

NIH Public Access

Author Manuscript

Am J Health Behav. Author manuscript; available in PMC 2013 September 10.

Published in final edited form as: *Am J Health Behav.* 2009 ; 33(6): 718–727.

Perceived Discrimination and Substance Use among Latino Adolescents

Janet Okamoto, MPH [Doctoral Student], Anamara Ritt-Olson, PhD [Research Associate], Daniel Soto [Project RED Manager], Lourdes Baezconde-Garbanati, PhD [Professor], and Jennifer B. Unger, PhD [Professor]

Department of Preventive Medicine, School of Medicine, University of Southern California, Alhambra CA

Abstract

Objective—To examine perceived discrimination and substance use among Latino high school students.

Methods—Latino 9th graders (N=1332) completed self-report measures of perceived discrimination and substance use behavior.

Results—Perceived discrimination was associated with lifetime use measures of smoking (OR=1.73, P<0.01), alcohol (OR=1.53, P<0.01), marijuana (OR=1.70, P<0.01), and inhalants (OR=1.50, P<0.05); and past 30 day measures of smoking (OR=2.54, P<0.01), alcohol (OR=1.63, P<0.01), marijuana (OR=1.95, P<0.01), and inhalants (OR=1.64, P<0.01), and binge drinking (OR=1.84, P<0.01).

Conclusions—Latino adolescents who have higher perceptions of discrimination are at risk for substance use. Interventions to help Latino adolescents cope with feelings of discrimination may be a useful addition to substance use prevention programs.

Keywords

Latino; adolescent; substance use; discrimination

A growing body of evidence suggests that the experience of racial, gender, age, and other forms of discrimination are adversely related to a broad range of health outcomes. Perceived discrimination is associated with low self-esteem,¹ depressive symptoms,² acculturative stress and psychological conflicts,³ and anxiety.⁴ The experience of discrimination, or the perception of it, may be particularly important during adolescence when children are establishing ethnic identities. Perceived discrimination could interrupt this development by introducing confusion and shame or by contributing to externalizing behaviors such as delinquency and substance abuse.

Latinos comprise the largest minority group in the U.S.; according to the U.S. Census Bureau⁵ there are approximately 40 million Latinos in the United States, or 13.7% of the total population. They have the highest population growth rate, 4 times that of the overall population, and the Latino population is projected to be nearly 25% of the U.S. population (102.6 million) by 2050.⁶ These changing demographics highlight the need to understand the unique health and social issues facing this population as well as the need to develop

Copyright (c) PNG Publications. All rights reserved.

Address correspondence to: Ms Okamoto, Department of Preventive Medicine, School of Medicine, University of Southern California, 1000 Fremont Ave, Unit 8, Bldg A-5, Alhambra CA 91803. jokamoto@usc.edu.

culturally relevant prevention and treatment programs for problem behaviors such as substance use. To do this with any efficacy, we first need to understand the factors that lead to the uptake and progression of such behaviors.

Perceived Discrimination and Behavior

Perceived discrimination is a relatively common phenomenon among minority youth and young adults and is strongly correlated with psychological well-being.⁷ It has recently been linked to violent behavior⁸ and substance use.⁹ Perceptions of discrimination may be particularly important during adolescence, which is a time when youth are establishing their ethnic identities and exploring what ethnic minority group membership means. Perceived discrimination may interfere with this and introduce confusion and shame.¹⁰ Phinney's¹¹ work with youth identified early adolescence as a time when children begin to form their ethnic identities. Phinney found that as adolescents begin to develop their ethnic identities, they will be exposed to and become more aware of discrimination. The more aware of their ethnic identities they become, the more children begin to process information associated with these identities.¹²

Shrake and Rhee¹³ found perceived discrimination to be a significant positive predictor of both internalizing and externalizing problems among young Korean Americans. They suggested that the prevalence of problem behaviors is strongly associated with adolescents' perceptions of racial discrimination. In another recent study, African American, Latino, White, and Asian American adolescent participants reported instances of discrimination such as having been called a racially insulting name, having been threatened by peers because of their race or ethnicity, and believing that they had been given a lower grade in school because of their race or ethnicity.¹⁴

The association between discrimination and internalizing behavior has been extensively studied. In general, discrimination is correlated with distress, including depression and anxiety.^{15–17} Fewer studies have looked at perceived discrimination and externalizing behavior, but all of them have found positive relations. One study reported that African American adolescent boys' mistrust of Whites was a significant predictor of their delinquent behavior.¹⁸ Another found that perceived discrimination was related to delinquent behavior in a sample of American Indian adolescents.¹⁰ This study included measures of substance use, which were related to reports of discrimination. Among African Americans, significant correlations have also been found between perceptions of discrimination and reports of drug use,¹⁹ smoking,²⁰ and alcohol use.²¹ Given the potential long term and far-reaching effects of these perceptions, it appears that more studies of the discrimination and substance use relation are needed.

The literature regarding perceived discrimination is small but growing. A 2003 review of the literature on discrimination and health identified a total of 53 studies. Mental health status was the most common outcome.⁷ Only 6 studies were focused on children or adolescents, with the vast majority focused on adults. Most research was also focused on the experience of African Americans, but there has been increasing attention to other racial/ethnic groups.

Relatively few studies have examined this phenomenon specifically among Latino adolescents. Although ethnic minority adolescents experience more discrimination than do White adolescents, members of different ethnic groups have unique experiences as a result of many factors, including current sociocultural conditions, that would contribute to differential perceptions of discrimination and prejudice. For example, one study found that Latino and Asian American youth perceived more peer discrimination and African American adolescents perceived more discrimination by adults.²² It is unclear whether Latino youth perceive discrimination in the same way as other ethnic minority groups and

whether these perceptions relate differently to negative externalizing behaviors. For example, because the social stereotypes of Latinos differ from African American and Asian adolescents, discriminatory experiences and racial/ethnic prejudices encountered in daily life would also differ.²³ For example, Latino youth have reported experiencing discrimination based on English fluency, immigration concerns, negative stereotypes, and skin color.^{23–25}

Substance Use and Latino Adolescents

Drug use remains one of the most serious challenges faced by adolescents in the United States.²⁶ The Latino population in the U.S. may be particularly susceptible to substance abuse due to the fact that 40% of Latinos are under the age of 21.²⁷ One common stereotype in the United States is that minority groups such as African Americans and Latinos use drugs more frequently than Whites; however, the evidence does not support this belief. What has been established is that Latino youth are at greater risk for problems that are associated with substance use, such as school failure and dropout, incarceration, and poor mental health.^{28,29} The risk of drug use among Latino adolescents also increases with greater assimilation into U.S. society.^{30–32} This acculturation occurs as youth interact with more acculturated peers at school and in the community, especially because adolescence is a time when youth are particularly concerned with fitting in with peers and are increasing their interactions outside the family domain.

Present Study

A key factor affecting the adoption of negative health behaviors among Latino adolescents is acculturation. Latinos born in the United States have significantly higher rates of alcohol, tobacco, and other drug use than immigrants;³ Latino adolescents who are more oriented toward the social norms, language, and cultural values of the U.S. have higher rates of substance use than those who are oriented more towards Latino culture.^{33,34} These findings point to a need for a greater understanding of within group variations among Latinos in substance use behaviors and their antecedents and the role that acculturation plays in these relationships.

The experience of discrimination can be one of the most harmful and distressing aspects in the acculturation process. It is commonly thought that negative health behaviors, such as alcohol and substance use, may be used as a strategy for coping with acculturation stressors, such as perceptions of discrimination.³⁵ To that end, the current study seeks to examine questions that have not yet been fully answered in the existing literature. Primarily, there is a shortage of studies examining perceptions of discrimination and externalizing behaviors, more specifically, substance use outcomes. There have also been few studies specifically exploring these relationships among Latino populations, particularly adolescents.

The present study examined the relationship between the perception of discrimination and substance use as part of a larger study of Latino high school youth in Los Angeles. We hypothesized that greater perceptions of discrimination by Latino students would be associated with a higher risk of lifetime and current (past-month) substance use.

METHODS

Setting

Project RED (Reteniendo y Entendiendo la Diversidad para salud) is a longitudinal study of acculturation patterns and substance use among Hispanic/Latino adolescents in Southern California. The respondents in this study were ninth grade students attending 7 high schools in the Los Angeles area. Because this is a study of Hispanic adolescents, schools were

approached and invited to participate if they contained at least 70% Hispanic students, as indicated by data from the California Board of Education. Efforts were also made to obtain a sample of schools with a wide range of socioeconomic characteristics. Of the 31 schools approached, 7 schools agreed to participate in the study. Approval was obtained from the school principals and/or district superintendents, according to their established procedures. The median annual household incomes in the ZIP codes served by the participating schools ranged from \$29,000 to \$73,000.

Procedures

The survey was conducted in the Fall of 2005. All ninth-grade students in the school were invited to participate in the survey. Trained research assistants visited the students' classrooms, explained the study to the students, and distributed parental consent forms and student assent forms. To increase the return rate of consent forms, each classroom was offered a pizza party if every student in the class returned the forms, regardless of whether the parents said yes or no. Parents who did not return the consent forms were telephoned in the evenings by a bilingual research assistant to obtain verbal consent or refusal.

The research assistants returned to the school twice over a 2-week period to pick up signed consent forms and distribute new forms to students who had lost them. Students were allowed to participate if they provided written or verbal parental consent and student assent. The informed consent procedure was approved by the university's IRB.

On the day of the survey, the data collectors distributed surveys to all students who had provided parental consent and student assent. Using a standardized script, they reminded the students that their responses were confidential and that they could skip any questions they did not want to answer. The classroom teachers were present during survey administration, but the data collectors instructed them not to participate in the survey process to ensure that they would not inadvertently see the students' responses. To help students with low literacy skills, the data collectors also read the entire survey aloud during the class period. Students were instructed that they could follow along with the data collector and write their answers after the data collector read each question, or they could answer the questions at their own pace.

Measures

Surveys were available in English and Spanish. To create the Spanish translations, we first looked for the translated items that were published or recommended by the scales' authors. If none were available, one translator translated the items from English to Spanish, and then the translation was checked by a translation team including bilingual researchers of Mexican, Salvadoran, and Argentinean descent. This procedure was used to ensure that the Spanish translation reflected the idioms that are used among Hispanic/Latinos living in Southern California. Although English and Spanish versions were available, only 17 students (0.8%) chose to complete the survey in Spanish. This is consistent with our previous research and indicates that among adolescents attending schools with English-only instruction, their English reading ability is at least as high as their Spanish reading ability, even if their speaking ability is better in Spanish. The survey assessed substance use, demographic characteristics, acculturation, and measures of family and peer characteristics that were included in the larger focus of the study. Demographic characteristics included age, gender, and ethnicity. The majority of students were Latino (73.3%). Students marking Hispanic or Latino or another option indicating ethnic origins from Mexico or Central or South America for a question asking how they would best describe themselves were considered Latino. Only students who identified themselves as Latino were included in the study sample for this analysis. Socioeconomic status (SES) was estimated using rooms per

Okamoto et al.

people, with fewer people per room in a household indicating higher SES.³⁶ Language usage was used to measure acculturation for this analysis. Two such items were used in this survey, adapted from the Brief Acculturation Scale for Hispanics³⁷ and the Short Acculturation Scale for Hispanics.³⁸ Questions included: "In your home, do you speak ...?" and "With your friends, do you speak ...?" The response options were "Only English", "Mostly English", "English and another language equally", "Mostly another language", and "Only another language".

Substance use—The outcome of interest in this study is self-reported substance use. We used both lifetime and past 30-day use measures for analysis. All outcomes were coded 0 or 1 for use or no use because most of the continuous and categorical substance use measures were not normally distributed. Lifetime smoking was a yes/no answer format and lifetime drinking had 7 answer choices ranging from 0 days to 100 or more days. Binge drinking was measured on a 7-point scale asking: "On how many days did you have 5 or more drinks of alcohol in a row?" in the past 30 days. Answer choices included 1 (0 days) to 7 (20 or more days). Past 30 day use for both cigarettes and alcohol was measured using a 7-point scale ranging from no days to all 30 days. All other lifetime and 30 day measures of substance use were combined into one scale using the same 6 answer choices. Answers ranged from 1 (0 times) to 6 (40 or more times) for the questions "In your lifetime..." and "In the last 30 days how often have you used these drugs?" The drugs included in this scale that were used in this analysis include marijuana and inhalants. Cocaine, methamphetamine, prescription drugs without a doctor's advice, ecstasy, hallucinogens, diet pills without a doctor's advice, a needle to inject any illegal drugs into your body, and an open ended "other" question were also included on the lifetime use scale but were not considered in this analysis also due to low prevalence (less than 5%).

Perceived discrimination—A 10-item scale was used to measure perceived discrimination.³⁹ All items were measured on a 4-point scale with response options ranging from often to never. The scale was introduced with the statement: "Sometimes people feel that they are treated differently because of their ethnic or cultural background. How do people treat you?" Examples of items from the scale include: "You are treated with less respect than other people" and "People act as if they're better than you." For the current study, all items were reverse coded so that higher scores reflected greater perceived discrimination. Factor analysis was performed on the items in this scale to determine whether they loaded together. All items loaded highly on one factor, with a lowest factor loading equal to 0.46. For this sample, the internal consistency was acceptable (=0.87).

Continuous variables of interest were standardized prior to running any analyses for ease of interpretation and also to minimize collinearity issues when including interaction terms in the models. Variables that were standardized included perceived discrimination and acculturation

The analysis used unconditional logistic regression to estimate odds ratios in order to evaluate the association between perceived discrimination and each substance use outcome, controlling for certain demographic variables. The analysis used STATA 9.0 software (STATA Corporation, College Station, Texas).

RESULTS

Missing Data

Students with complete data were compared with students with missing data. No significant differences were found between the analysis sample and missing cases for perceived discrimination, SES, and gender. Missing and complete cases were compared using paired t-

tests. Missing cases differed from complete cases in age; older students were more likely to have incomplete data. However, significant (P<0.05), the actual age difference was quite small (mean age for missing was 14.04 and 13.99 for the analysis sample). For the substance use outcome measures, missing cases were significantly more likely to have used marijuana in the past 30 days (10.6% analysis versus 17.7% missing, P<0.001) and used inhalants in the past 30 days (8.1% analysis versus 12.5% missing, P<0.01). They were also more likely to have ever used cigarettes (26.4% analysis versus 33.7% missing, P<0.01) and marijuana (19.3% analysis versus 26.7% missing, P<0.01).

Sample Characteristics

Across the 7 schools, 3218 students were invited to participate. Of those, 2418 (75%) provided parental consent, 283 (8%) gave parental refusal, and 517 (16%) parents could not be contacted. Of those who provided parental consent, 2225 (92%) completed the survey. Of those who were absent on the day of the survey (N=247), 54 completed absentee surveys.

Seventy-five percent of those who completed the survey self-reported that they were Latino. Of these, 1332 (80%) provided complete data on the variables used in this analysis. Table 1 provides a summary of the characteristics of the sample used for analysis in the current study. All students were in the 9th grade with a mean age of 14.0 years. Forty-nine percent were male and the mean rooms per person (our measure of SES) was 0.86. The majority of the sample was second generation immigrants to the United States (74.3%) with the majority of Mexican origin (86.2%). The mean perceived discrimination score, which was a mean for the 10 item scale with a range from 1 to 4, was 1.71. Lifetime drinking, smoking, marijuana and inhalant use were the most prevalent drug use measures, with 47.6%, 26.4%, 19.3%, and 12.4% reporting having ever used respectively. For past 30 day use, cigarettes, alcohol, marijuana and inhalants were used most frequently, with 7%, 24.6%, 10.6%, and 8.1% reporting past 30 day use respectively. Past 30 day binge drinking was 12.7%.

Multivariate Logistic Regression Models

Table 2 shows the odds ratios, standard error, and 95% confidence intervals for perceived discrimination and lifetime substance use. All models controlled for gender, SES, and age, and acculturation. Perceived discrimination was significantly associated with all lifetime use measures (P<0.05 for all). Therefore, students who have higher perceptions of discrimination are more likely to have ever used cigarettes (OR=1.73, 95% CI=1.30–2.31), alcohol (OR=1.53, 95% CI=1.20–1.96), marijuana (OR=1.70, 95% CI=1.21–2.40), and inhalants (OR=1.50, 95% CI=1.00–2.25).

Interactions terms between perceived discrimination and gender, age, acculturation, and SES were added to each of the models for the 4 lifetime substance use outcomes after the main analyses were completed; none were found to be significant. Although the interactions were not significant, girls interestingly used more alcohol and inhalants (P<0.05 for both) and those with higher SES showed more alcohol and marijuana use (P<0.01 for both). Lifetime marijuana use was the only lifetime use measure that was significantly associated with higher acculturation status (P<0.01).

Table 3 shows the odds ratios, standard error, and 95% confidence intervals for perceived discrimination and 30 day substance use. Again, all models controlled for gender, SES, acculturation, and age. Perceived discrimination was significantly associated with all 30 day use measures (P<0.01 for all). Therefore, students who have higher perceptions of discrimination are more likely to have used cigarettes (OR=2.54, 95% CI=1.73-3.72), alcohol(OR=1.63,95% CI=1.32-1.99), binge drinking (OR=1.84, 95% CI=1.47-2.30),

marijuana (OR=1.95, 95% CI=1.38-2.75), and inhalants (OR=1.64, 95% CI=1.14-2.36) in the past 30 days.

Interactions terms between perceived discrimination and gender, age, acculturation, and SES were again added to the models for each of the five 30-day substance us outcomes after the main analyses were completed and none were found to be significant. Girls' inhalant use still remained significantly higher than boys' (P<0.01), and SES appears to have more influence on 30 day use than on lifetime use with all outcomes significantly associated with higher SES with the exception of inhalants, which was not significantly associated with SES (P<0.05 for all). Higher acculturation status was associated with past 30 day marijuana and inhalant use (P<0.01 for both).

DISCUSSION

Much of the research on perceptions of discrimination has been conducted with adults.^{2,15} The identification of adolescence as an important developmental time for healthy identity formation¹¹ has highlighted a need for research on this topic among adolescents. Adolescence is a time when youth begin to look beyond their immediate environment and begin exploring the world on their own, potentially leading to increased interactions with those from different ethnic and cultural backgrounds. This is a time when youth are perhaps more sensitive to the attitudes and beliefs of those they interact with. They also begin forming their own unique world view and by necessity must rely on their observations and perceptions in lieu of experience. Past beliefs and perceptions are usually heavily influenced by parental attitudes and beliefs, but in adolescence, youth begin explorations of their own identity as it relates to their peers and other non-familial relations. Most likely, exploring issues of race and ethnicity is an initial step in forming a unique identity.

The current study found that perceptions of discrimination are significantly associated with both lifetime and recent use of cigarettes, alcohol, marijuana, and inhalants among Latino adolescents. Adolescence is a stressful time when children need to feel similar to others. These findings support the idea that they may turn to negative externalizing behaviors, such as substance use, in order to cope with the perception of being discriminated against. They may begin to act out in ways that confirm what they see as others' already entrenched and unchanging beliefs and attitudes. In addition, if ethnic minority adolescents believe that substance use is normative and accepted among their peers, they may use drugs in an attempt to bond with peers and avoid discrimination.

Our findings build upon what is currently known about the detrimental effects on health and health behaviors that discriminatory experiences can have. The bulk of the literature has explored the association between perceived discrimination and internalizing behaviors,^{7,13} such as depression^{2,16} and anxiety.^{4,15,17} Fewer studies have looked at externalizing behaviors, such as substance use, but the findings support what literature currently exists.^{9,10,19–21} Examining acculturative stressors such as perceptions of discrimination as factors associated with substance use complements the available literature about discrimination among Latino adolescents. Therefore, our findings contribute to a better understanding of ethnic and racial disparities in health risk behaviors.

Limitations

Additional variables not measured in this study could confound the relationship between perceived discrimination and substance use. Also, due to the cross-sectional nature of the data, causal direction cannot be inferred; analysis of longitudinal data will be necessary to determine the direction of the relationship, though it is less likely that drug use would cause increased perceptions of discrimination.

The current sample was from schools in Southern California, and findings may be different for Latino adolescents in other parts of the United States. For example, findings may not translate to adolescents living in areas of the country where there are high concentrations of specific national origin groups not found in Southern California and lack of representation of other groups in those areas. Related to this issue of limited generalizability, the sample was limited to Latino adolescents from schools where Latinos were the majority. Schools were approached for our study only if they contained at least 70% Hispanic students as indicated by the California Board of Education. Discriminatory experiences may be different for students in schools in which they are in the minority.

Implications and Future Directions

Future substance use prevention programming could benefit from promoting positive youth development in Latino adolescents and by addressing issues surrounding feelings of discrimination and exclusion, as well as facilitating and strengthening the establishment of adolescent ethnic identity. Previous work has suggested that discrimination by peers is possibly more harmful to psychological adjustment than is discrimination by adults, as discrimination by peers has been linked with changes in both self-esteem and depressive symptoms over time, whereas discrimination by adults was only linked to within-person changes in self-esteem.²¹ This work also indicated that the impact of discrimination can be lessened by family and friends. Therefore, prevention programming and interventions could promote tolerance and celebration of diversity among peers and work to build and strengthen strong peer and familial support networks.

This study has suggested several possible avenues of future exploration. The association between perceived discrimination and substance use could be modified by the school, neighborhood, and family context, so future studies should examine these and other social contextual variables. Also, analyses of future waves of data from this longitudinal study will be critical in gaining a greater understanding of how adolescents' perceptions of discrimination may change over time and how the association with substance use changes over time. Due to the relatively young age of these freshman students in the sample, we were not able to examine many of the hard drugs. It can also be assumed that the majority of the students who did report drug use, whether lifetime or current, are still experimenting with their use. It will also be of interest to see if this association is different for different stages of drug use (ie, experimental use and more regular, active use). Examining the role that ethnic identity plays, whether it acts as a potential moderator or mediator, will also be of interest; as will the developmental trajectory of ethnic identity development with perceived discrimination and substance use. Another future direction could be to look at peer perceptions of discrimination and peer ethnicity as they relate to students' own perceptions and use. For example, substance use by Latino youth was found to be higher among those with a large percentage of non-Hispanic friends.⁴⁰ This suggests a promising area of investigation into how social contexts interact with perceptions of discrimination, ethnic identity formation, and developmental factors in the susceptibility to or protection against substance use initiation and progression.

Acknowledgments

This research was funded by the National Institute on Drug Abuse (5R01DA016310). Address correspondence to the first author.

References

1. Verkuyten M. Perceived discrimination and self-esteem among ethnic minority adolescents. J Soc Psychol. 1998; 138(4):479–493. [PubMed: 9664864]

Okamoto et al.

- Finch BK, Kolody B, Vega W. Perceived discrimination and depression among Mexican-origin adults in California. J Health Soc Behav. 2000; 41:295–313. [PubMed: 11011506]
- Sanchez JI, Fernandez DM. Acculturative stress among Hispanics: a bidimensional model of ethnic identification. J Appl Soc Psychol. 1993; 23:654–668.
- 4. Dion KL, Earn BM. The phenomenology of being a target of prejudice. J Pers Soc Psychol. 1975; 32:944–950. [PubMed: 1185520]
- Annual Resident Population Estimates of the United States by age, race, and Hispanic or Latino origin: April 1, 2000 to July 1, 2002. U.S. Census Bureau; 2005. Table NA-EST2002-ASRO-2003
- 6. U.S. Census Bureau. [Accessed August 24, 2008] Hispanic Heritage Month 2004: September 15-October 15. Facts for Features, News Release (on-line). Available at: http://www.census.gov/Press-Release/www/releases/archives/facts_for_features_special_editions/002270.html
- Williams DR, Neighbors HW, Jackson JS. Racial/ethnic discrimination and health: findings from community studies. Am J Public Health. 2003; 93(2):200–208. [PubMed: 12554570]
- Caldwell C, Kohn-Wood DR, Jackson JS, et al. Being black and feeling blue: the mental health consequences of racial discrimination. Am J Community Psychol. 2000; 33:91–105. [PubMed: 15055757]
- Gibbons FX, Gerrard M, Cleveland M, et al. Perceived discrimination and substance use in African American parents and their children: a panel study. J Pers Soc Psychol. 2004; 86:517–529. [PubMed: 15053703]
- 10. Whitbeck LB, Hoyt DR, McMorris B, et al. Perceived discrimination and early substance abuse among American Indian children. J Health Soc Behav. 2001; 42(4):405–423. [PubMed: 11831140]
- Phinney JS. The stages of ethnic identity development in ethnic minority group adolescents. J Early Adolesc. 1989; 9:34–49.
- Williams-Morris RD. Racism and children's health: Issues in development. Ethn Dis. 1996; 6:69– 82. [PubMed: 8882837]
- Shrake EK, Rhee S. Ethnic identity as a predictor of problem behaviors among Korean American adolescents. Adolescence. 2004; 39:601–622. [PubMed: 15673233]
- Fisher CB, Wallace SA, Fenton RE. Discrimination distress during adolescence. J Youth Adolesc. 2000; 29:679–695.
- Kessler RC, Mickelson KD, Williams DR. The prevalence, distribution, and mental health correlates of perceived discrimination in the United States. J Health Soc Behav. 1999; 40(3):208– 230. [PubMed: 10513145]
- Simons RL, Murry V, McLoyd V, et al. Discrimination, crime, ethnic identity, and pareting as correlates of depressive symptoms among African American children: a multilevel analysis. Develop Psychopathol. 1997; 14:371–393.
- Williams DR, Yu Y, Jackson JS, et al. Racial differences in physical and mental health:socioeconomic status, stress, and discrimination. J Health Psychol. 1997; 2:335–351. [PubMed: 22013026]
- 18. Biafora FA, Warheit GJ, Zimmerman RS, et al. Racial mistrust and deviant behaviors among ethnically diverse Black adolescent boys. J Appl Soc Psychol. 1993; 23:171–188.
- Resnicow K, Soler RE, Braithwaite RL, et al. Development of a racial and ethnic identity scale for African American adolescents, the Survey of Black Life. J Black Psychol. 1999; 25:171–188.
- 20. Landrine H, Klonoff EA. Racial segregation and cigarette smoking among Blacks: findings at the individual level. J Health Psychol. 2000; 5:211–219. [PubMed: 22049011]
- Sanders-Phillips, K. Ethnic minority women, health behaviors, and drug abuse: a continuum of psychosocial risks. In: Glantz, MD.; Hortel, CR., editors. Drug Abuse: Origins and Interventions. American Psychological Association; Washington, DC: p. 191-217.
- Greene ML, Way N, Pahl K. Trajectories of perceived adult and peer discrimination among Black, Latino, and Asian American adolescents: Patterns and psychological correlates. Dev Psychol. 2006; 42(2):218–238. [PubMed: 16569162]
- 23. Rosenbloom SR, Way N. Experiences of discrimination among African American, Asian American, and Latino adolescents in an urban high school. Youth Soc. 2004; 35:420–451.

uscript NIH

- Romero AJ, Roberts RE. The impact of multiple dimensions of ethnic identity on discrimination and adolescent's self-esteem. J Appl Soc Psychol. 2003; 33:2288–2305.
- 25. Fennelly, K.; Mulkeen, R.; Giusti, C. Coping with racism and discrimination. In: McCrobin, HI.; Thompson, EA.; Thompson, AI.; Fromer, SE., editors. Resilience in Native American and Immigrant Families. Thousand Oaks, CA: Sage; p. 367-383.
- NSDUH Report: Substance Use and Dependence Following Initiation of Alcohol or Illicit Drug Use, March 27, 2008. Substance Abuse and Mental Health Services Administration, Office of Applied Studies;
- 27. Ramirez, R.; de la Cruz, GP. The Hispanic population in the United States: March current population reports. U.S. Census Bureau; Washington, DC: 2002.
- Gonzales NA, Dumka L, Deardorff J, et al. Preventing poor mental health and school dropout of Mexican American adolescents following the transition to junior high school. J Adolesc Res. 2004; 19(1):113–131.
- 29. Martinez C. Effects of differential family acculturation on Latino adolescent substance use. Fam Rel. 2006; 55:306–317.
- 30. Amaro H, Whitaker R, Coffman G, et al. Acculturation and marijuana and cocaine use: findings from the HHANES 1982–1984. Am J Public Health. 1990; 80:65–60.
- 31. Unger JB, Cruz TB, Rohrbach LA, et al. English language use as a risk factor for smoking initiation among Hispanic and Asian American adolescents: evidence for mediation by tobaccorelated beliefs and social norms. Health Psychol. 2000; 19:403–410. [PubMed: 11007148]
- Vega WA, Alderete E, Kolody B, et al. Illicit drug use among Mexicans and Mexican Americans in California: the effects of gender and acculturation. Addiction. 1998; 93:1839–1850. [PubMed: 9926572]
- 33. Unger JB, Ritt-Olson A, Teran L, et al. Cultural values and substance use in a multiethnic sample of adolescents. Addict Res Theory. 2002; 10:257–279.
- 34. Unger JB, Shakib S, Ritt-Olson, et al. Cultural/interpersonal values and smoking in a multicultural adolescent sample. J Cult Divers. 2006; 13:55–63. [PubMed: 16696546]
- 35. Gil AG, Wagner EF, Vega WA. Acculturation, familism, and alcohol use among Latino adolescent males: longitudinal relations. J Comm Psychol. 2000; 28(4):443–458.
- 36. Myers D, Baer WC, Choi SY. The changing problem of overcrowded housing. J Am Plann Assoc. 1996:62.
- Norris AE, Ford K, Bova CA. Psychometrics of a brief acculturation scale for Hispanics in a probability sample of urban Hispanic adolescents and young adults. Hispanic J Behav Sci. 1996; 18:29–38.
- Marin BV, Otero-Sabogal R, Perez-Stable EJ. Development of a short acculturation scale for Hispanics. Hispanic J Behav Sci. 1987; 91:83–205.
- Guyll MG, Matthews KA, Bromberger J. Discrimination and unfair treatment: relationship to cardiovascular reactivity among African American and European American women. Health Psychol. 2001; 20(5):315–325. [PubMed: 11570645]
- 40. Krohn MD, Lizotte AJ, Thornberry TP, et al. Reciprocal causal relationships among drug use, peers, and beliefs: a 5-year wave panel model. J Drug Issues. 1996; 26:405–428.

Table 1

Sample Characteristics

Characteristics	N (1332)	Frequency (%)
Gender		
Male	646	49
Female	686	51
Generational Status		
1 st generation in U.S.	196	14.7
2 nd generation in U.S.	990	74.3
3 rd or more generations in U.S.	146	11.0
Origins ^a		
Central America	197	14.8
South America	25	1.9
Mexico	1148	86.2
U.S.	357	26.8
Other	84	6.3
Age (Mean[SD])	14.0 (0.41)	
13	108	8.1
14	1121	84.2
15	99	7.4
16	4	0.3
Mean PD score (SD)	1.71 (0.58)	
Mean Rooms per people (SES)	0.86 (0.46)	
Lifetime Drug Use		
Cigarettes	352	26.4
Alcohol	634	47.6
Marijuana	257	19.3
Inhalants	166	12.4
Past 30 Day Use		
Cigarettes	90	6.8
Alcohol	328	24.6
Binge Drinking	169	12.7
Marijuana	141	10.6
Inhalants	108	8.1

Note.

 a Students were allowed to select as many countries as applied for this question; therefore, the total will equal more than 100.

7
~
=
т.
1.1
1
1
~
=
5
\leq
_
~
\geq
മ
5
2
5
S
0
-
.
9

NIH-PA Author Manuscript

NIH-PA Author Manuscript

	Cigare	tte Use	Alcoh	ol Use	Mariju	ana Use	Inhala	nt Use
Independent Variable	Crude (95% CI)	Adjusted (95%CI)	Crude (95% CI)	Adjusted (95%CI)	Crude (95% CI)	Adjusted (95%CI)	Crude (95%CI)	Adjusted (95%CI)
Perceived Discrimination	$1.73^{**}(1.31-2.29)$	$1.73^{**}(1.30-2.31)$	$1.48^{**}(1.13-1.94)$	$1.53^{**}(1.20-1.96)$	$1.69^{**}(1.21-2.35)$	$1.70^{**}(1.21-2.40)$	$1.46^{*a}(1.01-2.20)$	$1.50^{*a}(1.02-2.25)$
Male		0.97(0.75–1.27)		0.75 **(0.64-0.88)		0.95(0.85–1.07)		$0.82^{*a}(0.70-0.96)$
Age		1.24(0.96 - 1.59)		0.92(0.77 - 1.10)		1.11(0.84 - 1.46)		0.94(0.68 - 1.29)
SES		1.24(0.97–1.59)		$1.53^{**}(1.21-1.94)$		$1.49^{**}(1.17-1.91)$		1.18(0.91 - 1.52)
Acculturation		1.01(0.89 - 1.16)		1.05(0.88–1.24)		$1.34^{**}(1.15{-}1.56)$		1.10(0.95 - 1.27)
Note.								
** P<0.01								
* P<0.05								

^a If we use the more conservative Bonferroni adjustment for these analyses, these values would no longer be significant (9 models = 0.5/9=0.06).

_
_
<u> </u>
-
~
-
<u> </u>
~
–
_
_
-
\mathbf{O}
<u> </u>
_
_
~
\geq
m
_
_
_
-
U)
-
\mathbf{O}
~
_
\mathbf{U}
_

NIH-PA Author Manuscript

Okamoto et al.

Odds Ratios for Perceived Discrimination and 30-Day Substance Use Outcomes (N=1332)

	Cigan	ette Use	Alcoh	ol Use	Binge I	rinking	Mariju	ana Use	Inhala	nt Use
Independent Variable	Crude (95% CI)	Adjusted (95%CI)	Crude (95% CI)	Adjusted (95%CI)	Crude (95% CI)	Adjusted (95%CI)	Crude (95%CI)	Adjusted (95%CI)	Crude (95%CI)	Adjusted (95%CI)
Perceived Discrimination	2.44 ** (1.75–3.42)	2.54**(1.73–3.72)	$1.60^{**}(1.31 - 1.97)$	$1.63^{**}(1.33-1.99)$	$1.83^{**}(1.45-2.32)$	$1.84^{**}(1.47-2.30)$	$1.95^{**}(1.42-2.68)$	1.95 ** (1.38–2.75)	1.56 ^{* a} (1.07–2.28)	$1.64^{**}(1.14-2.36)$
Male		0.76(0.56 - 1.04)		0.91(0.79–1.05)		1.00(0.75 - 1.34)		0.99(0.73–1.35)		0.68 **(0.55-0.85)
Age		1.40(0.92 - 2.14)		1.06(0.75 - 1.48)		0.96(0.70 - 1.30)		1.28(0.79 - 2.08)		0.70(0.32 - 1.52)
SES		$1.71^{**}(1.15-2.53)$		$1.55^{**}(1.13-2.14)$		$1.56^{*}(1.10-2.22)$		$1.55^{*a}(1.09-2.19)$		1.00(0.70 - 1.42)
Acculturation		1.31(0.91 - 1.87)		1.00(0.81 - 1.24)		1.03(0.80 - 1.32)		$1.52^{**}(1.13-2.06)$		$1.42^{**}(1.19-1.68)$
Note.										
** P<0.01										
* P<0.05										

 a If we use the more conservative Bonferroni adjustment for these analyses, these values would no longer be significant (9 models = 0.5/9=0.06).