08	-.14*	.19***	.00	—	.06	-.04	-.06	-.10*	-.10*	-.01
8. Gender	.03	.06	-.09	-.02	.02	-.03	.10*	—	.04	.02	.10*	.08	-.01
9. State	-.15**	.03	.11	.03	-.06	.05	-.02	-.02	—	.02	.08	-.02	.07
10. T2 perceived friends' use	-.15**	.14*	.13*	.13*	.03	-.10*	-.01	-.04	.08	—	.23***	.32***	.19***
11. T2 user image	-.16**	.10*	.07	.03	.03	.02	-.12*	.06	.19***	.37***	—	.48***	.18**
12. T2 substance willingness	-.16**	.15**	.10*	.09	.00	-.03	-.12*	.10	.02	.50***	.57***	—	.22***
13. T3 substance use	.01	.12*	.09	.03	.04	-.03	-.08	.08	.07	.19***	.21***	.23***	—
Low % Black group (<i>n</i> = 356)													
Mean	3.35	1.06	0.03	2.53 ^a	3.15	0.08 ^a	3.29	0.55	0.57 ^a	1.21	1.97	1.07	0.26
<i>SD</i>	0.51	0.15	0.11	0.39	0.27	0.98	0.47	0.50	0.50	0.27	0.16	0.19	0.33
High % Black group (<i>n</i> = 364)													
Mean	3.34	1.06	0.03	2.67	3.05	-0.09	3.31	0.53	.40	1.17	1.93	1.06	0.22
<i>SD</i>	0.53	0.18	0.10	0.46	0.32	0.79	0.47	0.50	0.49	0.29	1.20	0.19	0.32
Range	1-4	1-3	0-1	1-3	1-4	-1.5-5	1-4	—	—	1-3	1-16	1-3	0-1.2

Note. *N* = 720. The correlations from high % Black (low % Black) groups are reported above (below) the diagonal. Gender: 0 = male, 1 = female; State: 0 = Georgia, 1 = Iowa. All other variables coded such that high scores indicate more of the construct. Neighborhood risk = target report of neighborhood risk level; Primary caregiver SES = primary caregiver education and income; Friend use = target perception of friends' substance use; Substance use = self-reports of substance use.

^a Significant difference between the mean for the low versus high percentage Black groups.

* $p < .05$.

** $p < .01$.

 $p < .001$

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Table 2

Direct and Indirect Standardized and (Unstandardized) Effect Products for High Percentage and Low Percentage Black Groups in the Multigroup Model: Study 2

T1 racial identity effects on	High % Black		Low % Black	
	Effect	<i>t</i>	Effect	<i>t</i>
a. T2 perceived friends' use	.07 (.05)	0.97	-.23 (-.17)	-3.16**
b. T2 user image	.24 (.09)	1.31	-.43 (-.16)	-2.24*
c. T2 willingness (total indirect)	.07 (.04)	1.50	-.18 (-.07)	-3.10**
Through T2 perceived friend use	.03 (.01)	1.00	-.09 (-.03)	-2.94**
Through T2 user image	.05 (.02)	1.30	-.09 (-.04)	-2.16*
d. T3 use (total indirect)	.03 (.01)	1.45	-.06 (-.03)	-2.83**
T2 perceived friend use → T2 willingness → T3 use	.01 (.00)	1.00	-.03 (-.02)	-2.69**
T2 user image → T2 willingness → T3 use	.02 (.01)	1.13	-.03 (-.02)	-2.20*

Note. *N* = 720.

* $p < .05$.

** $p < .01$.

Table 3

Means, Standard Deviations, and Correlations for Indices: Study 2

Variable	1	2	3	4	5	6
1. Age	—					
2. Gender	-.06	—				
3. Self-esteem	-.03	.03	—			
4. Percentage Black peer environment	-.08	-.11	.01	—		
5. Racial identity	.15*	-.01	.14	.12	—	
6. Alcohol use	.02	-.08	-.13	-.20**	-.13	—
Mean	21.5		5.45	64.52	5.36	3.74
<i>SD</i>	1.5		1.28	26.58	1.03	2.30
Range	18–25		1–7	1–100	2–7	1–7

Note. *n* = 203. All variables coded such that high scores indicate more of the construct. For gender, 0 = male, 1 = female.

* *p* < .05.

** *p* < .01.