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Are Multiracial Adolescents at Greater Risk? Comparisons of Rates, Patterns, and Correlates of Substance Use and Violence Between Monoracial and Multiracial Adolescents

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Abstract

Rates and patterns of substance use and violent behaviors among multiracial adolescents were examined and compared with 3 monoracial groups, European, African, and Asian Americans. The relationships between ethnic identity and the subjective experience of racial discrimination, substance use, and violent behavior were also examined. The authors found multiracial adolescents reporting higher rates of problem behaviors. Several significant relationships between ethnic identity and racial discrimination were found with these problem behaviors.

The number of multiracial children in the United States is rapidly increasing. This group is expected to continue growing because interracial dating and marriages are on the rise and multiracial births are increasing at a faster rate than monoracial births (Cooney & Radina, 2000; de Anda & Riddel, 1991; Deters, 1997; Gibbs & Moskowitz-Sweet, 1991; Root, 1996; M. S. Spencer, Icard, Harachi, Catalano, & Oxford, 2000). Adolescence is a challenging time for children. A significant proportion of youths in the United States experience various problem behaviors, such as interpersonal violence, delinquency, substance use, and risky sexual behaviors (Bogenschneider, 1996; Brooks-Gunn & Paikoff, 1993; Centers for Disease Control [CDC], 2000; Dryfoos, 1998; Graber, Brooks-Gunn, Paikoff, & Warren, 1994; Lonczak, Abbott, Hawkins, Kosterman, & Catalano, 2002; Wyche & Rotheram-Borus, 1990; Yoshikawa, 1994). Scholars argue that multiracial adolescents are likely to be at higher risk than monoracial European American or ethnic minority youths, as issues related to their multiracial background become more salient during the already challenging developmental period of adolescence (Cooney & Radina, 2000; de Anda & Riddel, 1991; Deters, 1997; Gibbs & Moskowitz-Sweet, 1991). For example, peer acceptance may be a particularly pervasive problem for multiracial youths due to their ambiguous racial status, and it may lead to higher levels of behavioral and psychosocial problems, including a higher incidence of social isolation and involvement in delinquent behaviors (Brown, 1990; Gibbs, 1989; Gibbs & Moskowitz-Sweet, 1991).

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This study attempts to begin filling gaps relevant to prevention research on multiracial youths. There is a dearth of empirical studies on multiracial youths despite their growing population size and diversity and their potentially unique needs. Thus, little is known about the rates and patterns of behaviors and the determinants and consequences of problem behaviors among multiracial adolescents. In studies of adolescent problem behaviors, it is often the case that multiracial adolescents are not regarded as a distinct group (Brown, 1990; Fernandez, 1996; Overnier, 1990; Wardle, 1991). In part, this is due to measurement. Many survey formats use items to measure racial classification that force respondents to check only one racial category (Root, 1996).

This study utilized data from the Minority Youth Health Project. This sample (N = 2,082) from Seattle public middle schools included diverse ethnic groups as well as a significant number of multiracial early adolescents (n = 454). Rates and patterns of substance use and violent behaviors among multiracial early adolescents are presented. The patterns and rates are compared with those of other groups with substantial numbers in the sample, including European Americans (n = 650) and two monoracial ethnic minority groups, African Americans (n = 485) and Asian Americans (n = 493). In addition, to elucidate any differences found, this study examines the effect of ethnic identity and the subjective experience of racial discrimination on substance use and violent behavior. This information could be invaluable in informing the development of appropriate preventive interventions for multiracial groups. Implications for future research and intervention are discussed.

Rates and Patterns of Adjustment Outcomes

Research on multiracial children and adolescents is relatively scarce (Cooney & Radina, 2000; M. S. Spencer et al., 2000; Winn & Priest, 1993). Many of the limited number of studies portray a fairly pessimistic picture of adjustment outcomes for multiracial children and adolescents. For example, studies report a higher incidence of academic problems (McRoy & Freeman, 1986), overrepresentation in mental health treatment, higher rates of victimization than other ethnic groups, low self-esteem, confused racial/ ethnic identity, other psychological and behavioral problems (Gibbs, 1987; Gibbs & Moskowitz-Sweet, 1991), higher rates of health problems (Vandervoort, Divers, & Aojido, 2000), and a sense of “inauthenticity and shame” with regard to identity (Bowles, 1993). At the same time, other studies have shown that multiracial children and adolescents are not significantly different from monoracial children in various adjustment outcomes—for example, personality (R. Johnson & Nagoshi, 1986); identity formation (Poussaint, 1984); self-concept, reference group orientation, and internalizing problems (Field, 1996); the quality of parent and adolescent relationship (Radina & Cooney, 2000); and the majority of school, behavioral, and psychological dimensions (Cooney & Radina, 2000). Thus, the extant literature presents inconsistent findings (Cooney & Radina, 2000) and can lead to different conclusions (Winn & Priest, 1993).

Many of these existing studies have samples that limit generalizability—for example, use of clinical samples (Bowles, 1993; Field, 1996; Gibbs, 1987, 1989; Gibbs & Moskowitz-Sweet, 1991) or other nonrepresentative samples (de Anda & Riddel, 1991; Field, 1996; McRoy & Freeman, 1986; Poussaint, 1984; Winn & Priest, 1993). Clinical samples are more likely than nonclinical ones to exhibit extensive adjustment problems (Cooney & Radina, 2000). Studies that use nonclinical samples indeed report a lower prevalence of problem behaviors and other problems among multiracial youths (Cooney & Radina, 2000; Field, 1996; Radina & Cooney, 2000). In addition, many studies limit their focus to only White and Black multiracial samples (de Anda & Riddel, 1991). Studies also often fail to compare rates and patterns of behavior or psychosocial outcomes of multiracial samples to those of monoracial groups (Cooney & Radina, 2000). Absent comparisons, it is difficult to judge

whether adverse outcomes are comparable among multiracial youths compared to other youths.

In contrast to other studies, Cooney and Radina (2000; Radina & Cooney, 2000) used a nationally representative sample (the National Longitudinal Study of Adolescent Health) to examine the relationship between adjustment problems and the quality of relationship between parents and adolescents. They compared the results of multiracial youths to those of European American youths and to a minority youth group that aggregated various monoracial minority youth groups (African, Latin, Asian, and Native Americans; Cooney & Radina, 2000; Radina & Cooney, 2000). They found differences between multiracial and monoracial (both European American and ethnic minority) youths on fewer than half of the school, behavioral, and psychological dimensions (Cooney & Radina, 2000) and comparable relationship quality across groups, except that multiracial boys and their fathers were found to be less emotionally close and communicative (Radina & Cooney, 2000). However, the study also had the limitations associated with combining monoracial ethnic minority groups. Numerous studies have reported significant differences among various monoracial ethnic minority groups in terms of youth adjustment and developmental outcomes, including substance use and violent behaviors (Harachi, Catalano, Kim, & Choi, 2001; Kandel, 1995; Newcomb, 1996). Thus, it can be misleading to aggregate various monoracial ethnic minority youth groups and compare their behaviors to those of multiracial youths.

In our study, we examine the rates and patterns of substance use and violent behaviors with a nonclinical sample, and we compare multiracial youths to three separate monoracial youth groups, African, Asian, and European American youths. We hypothesize that multiracial adolescents will report higher rates of initiation of various substances and violence and higher frequency of these behaviors than each of the monoracial groups.

Ethnic Identity, Racial Discrimination, and Youth Problem Outcomes

An emerging body of literature emphasizes the role of the experience of racial discrimination and the development of ethnic identity in understanding the development of ethnic minority adolescents (Anderson, 1995; Anderson & Armstead, 1995; Gibbs, 1998; Ogbu, 1981; M. B. Spencer & Dornbusch, 1993). Researchers have argued that minority status entails risk for a variety of stresses and psychosocial difficulties, such as poor self-image, feelings of alienation, and marginality (Erikson, 1968; Gibbs, 1998; Phinney, 1991). In addition, minority youths often experience injustices, societal inconsistencies, and denial of personal competence to a much greater extent than do majority youths (M. B. Spencer, Swanson, & Cunningham, 1991). This hostile environment is likely to adversely affect youth outcomes (Ogbu, 1981; Phinney, Lochner, & Murphy, 1990; M. B. Spencer et al., 1991).

Establishing ethnic identity, in addition to self-identity, is considered as an essential developmental task for minority youths during adolescence (Garbarino, 1992; Gonzales & Cauce, 1995; Phinney et al., 1990; Sodowsky, Kwan, & Pannu, 1995). Minority youths must balance two value systems, that of their own group and that of the majority group (M. B. Spencer & Dornbusch, 1993). The formation of a positive ethnic identity is thought to be a central challenge for ethnic minority youths (Deters, 1997; Gibbs & Moskowitz-Sweet, 1991; McRoy & Freeman, 1986). Because of their multiple heritages, it is postulated that multiracial youths may have greater difficulty navigating the challenges of race and ethnic identity than monoracial ethnic minority youths (Gibbs, 1989; Gibbs & Moskowitz-Sweet, 1991). They may feel ambivalent about two or more sets of cultural values, customs, and religions in their family and feel their loyalties divided among their multiple ethnic heritages (Gibbs & Moskowitz-Sweet, 1991; Winn & Priest, 1993). This conflict can lead to a sense

of incompetence, low motivation for academic achievement, lack of aspirations, and conduct problems (Gibbs & Moskowitz-Sweet, 1991; McRoy & Freeman, 1986).

Studies suggest that for ethnic minority youths, retaining the cultural values of their ethnic group and having a strong sense of ethnic identity are likely to operate as protective factors in development (Bankston, Caldas, & Zhou, 1997; Berry, 1997; Castro & Morgan-Lopez, 1999; Chavez & Roney, 1990; Gibson, 1995; Goldberg, 1999; LaFromboise, Coleman, & Gerton, 1993; Phinney et al., 1990; Rumbaut, 1997; Zickler, 1999). For instance, Asian Indian American children who affiliate with their own ethnic group and adhere to traditional values have higher levels of psychological well-being and academic achievement than those who are assimilated to the mainstream culture and identity, in spite of poverty, disadvantaged school location, and parents' lack of education (Steinberg, Brown, & Dornbusch, 1996). Similar findings have been reported for Southeast Asian immigrant youths (Bank-ston et al., 1997; Rumbaut, 1995; Zhou & Bankston, 1998). The National Institute of Drug Abuse reported that adolescents who strongly identify with their ethnic community and culture are less vulnerable to risk factors for drug use (Zickler, 1999). Castro and Morgan-Lopez (1999) reported that Mexican American adolescents with strong ethnic pride were more responsive to tobacco preventive intervention programs than those with weak ethnic pride. These studies concur with the notion that strong ethnic identity and retention of one's culture reduce risk and enhance resiliency. Thornton (1996) made a similar argument for multiracial adolescents. However, there is a paucity of empirical data demonstrating that strong ethnic identity also reduces risk and enhances resiliency among multiracial youths. This study examines the relationships of ethnic identity with problem behaviors among multiracial youths and compares the relationships to those of ethnic minority monoracial youths. We hypothesize that multiracial adolescents with stronger ethnic identity are less likely to initiate substance use and violent behaviors and will report a lower frequency of these behaviors. In addition, we hypothesize that the relationships of ethnic identity with problem behaviors are likely to be stronger among multiracial than monoracial ethnic minority youths, given their higher awareness of race and ethnicity.

Societal factors such as lack of opportunities, discrimination, and prejudice increase the risk of negative developmental outcomes for minority youths (Anderson & Armstead, 1995; Gustavsson & Balgopal, 1990; M. B. Spencer & Dornbusch, 1993; M. B. Spencer et al., 1991; Zhou, 1997). Winn and Priest (1993) reported that one of the recurring themes in their interviews with multiracial children and youths was social prejudice and perceived racism. We postulate that adverse outcomes, especially school-related problems and lack of aspirations, might be related to the multiracial youths' perception and/or experience of societal prejudice and discrimination (Gibbs & Moskowitz-Sweet, 1991). Shackford (1984) also noted that racism negatively affects the formulation of positive racial and ethnic identity among these youths. Both majority and ethnic minority groups may reject multiracial youths, and such social marginality can place multiracial youths at higher risk for delinquent behavior and substance use (Deters, 1997; Gibbs, 1989; Gibbs & Moskowitz-Sweet, 1991). Further, some youths may have to compromise their values and interests to be accepted by a peer group or get involved in negative activities to enhance their social desirability (Gibbs & Moskowitz-Sweet, 1991).

Although the effects of these societal factors on multiracial youth outcomes have been postulated, there is a paucity of research examining these claims (Anderson & Armstead, 1995; K. Johnson et al., 1995). In this article, we examine the relationships between (a) the experience of racial discrimination and (b) substance use and violence. We compare these relationships for each monoracial ethnic minority group. We hypothesize that multiracial adolescents who experience racial discrimination are more likely to initiate substance use and violent behaviors and to report higher frequency of these behaviors and that the

relationships between racial discrimination and problem behaviors will be stronger among multiracial than monoracial ethnic minority youths.

Methods

Overview of Project and Sample Selection

The data for the study reported in this article were collected in 1997 as part of the Minority Youth Health Project (MY Health). MY Health was the Seattle site of a seven-location study funded by the National Institute of Child Health and Human Development and the Office of Minority Programs. The primary aim was to improve minority youth health by focusing on preventing problem behaviors in four interrelated areas: interpersonal violence, adolescent pregnancy, sexually transmitted disease, and substance use. This study included an experimental test of a community-based program that sought to intervene at neighborhood and individual levels through the creation of community action boards and youth development workshops. The target sample for the project was minority youths between the ages of 10 and 14.

The 1997 data were collected via a survey conducted at four public middle schools in Seattle after the community-based interventions had been delivered.[1] An introductory letter was mailed to parents of all enrolled students alerting them to the survey. A postcard was enclosed that allowed parents to decline their child's participation. Project staff arranged to administer the survey during 2 separate class days at each of the middle schools. The survey was self-administered during a 50-min class period. Those students who declined to participate were asked to remain in the classroom reading other material during the survey. Project staff, but not teachers, remained in each of the classrooms during survey administration. Of the total number of enrolled students at the four schools (N = 2,777), 472 (17%) students declined to participate in the study or were absent, which resulted in 2,305 (83%) students who completed the survey.

Sample Description

The average age of the students was 12.7 years (SD = 1.00) upon enrollment in the study. Approximately one third were in each of sixth, seventh, and eighth grades. Slightly over 50% were girls. Ethnic group composition included Asian American (n = 493; 21.4%), African American (n = 485; 22.0%), bi- or multiracial (n = 454; 20.6%), European American (n = 650; 29.5%), Native American (n = 75; 3.4%), and Latin American youths (n = 12; 0.5%). The analyses reported in this article omit Native and Latin Americans because of their small numbers, resulting in the total sample size of 2,082. Slightly over 50% of participants reported that their biological parents were married or living together; 38.9% were from low-income households, on the basis of reports of students receiving food stamps or free school lunch; and 21.8% reported having been born outside of the United States.

The proportion of low-income households was significantly different across racial/ethnic subgroups. About 55% of multiracial youths, 58.4% of African Americans, 11.2% of European Americans, and 44.4% of Asian Americans reported low-income status, $\chi^2(2,082) = 303.39$, $p = .000$. Gender composition was slightly different across the groups as well. About 43% of multiracial, 51.6% of African American, 52.2% of European American, and 47.7% of Asian American participants were boys, $\chi^2(2,069) = 9.81$, $p < .05$. The average age

[1]We conducted preliminary analyses to determine whether the experimental and control groups could be combined. We determined the equivalence of the covariance structures of the intervention and control groups using multiple group comparisons (Bentler & Wu, 1995; Byrne, 1994). The covariance structures as well as the mean levels of various constructs were invariant across the groups. Thus, we combined the intervention and control groups for the subsequent analyses.

was similar across the groups (12.7 years for multiracial and Asian American youths, 12.8 for African Americans, and 12.5 for European Americans).

Among multiracial youths, there were 25 different combinations of racial/ethnic backgrounds, including 9 combinations of biracial backgrounds, 10 combinations of three racial backgrounds, and 5 combinations of four racial backgrounds. Biracial youths of African and Native American heritages were the largest group (n = 103; 22.7% of all multiracial participants), and youths of European and Asian American heritages formed the second largest group (n = 52; 11.5%). Relatively large subgroups included African and European American multiracial youths (n = 42; 9.3%); African, European, and Native American multiracial youths (n = 42; 9.3%); and European and Latin American multiracial youths (n = 42; 9.3%). The sample size for the rest of the subgroups ranged from 1 to 16. Ten subgroups had a sample size less than 5. These 5 larger subgroups of multiracial youths were significantly different in low-income status (European and Asian American multiracial youths reported the lowest proportion of low-income status [11.5%], and African and Native American multiracial youths reported the highest [63.1%]). Gender and age compositions were not different.

Measures

Self-Identification of Race/Ethnicity—Race/ethnicity is a social construct and thus can be imprecise and unstable. In this article, we relied on self-identification of race/ethnicity to determine participants' group membership.[2] We used a series of questions to establish the respondent's race and ethnicity, allowing for identification with as many as five groups. We asked all respondents the following five questions in succession: (a)“Are you Black or African American?” (b)“Are you Native American or American Indian or Alaska Native?” (c)“Are you Asian or Pacific Islander?” (d) “Are you Caucasian or White?” and (e) “Are you Hispanic or Latino?” Individuals were allowed to answer “yes” or “no” to each of the questions. We also gave respondents the opportunity to specify an “other” category if they chose to do so. We subsequently computed a race variable to categorize those students who self-reported as monoracial into each group of African, Asian, and European Americans and to categorize those students who indicated more than one racial/ethnic category as multiracial.

Problem Behavior—We examined two areas of problem behaviors, substance use and violent behavior.[3] The survey included questions on initiation and frequency of these behaviors.

Substance use: First, we asked six questions to measure the initiation of substance use, including smoking cigarettes, drinking alcohol, using marijuana, sniffing inhalants (e.g., glue, gas, and paint), using crack or cocaine, and getting drunk on alcohol or high on drugs. Example questions include, “Have you ever smoked a cigarette?” and “Have you ever drank?” The response options were “yes (1)” and “no (0).”

In addition, seven items from the survey asked the students the frequency of their substance use (drinking, smoking tobacco or marijuana, sniffing inhalants, using cocaine or crack, getting high or drunk, and binge drinking) for the past month, past 3 months, and past year.[4]

[2]The way we used self-identification to create these categorizations may confound ethnic identity and group membership. For example, it is possible that offspring of multiple racial heritages may choose one category rather than all that apply to them because of the longstanding social conventions or their strong sense of belonging to a group. Thus, in this article, multiracial youths are defined as those who acknowledged their multiple heritages in contrast to those who chose one category regardless of their actual heritages.

[3]In this article, we focus on interpersonal violence and substance use. Costs to individuals, families, and society are greater for these particular problem behaviors of youths than for other problem behaviors. In addition, the prevalence of these problem behaviors is quite high among youths in general (CDC, 2000; Dryfoos, 1998).

Example questions include, “In the past month, how much did you smoke?” and “In the past year, how often did you use crack or cocaine?” These frequency items were combined into a single scale. The response options for these items varied, so responses from the individual items were first standardized to a distribution with a mean of 0 and a standard deviation of 1 before being combined into a scale that averaged the frequencies across the standardized responses. The alpha reliability coefficient for the frequency scale was .90.

Violence: Six items were used to estimate whether the students had ever engaged in the following violent behaviors: getting into physical fights, badly hurting someone in a fight, carrying a gun, carrying a knife or razor, cutting or stabbing someone, and telling someone that they were going to beat them up. One additional item asked whether the students told someone that they were going to stab them in the past month. The response options for these items were “yes (1)” and “no (0).”

Six items asked the frequency of six types of interpersonal violent behaviors (physical fighting, inflicting serious injury, carrying a gun, carrying a knife or razor, cutting or stabbing someone, and threatening to beat up someone) for the past 3 months or past year. Examples include, “In the past 3 months, how often have you been in physical fights?” and “In the past 3 months, how often have you carried a gun?” These were also combined to a frequency scale. Like the substance use frequency items, the response options varied, so responses to the individual items were standardized as indicated above. The average frequency of violence was computed from the standardized responses. The alpha reliability coefficient of this scale was .81.

Ethnic Identity—The Multigroup Ethnic Identity Measure (MEIM; Phinney, 1992) was used to assess ethnic identity. The instrument was designed to measure ethnic identity as a general phenomenon that can be compared and contrasted across diverse groups of individuals. Items include questions about affirmation and belonging (e.g., sense of pride and attachment to group), ethnic identity achievement (e.g., seeking behaviors to find more about one's ethnicity and commitment), and ethnic behavior and practice (e.g., participation in activities).[5] The original MEIM used by Phinney (1992) contained four response categories and ranged from (1) *strongly agree* through (4) *strongly disagree*. Response categories in the present study were modified to conform to response sets for other items in the study and utilized the three response categories: (1) *not true*, (2) *somewhat true*, and (3) *very true*. An overall ethnic identity score was computed as the mean of all the items. The alpha reliability coefficient of this scale was .86 for the overall sample (.86 for multiracial youths and .84 for African and Asian Americans).

Subjective Experience of Racial Discrimination—We assessed participants' experience of racial discrimination in two settings, neighborhood and school. We asked the students whether they had been treated unfairly (a) in the neighborhood and (b) at school because of their ethnicity. The response categories ranged from (1) *rarely or never* to (4) *all the time* for both items. We examined each item separately for subsequent analyses. The correlation of the two items was .48.

Analysis Strategy—First, we examined and compared the rates and patterns of substance use and violent behaviors of each group. We used two types of analyses to determine if the

[4]The items that asked frequencies about more commonly used substances (e.g., cigarettes and alcohol) were asked in a past-month time frame, and other items about less commonly or frequently used substances (e.g., crack or cocaine) were asked in much longer time frames. The same was applied to violent behaviors. Although the time frames were different, each item measured degrees of each behavior.

[5]We did not use the Other Group Orientation subscale for the project.

rates differed significantly across groups. We used logistic regressions for initiation of substance use and violence outcomes and employed ordinary least squares (OLS) regressions for frequencies of substance use and violence outcomes. We dummy coded the race group variable for comparisons and coded the multiracial youth group as the reference group. We made comparisons only between multiracial youths and three monoracial groups but not among monoracial groups, as the main interest of the study was to see the similarities and differences between multiracial youths and monoracial youths. We included three control variables, age, gender, and low-income status, in the regression models. We controlled age in assessing behavior outcomes among youths because age is likely to be positively associated with behavioral outcomes. Boys and girls exhibited different prevalence and frequency of problems. We selected boys as a reference group, with boys coded as 0 and girls as 1. Low-income status is often confounded with racial status; thus, we controlled it in analyses. We coded low-income status as 0 and not low income as 1.

We conducted additional multivariate analyses to examine and compare the relationships of ethnic identity and the subjective experiences of racial discrimination with problem outcomes. We also used regression models for these analyses, logistic regressions for dichotomous variable outcomes, and OLS regressions for continuous variable outcomes. To determine whether the relationships between the predictor variables and the outcomes were significantly different across groups, we conducted the hierarchical tests of the omnibus interaction effects. We first ran the models with main effects only, including three predictors (ethnic identity, discrimination in the neighborhood, and discrimination at school), control variables (age, gender, and low-income status), and the dummy variables for race group with multiracial as a reference. Then we added the interaction terms (product terms of three predictor variables by race dummy variables) to the models. We examined the two nested models (one with main effects only, and the other with main effects plus product terms added) to see whether the change in the fit of the model for logistic regression models (determined by the changes in chi-square relative to the changes in degrees of freedom) or the R^2 change for OLS regression models (indicated by F statistics) was significantly different. If these are significant, they indicate that the overall interaction effects are significant, which indicates that there are significant differences in the magnitudes of the relationships between predictor variables and dependent variables across race groups. We standardized the predictor variables to a distribution with a mean of 0 and a standard deviation of 1. The mean centering of continuous variables is common in logistic regressions to facilitate an easier interpretation of the log coefficients and odds ratio (Pampel, 2000). We also used the standardized variables in OLS regressions to be consistent. We did not include European American youths in these analyses because the issues of racial discrimination and ethnic identity are more salient for ethnic minority youths.

Results

Rates and Patterns of Substance Use by Race/Ethnicity

The results of substance use initiation and frequency are shown in Table 1. We found several significant differences between multiracial youths and monoracial youths in substance use behaviors, controlling for age, gender, and low-income status. Multiracial youths were significantly more likely than all three monoracial youth groups to have ever smoked—the odds were 38% less for European American youths, 32% less for African American youths, and 51% less for Asian American youths than for multiracial youths. All other groups also were significantly less likely than multiracial youths to have ever drunk alcohol (the likelihoods were 45%, 30%, and 65% less, respectively). The odds of initiation of marijuana were 48% less for European American youths and 76% less for Asian American youths than for multiracial youths. The odds of having ever gotten drunk or high

on drugs were also significantly different between multiracial youths and European and Asian American youths (41% and 65% less, respectively). The difference in the likelihood of having ever used crack or cocaine was significant only between multiracial youths and Asian Americans (70% less for Asian Americans). We found no significant differences between multiracial and African American youths in marijuana use or between multiracial youths and other groups in ever using inhalants. The mean of substance use frequency was significantly higher for multiracial youths than for all other groups.

Rates and Patterns of Violent Behaviors by Race/Ethnicity

Violent behaviors showed similar patterns of racial/ethnic group differences as we found with substance use (see Table 2). We adjusted the rates for age, gender, and low-income status, as we did with substance use outcomes. First, multiracial youths reported significantly higher rates of all violent behaviors examined, except having ever carried a knife or razor, than European American youths. Some differences of the odds were large; for example, relative to multiracial youths, European American youths were 71% less likely to have ever threatened to beat someone up, 63% less likely to have ever been in a physical fight, and 65% less likely to have ever told someone that they were going to stab them. Multiracial youths also reported significantly higher rates of all violent behaviors than Asian American youths; the differences of the likelihood ranged from 34% to 68%. These differences were large at times—for example, relative to multiracial youths, Asian American youths were 66% less likely to have ever threatened to beat someone up, 68% less likely to have ever been in a physical fight, and 65% less likely to have hurt someone badly in a fight. We found fewer significant differences between multiracial and African American youths, but multiracial youths reported a significantly higher likelihood than African American youths of several violent behaviors, such as having ever hurt someone badly in fight (39% less for African Americans), having ever carried a gun (46% less), having carried a knife or razor (33% less), having ever cut or stabbed someone (55% less), and having told someone to stab another (61% less). In addition, multiracial youths reported significantly higher mean frequencies of violent behavior relative to each of the three monoracial groups.

Multiracial Subgroup Analyses

We further examined the rates of substance use and violent behavior across five subgroups of the multiracial youths with a relatively larger sample size (described earlier), controlling for low-income status, age, and gender, and with the Native and African American combination group as a reference group. There was no subgroup difference in outcomes, with three exceptions: having ever used marijuana, having ever threatened to beat up someone, and having ever been in physical fight. In all three outcomes, European and Asian American biracial youths were about 70% less likely to report these behaviors than Native and African American biracial youths.

Ethnic Identity, Racial Discrimination, and Multiracial Youth Substance Use

The upper part of Table 3 shows the main effects—that is, the relationships between the three predictor variables (ethnic identity, racial discrimination in the neighborhood and at school, and substance use behavior outcomes) after age, gender, and low-income status were controlled. As hypothesized, a stronger sense of ethnic identity was significantly and negatively associated with having ever used crack or cocaine ($\beta = -.39$, $p < .05$) and with the frequency of substance use ($\beta = -.06$, $p < .05$). In other words, the stronger participants' ethnic identity was, the less likely they were to use substances frequently or to report having used crack or cocaine. Discrimination in the neighborhood was significantly and positively associated with some substance use behaviors, including having ever used marijuana ($\beta = .17$, $p < .05$), having ever gotten drunk or high on drugs ($\beta = .22^{**}$), and the frequency of substance use ($\beta = .12$, $p < .001$). This means that monoracial ethnic minority youths and

multiracial youths who experienced discrimination in the neighborhood reported higher rates of these behaviors. Discrimination at school also was significantly and positively related to having used marijuana ($\beta = .17$, $p < .05$), sniffed inhalants ($\beta = .29$, $p < .01$), and used crack or cocaine ($\beta = .47$, $p < .05$) as well as to the frequency of substance use ($\beta = .08$, $p < .05$).

To investigate whether these relationships were comparable in the ethnic minority youth groups, we examined the interaction terms of the predictor variables by race dummy variables (shown in the lower part of Table 3). The hierarchical tests of the overall interaction effects showed that the interactions were not significant for any substance use initiation items. This result indicates that the relationships were not significantly different across groups. However, there were significant interaction effects in substance use frequency, showing that the magnitude of the relationship between ethnic identity and substance use frequency was significantly different between Asian and African Americans and multiracial youths. The coefficients indicate that the relationships were significantly stronger for multiracial youths than other groups. We found the same pattern with discrimination in the neighborhood. For the relationship between discrimination at school and frequency of use, we found a significant difference only between multiracial and African American youths.

Ethnic Identity, Racial Discrimination, and Multiracial Youth Violence

The results for violent behavior are shown in Table 4. Ethnic identity was significantly related to two outcomes: having ever threatened to beat someone up, and the frequency of violent behaviors. However, contrary to our hypothesis, youths with a stronger ethnic identity reported a significantly higher rate of having threatened to beat up someone. For the frequency item, the relationship was as hypothesized—the stronger youths' ethnic identity was, the less likely they were to demonstrate violent behaviors. Several significant and positive relationships were found with discrimination in the neighborhood or at school, and they were in hypothesized directions. Those youths who reported a higher level of discrimination in the neighborhood were more likely to report having ever inflicted injury on others in fights and having ever carried a gun, knife, or razor, and they had a higher frequency level of violence. Discrimination at school was significantly associated with a higher rate of having ever been in physical fight and having ever cut or stabbed someone as well as with the frequency of violence.

The hierarchical tests showed that the interactions were significant with regard to three outcomes: having ever threatened to beat someone up, having ever cut or stabbed someone, and the frequency of violent behaviors. Moreover, the relationships were stronger for multiracial youths than for Asian or African American youths. First, the relationship between ethnic identity and having ever threatened to beat someone up was stronger for multiracial than for Asian American youths. This relationship was opposite to that predicted. There was also a significant difference between Asian American and multiracial youths in the magnitude of the relationship between discrimination at school and having ever threatened to beat someone up. The relationship between discrimination at school and having cut or stabbed someone was significantly different and stronger for multiracial youths than for African American youths. Last, the association between discrimination in the neighborhood and the frequency of violence was significantly different between African American and multiracial youths, and the association between discrimination at school and the frequency of violence was significantly different between Asian American and multiracial youths. These associations were stronger for multiracial youths.

Discussion

This study attempts to begin filling some of the gaps in the literature on youth development of multiracial adolescents by examining rates and patterns of substance use and violent behaviors among multiracial early adolescents attending public middle schools in an urban city. The study also investigates the effect of ethnic identity and subjective experience of racial discrimination on these behaviors. We have compared the rates and patterns and the relationships to monoracial counterparts in the same schools.

The results of this study, overall, support the hypothesis of higher rates of problem behaviors among multiracial adolescents relative to monoracial adolescents (i.e., European, African, and Asian Americans). Multiracial adolescents reported higher rates of initiation than monoracial groups for several substances and violent behaviors. There were fewer statistically significant differences between multiracial and African American youths, but the overall patterns were similar in that multiracial youths reported higher rates of problem behaviors. The differences were quite large at times. Unlike the majority of studies on multiracial adolescents, this study used nonclinical samples, but the pattern of higher rates of problems among multiracial youths, particularly compared to European and Asian American youths, was evident. It is often suggested that racial/ethnic group differences are an artifact of socioeconomic status differences. However, these differences remained after socioeconomic status was controlled. In addition, findings from multiracial subgroup analyses suggest some differences in the level of risk among subgroups of multiracial youths but more strongly indicate that multiracial youths as a group are at heightened risk of problem behaviors.

Some researchers have argued that differences in problem behaviors by race and ethnic groups, after the effects of socioeconomic status are controlled, may indicate differences in immediate social and cultural settings, such as family, school, and neighborhood, as well as in broader historical, economic, and sociocultural settings (Ogbu, 1994). Multiracial and ethnic minority youths are more likely than European American youths to encounter disadvantaged status, poverty, limited social opportunities, and racial discrimination, which may increase the likelihood of problems in immediate settings, including within the family (Sampson, 1997). R. Johnson and Nagoshi (1986) argued that one of the reasons that the multiracial samples in their study did not differ in personality and adjustment outcomes from monoracial samples might be that their samples were drawn from Hawaii, where interracial marriages have historically been well accepted in the community. They further argued that multiracial heritage itself does not necessarily increase risk among multiracial offspring in a context that is supportive of multiculturalism and in which multiracial individuals are not marginalized (R. Johnson & Nagoshi, 1986). Thus, the higher rates of problem behaviors among multiracial youths found in our study can be interpreted as a reflection of the higher vulnerability experienced by these youths, heightened by a discriminating society (Gibbs, 1990, 1998).

The findings of our study also suggest that multiracial adolescents may be sensitive to the issues of race/ethnicity, possibly more so than monoracial ethnic minority youths. The results show that there were significant effects of ethnic identity and racial discrimination experiences on several outcomes, and the magnitude of some of these relationships was significantly stronger for multiracial youths than for monoracial ethnic minority youths, as hypothesized. In particular, the associations between racial discrimination and several outcomes were significant and positive as expected; perceived racial discrimination increased the likelihood of several problem behaviors investigated. Studies have postulated that multiracial youths become cognizant of racial/ethnic issues at an earlier age because these issues are often called into question by others (Brown, 1990; Gibbs, 1989).

Consequently, multiracial youths have keener awareness of the issues related to race/ethnicity and may experience a sense of marginality at an earlier age than monoracial ethnic minority youths. Our findings provide some empirical support for this idea. Although not extensive, the significant differences in magnitude of the relationships across groups may indicate that multiracial youths are more aware of these issues than monoracial ethnic minority youths.

The hypothesis that a strong sense of ethnic identity is likely to decrease the probability of problem behaviors was supported for crack or cocaine initiation and the frequencies of substance use and violence. Some of these relationships were significantly stronger for multiracial than for monoracial ethnic minority youths, as hypothesized. However, contrary to the hypothesis, a stronger sense of ethnic identity increased the likelihood that participants had ever threatened to beat someone up. It is unclear from the data that a stronger sense of ethnic identity in fact increases one's awareness of surroundings, especially in regard to race and ethnicity issues, and this behavior might occur in reaction to such awareness. Although the support for ethnic identity being a protective factor for ever engaging in these behaviors is not extensive, there is support for the frequency of these behaviors, which may be a more serious problem.

Caution is warranted in interpretation of the effects of ethnic identity among multiracial youths, considering the limitations of the measurement and other issues. We used an existing scale of ethnic identity, the MEIM (Phinney, 1992), that might not be appropriate for multiracial youths. Traditional models of ethnic identity development describe identity development as a *bipolar linear model* in which identity is associated with either the majority group or a minority group (Phinney et al., 1990; Thornton, 1996). A strong association with one weakens the association with the other. This type of model may not be appropriate to understand the experiences of multiracial youths because the challenge for them is to maintain bonds to multiple, often incompatible groups. At the same time, it is possible for multiracial youths to adopt multiple identities or a single identity that is a product of multiple heritages or of one heritage out of multiple backgrounds. Recent work describes multiracial identity as simultaneous memberships with multiple heritages and multiple fluid identities or a “uniquely multiethnic” identity (de Anda & Riddel, 1991; Thornton, 1996). It is further postulated that acknowledging multiple heritages is related to positive outcomes. A few scholars have attempted to theorize the process of identity development among multiracial youths (Jacobs, 1992; Kich, 1992; Poston, 1990; Thornton, 1996). The proposed stages of ethnic identity development resemble those of monoracial adolescents, but these studies have consensually postulated that the final stage is unique in which multiracial adolescents cherish all of their parts and the individual parts become one. The measure used in this study does not assess this uniqueness. Also, the data in this study cannot reveal whether multiracial youths have adopted a single racial/ethnic heritage and whether this would have made a significant difference in the results.

Another important issue to consider is the age of the respondents. The youths in this study were early adolescents and might have been at a developmental stage in which ethnic identity was not fully formed or present as a salient issue. In fact, among older youths (13 years and older), there was a significant correlation between ethnic identity and frequency of substance use ($r = -.269$, $p < .001$; $n = 225$) and violent behaviors ($r = -.244$, $p < .001$; $n = 223$). However, among younger youths (12 years and younger), these relationships were not significant: substance use ($r = .064$, $p > .05$; $n = 187$), and violent behaviors ($r = .081$, $p > .05$; $n = 183$). These findings are consistent with the interpretation that adolescents in the early stages of development might not have formalized their sense of ethnic identity. In addition, correlations between ethnic identity and the frequency of outcomes were not significant among monoracial youths regardless of their age. This may be another indication

that multiracial adolescents develop a sense of race/ethnicity at an earlier age than do monoracial ethnic minority youths.

In addition to the limitations of the measures discussed above, this study has other limitations that we should mention. First, because we utilized cross-sectional data, we cannot make causal claims about the direction of associations. Another limitation of the study is that we aggregated Asian American youths as one group, despite their diversity. Unfortunately, information about subgroup membership was not available. We also used self-report measures of problem behaviors, and such reports may be subject to social desirability or other biases. However, prior research on the validity of such reports suggests that under conditions similar to those of the current study, self-reports of the behaviors we examined tend to be both reliable and valid (Brener, Billy, & Grady, 2003). Last, the respondents were mainly from one geographical location; thus, we advise readers to use caution in generalizing the findings to youths in other geographic regions.

Opinions vary about the causes of higher rates of problem behaviors that have been observed among multiracial adolescents. Researchers have suggested that factors such as family problems, including parent–child relationships and higher levels of marital conflicts; marginality or not fitting in; and identity struggles are responsible (Cooney & Radina, 2000; McGoldrick & Preto, 1984; Xie & Goyette, 1997). However, many of these claims have not been substantiated by empirical support or representative data (R. Johnson & Nagoshi, 1986), and thus they are an area for future research.

Implications for Research and Intervention

The findings of this study provide empirical evidence that multiracial youths are at greater risk for problem behaviors such as substance use and engaging in violence than monoracial youths and that perceived racial discrimination may be an added risk factor for multiracial youths. The findings also suggest that a stronger, positive ethnic identity may serve as a protective factor, particularly for the frequency of substance use and violence. Because multiracial youths are more likely to engage in problem behaviors, it is imperative to address, early in their development, these youths' multiracial background as well as the issues related to race/ethnicity. Earlier preventive interventions targeting these factors may be more likely to benefit multiracial youths than later interventions. However, there are various challenges for studying multiracial youths, including the need for more appropriate measures of ethnic identity specifically designed for individuals with more than one racial heritage. These challenges should be addressed in future studies for a better understanding of multiracial youth development.

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References

Anderson N. Behavioral and sociocultural perspectives on ethnicity and health: Introduction to the special issue. Health Psychology. 1995; 14:589–591. [PubMed: 8654336]

Anderson N, Armstead C. Toward understanding the association of socioeconomic status and health: A new challenge for the biopsychosocial approach. Psychosomatic Medicine. 1995; 3:213–225. [PubMed: 7652122]

Bankston CLI, Caldas SJ, Zhou M. The academic achievement of Vietnamese American students: Ethnicity as social capital. Sociological Focus. 1997; 30(1):1–16.

Bentler, P.; Wu, EJC. EQS for Windows user's guide. Encino, CA: Multivariate Software; 1995.

Berry J. Immigration, acculturation, and adaptation. Applied Psychology: International Review. 1997; 46(1):5–34.

Bogenschneider K. An ecological risk/protective theory for building prevention programs, policies and community capacity to support youth. Family Relations. 1996; 45:127–138.

Bowles DD. Bi-racial identity: Children born to African-American and White couples. Clinical Social Work Journal. 1993; 21:417–428.

Brener ND, Billy JOG, Grady WR. Assessment of factors affecting the validity of self-reported health-risk behavior among adolescents: Evidence from the scientific literature. Journal of Adolescent Health. 2003; 33:436–457. [PubMed: 14642706]

Brooks-Gunn, J.; Paikoff, RL. “Sex is a gamble, kissing is a game”: Adolescent sexuality and health promotion. In: Millstein, SG.; Petersen, AC.; Nightingale, EO., editors. Promoting the health of adolescents: New directions for the twenty-first century. London: Oxford University Press; 1993. p. 180-208.

Brown PM. Biracial identity and social marginality. Child and Adolescent Social Work Journal. 1990; 7:319–337.

Byrne, BM. Structural equation modeling with EQS and EQS/Windows: Basic concepts, applications, and programming. Thousand Oaks, CA: Sage; 1994.

Castro, FG.; Morgan-Lopez, A. Influence of ethnic pride in tobacco prevention with Mexican American adolescents; Paper presented at the meeting of the Society for Prevention Research; New Orleans, LA. 1999 June.

Centers for Disease Control. Youth risk behavior surveillance—United States, 1999. Morbidity and Mortality Weekly Report. 2000; 49(SS-5):1–96. [PubMed: 10993565]

Chavez, JM.; Roney, CE. Psychocultural factors affecting the mental health status of Mexican American adolescents. In: Stiffman, AR.; Davis, LE., editors. Ethnic differences in adolescent mental health. Newbury Park, CA: Sage; 1990. p. 73-91.

Cooney TM, Radina ME. Adjustment problems in adolescence: Are multiracial children at risk? American Journal of Orthopsychiatry. 2000; 70:433–444. [PubMed: 11086522]

de Anda D, Riddel VA. Ethnic identity, self-esteem, and interpersonal relationships among multiethnic adolescents. Journal of Multicultural Social Work. 1991; 1(2):83–98.

Deters KA. Belonging nowhere and everywhere: Multiracial identity development. Bulletin of the Menninger Clinic. 1997; 61:368–384. [PubMed: 9260347]

Dryfoos, JG. Safe passage: Making it through adolescence in a risky society: What parents, schools, and communities can do. New York: Oxford University Press; 1998.

Erikson, EH. Identity: Youth and crisis. New York: Norton; 1968.

Fernandez, CA. Government classification of multiracial/multiethnic people. In: Root, MPP., editor. The multiracial experience: Racial borders as the new frontier. Thousand Oaks, CA: Sage; 1996. p. 15-36.

Field, LD. Piecing together the puzzle: Self-concept and group identity in biracial Black/White youth. In: Root, MPP., editor. The multiracial experience: Racial borders as the new frontier. Thousand Oaks, CA: Sage; 1996. p. 211-226.

Garbarino, J. Children and families in the social environment. 2nd. Hawthorne, NY: Aldine De Gruyter; 1992.

Gibbs JT. Identity and marginality: Issues in the treatment of biracial adolescents. American Journal of Orthopsychiatry. 1987; 57:265–278. [PubMed: 3591911]

Gibbs, JT. Biracial adolescents. In: Gibbs, JT.; Huang, LN., editors. Children of color: Psychological interventions with minority youth. San Francisco: Jossey-Bass; 1989. p. 322-350.

Gibbs, JT. Mental health issues of black adolescents: Implications for policy and practice. In: Stiffman, AR.; Davis, LE., editors. Ethnic issues in adolescent mental health. Newbury Park, CA: Sage; 1990. p. 21-52.

Gibbs, JT. High-risk behaviors in African American youth: Conceptual and methodological issues in research. In: McLoyd, VC.; Steinberg, L., editors. Studying minority adolescents: Conceptual, methodological and theoretical issues. Mahwah, NJ: Erlbaum; 1998. p. 55-86.

Gibbs JT, Moskowitz-Sweet G. Clinical and cultural issues in the treatment of biracial and bicultural adolescents. Families in Society. 1991; 72:479–591.

Gibson, M. Additive acculturation as a strategy for school improvement. In: Rumbaut, R.; Cornelius, W., editors. California's immigrant children: Theory, research, and implications for educational policy. San Diego: Center for U S.-Mexican Studies, University of California, San Diego; 1995. p. 77-106.

Goldberg M. Truancy and dropout among Cambodian students: Results from a comprehensive high school. Social Work in Education. 1999; 21(1):49–63.

Gonzales, N.; Cauce, AM. Ethnic identity and multicultural competence: Dilemmas and challenges for minority youth. In: Hawley, W.; Jackson, A., editors. Toward a common destiny: Improving race and ethnic relations in America. San Francisco: Jossey-Bass; 1995. p. 131-161.

Graber J, Brooks-Gunn J, Paikoff R, Warren M. Prediction of eating problems: An 8-year study of adolescent girls. Developmental Psychology. 1994; 30:823–834.

Gustavsson, NS.; Balgopal, PR. Violence and minority youth: An ecological perspective. In: Stiffman, AR.; Davis, LE., editors. Ethnic issues in adolescent mental health. Newbury Park, CA: Sage; 1990. p. 115-130.

Harachi TW, Catalano RF, Kim S, Choi Y. Etiology and prevention of substance use among Asian American youth. Prevention Science. 2001; 2(1):57–65. [PubMed: 11519375]

Jacobs, JH. Identity development in biracial children. In: Root, MPP., editor. Racially mixed people in America. Newbury Park, CA: Sage; 1992. p. 190-206.

Johnson K, Anderson N, Bastida E, Kramer J, Williams D, Wong M. Panel II: Macrosocial and environmental influences on minority health. Health Psychology. 1995; 14:601–612. [PubMed: 8654338]

Johnson R, Nagoshi C. The adjustment of offspring of within-group and interracial/intercultural marriages: A comparison of personality factor scores. Journal of Marriage and the Family. 1986; 48:279–284.

Kandel, D. Ethnic differences in drug use: Patterns and paradoxes. In: Botvin, G.; Schinke, SP.; Orlandi, M., editors. Drug abuse prevention with multiethnic youth. Thousand Oaks, CA: Sage; 1995. p. 81-104.

Kich, GK. The developmental process of asserting a biracial, bicultural identity. In: Root, MPP., editor. Racially mixed people in America. Newbury Park, CA: Sage; 1992. p. 304-317.

LaFromboise T, Coleman H, Gerton J. Psychological impact of biculturalism: Evidence and theory. Psychological Bulletin. 1993; 114:395–412. [PubMed: 8272463]

Lonczak HS, Abbott RD, Hawkins JD, Kosterman R, Catalano RF. Effects of the Seattle Social Development Project on sexual behavior, pregnancy, birth, and sexually transmitted disease outcomes by age 21 years. Archives of Pediatrics and Adolescent Medicine. 2002; 156:438–447. [PubMed: 11980548]

McGoldrick M, Preto NG. Ethnic intermarriage: Implications for therapy. Family Process. 1984; 23:347–362. [PubMed: 6479300]

McRoy R, Freeman E. Racial identity issues among mixedrace children. Social Work in Education. 1986; 15(6):164–174.

Newcomb, M. Drug use etiology among ethnic minority adolescents: Risk and protective factors. In: Botvin, G.; Schinke, SP.; Orlandi, M., editors. Drug abuse prevention with multiethnic youth. Thousand Oaks, CA: Sage; 1996. p. 105-129.

Ogbu JU. Origins of human competence: A cultural ecological perspective. Child Development. 1981; 52:413–429.

Ogbu, JU. From cultural differences to differences in cultural frames of reference. In: Greenfield, P.; Cocking, R., editors. Cross-cultural roots of minority child development. Hillsdale, NJ: Erlbaum; 1994. p. 365-392.

Overnier K. Biracial adolescents: Areas of conflict in identity formation. Journal of Applied Social Sciences. 1990; 14(2):157–176.

Pampel, FC. Logistic regression: A primer. Vol. 132. Thousand Oaks, CA: Sage; 2000.

Phinney JS. Ethnic identity and self-esteem: A review and integration. Hispanic Journal of Behavioral Sciences. 1991; 13:193–208.

Phinney JS. The Multigroup Ethnic Identity Measure: A new scale for use with diverse groups. Journal of Adolescent Research. 1992; 7:156–176.

Phinney, JS.; Lochner, BT.; Murphy, R. Ethnic identity development and psychological adjustment in adolescence. In: Stiffman, AR.; Davis, LE., editors. Ethnic issues in adolescent mental health. Newbury Park, CA: Sage; 1990. p. 53-72.

Poston WSC. The biracial identity development model: A needed addition. Journal of Counseling and Development. 1990; 69:152–155.

Poussaint AF. Ethnic identity among mixed race college students. Interracial Books for Children Bulletin. 1984; 15(6):9–10.

Radina ME, Cooney TM. Relationship quality between multiracial adolescents and their biological parents. American Journal of Orthopsychiatry. 2000; 70:445–454. [PubMed: 11086523]

Root, MPP., editor. The multiracial experience: Racial borders as the new frontier. Thousand Oaks, CA: Sage; 1996.

Rumbaut, RG. The new Californians: Comparative research findings on the educational progress of immigrant children. In: Rumbaut, R.; Cornelius, W., editors. California's immigrant children. San Diego: Center for U S.-Mexican Studies, University of California, San Diego; 1995. p. 17-70.

Rumbaut RG. Paradoxes (and orthodoxies) of assimilation. Sociological Perspectives. 1997; 40:483–511.

Sampson, RJ. The embeddedness of child and adolescent development: A community-level perspective on urban violence. In: Mc-Cord, J., editor. Violence and childhood in the inner city. Cambridge, England: Cambridge University Press; 1997. p. 31-77.

Shackford K. Interracial children: Growing up healthy in an unhealthy society. Interracial Books for Children Bulletin. 1984; 15(6):4–6.

Sodowsky, GR.; Kwan, KLK.; Pannu, R. Ethnic identity of Asians in the United States. In: Ponterotto, J.; Casas, JM.; Suzuki, LA.; Alexander, CM., editors. Handbook of multicultural counseling. Thousand Oaks, CA: Sage; 1995. p. 123-154.

Spencer, MB.; Dornbusch, SM. Challenges in studying minority youth. In: Shirley, FS.; Elliott, GR., editors. At the threshold: The developing adolescent. Cambridge, MA: Harvard University Press; 1993. p. 123-146.

Spencer MB, Swanson DP, Cunningham M. Ethnicity, ethnic identity and competence formation: Adolescent transition and cultural transformation. Journal of Negro Education. 1991; 60:366–387.

Spencer MS, Icard LD, Harachi TW, Catalano RF, Oxford M. Ethnic identity among monoracial and multiracial early adolescents. Journal of Early Adolescence. 2000; 20:365–387.

Steinberg, L.; Brown, BB.; Dornbusch, SM. Beyond the classroom: Why school reform has failed and what parents needs to do. New York: Simon & Schuster; 1996.

Thornton, MC. Hidden agendas, identity theories, and multiracial people. In: Root, MPP., editor. The multiracial experience: Racial borders as the new frontier. Thousand Oaks, CA: Sage; 1996. p. 101-120.

Vandervoort DJ, Divers PP, Aojido C. Psychosocial correlates of health status among Asians, Caucasians, and multiracial subjects. Current Psychology: Developmental, Learning, Personality, Social. 2000; 19(2):120–128.

Wardle F. Interracial children and their families: How school social workers should respond. Social Work in Education. 1991; 13(4):215–223.

Winn NN, Priest R. Counseling bicultural children: A forgotten component of multicultural counseling. Family Therapy. 1993; 20(1):29–36.

Wyche, KF.; Rotheram-Borus, MJ. Suicidal behavior among minority youth in the United States. In: Stiffman, AR.; Davis, LE., editors. Ethnic issues in adolescent mental health. Thousand Oaks, CA: Sage; 1990. p. 323-338.

Xie Y, Goyette K. The racial identification of biracial children with one Asian parent: Evidence from the 1990 census. Social Forces. 1997; 76:547–570.

Yoshikawa H. Prevention as cumulative protection: Effects of early family support and education on chronic delinquency and its risks. Psychological Bulletin. 1994; 115:28–54. [PubMed: 8310099]

Zhou M. Segmented assimilation: Issues, controversies, and recent research on the new second generation. International Migration Review. 1997; 31:975–1008. [PubMed: 12293212]

Zhou, M.; Bankston, CL, III. Growing up American: How Vietnamese children adapt to life in the United States. New York: Russell Sage Foundation; 1998.

Zickler P. Ethnic identification and cultural ties may help prevent drug use. National Institute on Drug Abuse Notes. 1999; 14:7–9.

Table 1

Substance Use

	Yes (%)						Sub use frequency	
Group	**Ever smoked**	**Ever drank alcohol**	**Ever used marijuana**	**Ever used inhalants**	**Ever used crack/cocaine**	**Ever gotten drunk or high on drugs**	***M***	***SD***
Multiracial	50.1	55.7	28.5	10.1	3.4	25.5	0.14	0.95
European Am	32.8	39.8	14.6	8.7	1.4	15.2	−0.07	0.67
African Am	44.2	49.9	28.3	6.8	1.4	22.4	0.02	0.73
Asian Am	35.1	32.6	9.8	6.0	0.8	11.5	−0.12	0.63

	Log (odds)						
	Ever smoked	**Ever drank alcohol**	**Ever used marijuana**	**Ever used inhalants**	**Ever used crack/cocaine**	**Ever gotten drunk or high on drugs**	**OLS *β***
Euro vs. multi	−0.476 (0.62)***	−0.598 (0.55)***	−0.646 (0.52)***	−0.044 (0.96)	−0.623 (0.54)	−0.533 (0.59)**	−0.093**
African vs. multi	−0.386 (0.68)**	−0.356 (0.70)*	−0.163 (0.85)	−0.399 (0.67)	−0.701 (0.50)	−0.318 (0.73)	−0.069*
Asian vs. multi	−0.708 (0.49)***	−1.044 (0.35)***	−1.416 (0.24)***	−0.480 (0.62)	−1.213 (0.30)*	−1.058 (0.35)***	−0.142***
N	1,932	1,932	1,920	1,940	1,892	1,918	1,935

Note. The coefficients reported are adjusted for low-income status, age, and gender. Am = American; multi = multiracial.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 2

Violent Behaviors

	Yes (%)							Violence frequency	
Group	Ever threatened to beat someone up	Ever been in physical fight	Ever hurt badly in fight	Ever carried gun	Ever carried knife/razor	Ever cut or stabbed	Told to stab someone	*M*	*SD*
Multiracial	70.6	79.0	17.6	17.5	38.0	10.1	13.9	0.16	0.82
European Am	37.9	58.8	8.9	11.0	31.1	4.3	4.0	−0.14	0.51
African Am	71.9	82.1	12.3	11.9	31.6	5.7	7.0	0.06	0.64
Asian Am	47.1	57.0	7.1	12.9	26.1	4.8	5.2	−0.09	0.56

	Log (odds)							
	Ever threatened to beat someone up	Ever been in physical fight	Ever hurt badly in fight	Ever carried gun	Ever carried knife/razor	Ever cut or stabbed	Told to stab someone	OLS *β*
Euro vs. multi	−1.234(0.29)***	−1.004(0.37)***	−0.733 (0.48)***	−0.477 (0.62)*	−0.277 (0.76)	−0.677 (0.51)*	−1.051 (0.35)***	−0.165***
African vs. multi	−0.017 (0.98)	0.063 (1.06)	−0.499 (0.61)*	−0.614 (0.54)**	−0.404 (0.67)**	−0.802 (0.45)**	−0.936 (0.39)***	−0.218*
Asian vs. multi	−1.081 (0.34)***	−1.146(0.32)***	−1.050(0.35)***	−0.398 (0.67)*	−0.64 (0.53)***	−0.832 (0.44)**	−1.064 (0.35)***	−0.230***
N	1,921	1,915	1,917	1,910	1,896	1,898	1,895	1,911

Note. The coefficients reported are adjusted for low-income status, age, and gender. Am = American; multi = multiracial.

* $p < .05$.

** $p < .01$.

*** $P < .001$.

Table 3

Multivariate Analyses With Substance Use as Outcome

	Logistic β (odds ratio)						OLS β
Predictor variable	**Ever smoked cigarettes**	**Ever drank alcohol**	**Ever used marijuana**	**Ever sniffed glue, gas, or paint**	**Ever used crack/cocaine**	**Ever gotten drunk or high on drugs**	**Sub use frequency**
Main effects							
Age (years)	0.336(1.40)***	0.415 (1.51)***	0.502 (1.65)***	−0.124 (0.88)	0.238 (1.27)	0.490 (1.63)***	0.114***
SES	0.505 (1.66)***	−0.046 (0.96)	0.324 (1.38)*	−0.206 (0.81)	−0.326 (0.72)	0.102(1.11)	0.025
Gender	−0.075 (0.93)	−0.009 (0.94)	−0.064 (0.94)	0.089 (1.09)	−0.027 (0.97)	0.121 (1.13)	−0.011
African Amer vs. multiracial	−0.422 (0.66)**	−0.370 (0.69)*	−0.143 (0.87)	−0.449 (0.64)	−0.832 (0.44)	−0.425 (0.65)*	−0.106***
Asian Amer vs. multiracial	−0.798 (0.49)***	−1.080(0.34)***	−1.432(0.24)***	−0.496 (0.61)	−1.383(0.25)*	−1.125 (0.33)***	−0.186***
Ethnic identity	0.101 (1.10)	0.150(1.16)	−0.012 (0.99)	−0.108 (0.90)	−0.388 (0.68)*	0.041 (1.04)	−0.062*
Dis neighbor	0.123 (1.13)	0.131 (1.14)	0.172(1.19)*	0.152(1.17)	0.149 (1.16)	0.219 (1.25)**	0.120***
Dis school	0.124(1.13)	0.044(1.05)	0.166(1.18)*	0.286(1.33)**	0.469 (1.60)*	0.070 (1.07)	0.076*
Constant	−4.377 (0.13)***	−4.927 (0.01)***	−7.444 (0.00)***	−0.632 (0.54)	−6.596 (0.00)*	−7.378 (1.00)***	−0.901***
n	1,240	1,240	1,233	1,244	1,210	1,229	
Interaction effects							
African Amer × Ethnic Identity	*ns*	*ns*	*ns*	*ns*	*ns*	*ns*	0.075*
Asian Amer × Ethnic Identity	*ns*	*ns*	*ns*	*ns*	*ns*	*ns*	0.092*
African Amer × Dis Neighbor	*ns*	*ns*	*ns*	*ns*	*ns*	*ns*	−0.093*
Asian Amer × Dis Neighbor	*ns*	*ns*	*ns*	*ns*	*ns*	*ns*	−0.187***
African Amer × Dis School	*ns*	*ns*	*ns*	*ns*	*ns*	*ns*	−0.097*
Asian Amer × Dis School	*ns*	*ns*	*ns*	*ns*	*ns*	*ns*	*ns*

Note. OLS = ordinary least squares; sub = substance; SES = socioeconomic status; Amer = American; Dis neighbor = discrimination in neighborhood; Dis school = discrimination at school.

* $p < .05$.

** $p < .01$

*** $p < .001$.

Table 4

Multivariate Analyses With Violent Behavior as Outcome

	Logistic β (odds ratio)							OLS β
Predictor variable	**Ever threatened to beat someone up**	**Ever been in physical fight**	**Ever been in physical fight and badly hurt**	**Ever carried a gun**	**Ever carried a knife or razor**	**Ever cut or stabbed someone**	**Told to stab someone**	**Violent behavior frequency**
Main effects								
Age (years)	0.114(1.12)	0.070(1.07)	0.033 (1.03)	0.210(1.23)*	0.213 (1.24)***	0.171 (1.19)	0.152(1.16)	0.055*
SES	0.429 (1.54)***	0.249 (1.28)	0.054(1.06)	0.320(1.37)	0.273 (1.31)*	0.517 (1.68)*	0.636 (1.89)**	0.089***
Gender	−0.462 (0.63)***	−0.962 (0.38)***	−0.709 (0.49)***	−1.298(0.27)***	−0.875 (0.42)***	−0.852 (0.43)***	−0.338 (0.71)	−0.144***
African Amer vs. multiracial	−0.059 (0.94)	0.063 (1.07)	−0.424 (0.65)*	−0.564 (0.57)*	−0.387 (0.68)*	−0.701 (0.50)*	−1.003(0.37)***	−0.080*
Asian Amer vs. multiracial	−1.16(0.31)***	−1.176(0.31)***	−1.073(0.34)***	−0.427 (0.65)*	−0.643 (0.53)***	−0.887 (0.41)**	−1.129(0.32)***	−0.180***
Ethnic identity	0.146(1.16)*	0.135(1.15)	−0.163 (0.85)	−0.047 (0.95)	0.018 (1.02)	0.009 (1.00)	0.116(1.12)	−0.062*
Dis neighbor	0.093 (1.10)	0.050(1.05)	0.215 (1.24)*	0.302(1.35)***	0.146(1.16)*	0.083 (1.09)	0.113(1.12)	0.130***
Dis school	0.081 (1.08)	0.178 (1.20)*	0.063 (1.07)	−0.021 (0.98)	0.010(1.01)	0.384(1.47)***	0.188(1.21)	0.100***
Constant	−0.390 (0.68)	0.986 (2.68)	−1.672(0.19)	−3.818 (0.22)***	−2.840 (0.06)***	−4.298 (0.427)***	−3.911 (0.02)**	−0.262
n	1,229	1,225	1,225	1,217	1,207	1,211	1,208	
Interaction effects								
African Amer × Ethnic Identity	*ns*	*ns*	*ns*	*ns*	*ns*	*ns*	*ns*	*ns*
Asian Amer × Ethnic Identity	−0.317*	*ns*	*ns*	*ns*	*ns*	*ns*	*ns*	*ns*
African Amer × Dis Neighbor	*ns*	*ns*	*ns*	*ns*	*ns*	*ns*	*ns*	*ns*
Asian Amer × Dis Neighbor	*ns*	*ns*	*ns*	*ns*	*ns*	*ns*	*ns*	−0.109*
African Amer × Dis School	*ns*	*ns*	*ns*	*ns*	*ns*	−1.703***	*ns*	−0.127**
Asian Amer × Dis School	−0.411*	*ns*	*ns*	*ns*	*ns*	*ns*	*ns*	*ns*

Note. OLS = ordinary least squarest; SES = socioeconomic status; Amer = American; Dis neighbor = discrimination in neighborhood; Dis school = discrimination at school.

* $p < .05$.

** $p < .01$

*** $p < 0.00$.