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Perceived ethnic discrimination, ethnic-racial socialization, and substance use among ethnic minority adolescents

Abstract

Perceived discrimination is a significant problem among ethnic minority adolescents and has been consistently linked to negative outcomes, including substance use, although few studies examine this relation with more than one time point. The present study adds to the literature by examining whether ethnic-racial socialization moderates the effects of perceived discrimination at time 1 on recent substance use six months later in a sample of ethnic minority, public high school students in Southern California. The results from analyses of survey data showed that perceived discrimination did not predict the likelihood of the outcomes, and they suggest that discrimination based on attributes other than ethnicity, such as immigration or documentation status, may be operating in the sample. Future research should simultaneously analyze effects of discrimination by type of attribute as well as level (e.g., intragroup, intergroup, and structural). With regard to ethnic-racial socialization in the multivariate models, cultural socialization was negatively related to the likelihood of the outcomes. Preparation for bias was positively related to the likelihood of the outcomes. Promotion of mistrust was not statistically significantly related to the likelihood of the outcomes. Although the socialization variables did not moderate the effect of perceived discrimination, they were clearly related to substance use in multiple ways, suggesting that future research continue to distinguish the effects of socialization by type to better understand how they can be addressed to optimize youth outcomes.

Introduction

Perceived discrimination is a significant problem among ethnic minority youth (Coker, Elliot, & Kanouse, 2009; Grollman, 2015; Martin, Bacher, Conger, & Robins, 2018; Zapolski, Rowe, Banks, & Faidley, 2019) and immigrant youth (Alemi et al., 2017; Cano et al., 2015; Cervantes, Padilla, Napper, & Goldbach, 2013). Scholars have examined racial discrimination (e.g., Harris-Britt, Valrie, Kurtz-Costes, & Rowley, 2007), ethnic discrimination (e.g., Martin, Bacher, Conger, & Robins, 2018), everyday discrimination (that is, without specifying a cause) (e.g., Majeno, Tsai, Huynh, McCreath, & Fuligni, 2018; Zapolski, Rowe, Banks, & Faidley, 2019), and, particularly among scholars interested in youth from immigrant families, discrimination as part of measures of acculturation stress (e.g., Buchanan & Smokowski, 2009; Cano et al., 2015). Despite variation in measurement, perceived discrimination has consistently been linked to a variety of negative effects on youth. For example, it has been linked to greater internalizing and externalizing problems (Park et al., 2018; Ponting et al., 2018; Stevens & Thijs, 2018), greater psychological distress and less school engagement (Buckle, 2018), sleep disturbances (Majeno, Tsai, Huynh, McCreath, & Fuligni, 2018), depressive symptoms (Alemi et al., 2017), poor physical health (Grollman, 2015), and delinquency (Burt, Simons, & Gibbons, 2012).

Perceived discrimination has also been linked to youth substance use. It was associated with greater substance use among African American youth (Assari, Mistry, & Caldwell, 2018; Zapolski, Rowe, Banks, & Faidley, 2019), Latino youth (Cano, et al., 2015; Cardoso, Goldbach, Cervantes, & Swank, 2016; Kam, Cleveland, & Hecht, 2010; Martin, Rand, Conger, & Robins, 2018), American Indian youth (Garrett, Livingston, Livingston, & Komro, 2017; Whitbeck, Hoyt, McMorris, Chen, & Stubben, 2001), Asian-heritage college students (Chia-Chen Chen,

Szalacha, & Menon, 2014; Yoo & Lee, 2008) and immigrant youth (Walsh, Sagis-Krebs, & Gross, 2018). Youth substance use is associated with increased risk of later and heavier substance use, other delinquency, early sexual behavior, and academic challenges, each of which may negatively affect life-course outcomes (Biglan & Cody, 2003; Griffin, 2010).

Given the relation of perceived discrimination to youth substance use and the serious consequences of substance use, a critical goal for research is to understand what processes may serve as a resource to moderate this relation and protect youth from negative consequences (Martin, Bacher, Conger, & Robins, 2018). Studies have examined factors that may mitigate the negative effects of perceived discrimination on youth outcomes, exploring individual factors, such as ethnic identity (e.g., Alemi et al., 2017; Yoo & Lee, 2008) and family factors, such as parents' cultural orientations and values (e.g., Delgado, Updegraff, Roosa, & Umaña-Taylor, 2011). Responding to Gibbons and Stock's (2018) call for research generally on moderators of perceived discrimination and Barton and Brody's (2018) call for research specifically on parenting processes as moderators of perceived discrimination, the present study examines parents' ethnic-racial socialization of their children as a moderator of perceived discrimination's relation to substance use.

Ethnic-racial socialization

Ethnic-racial socialization (ERS) refers to parental messages to children that address issues concerning the child's race and ethnicity and may involve the transmission of parents' attitudes, behaviors, or views (Hughes, 2003; Hughes et al., 2006). The socialization process occurs "by way of subtle, overt, deliberate, and unintended mechanisms" (Hughes, 2003, p. 15) and is intended to enable children to adapt to the environments where they live (Umaña-Taylor & Guimond, 2010). Studies of ERS have typically focused on a single racial/ethnic group, most

commonly African Americans (Hughes et al., 2006). Some emerging research focuses on Latinos and, more specifically, immigrant Latinos (Ayón, Tran, & Nieri, 2019; Ayón, Nieri, & Ruano, 2019; Ayón, 2018). Few studies include multiple ethnic groups (Grindal & Nieri, 2015b).

In this study we examine the three most commonly studied ERS strategies: cultural socialization, preparation for bias, and promotion of mistrust (Ayón, Nieri, & Ruano, 2019; Hughes et al., 2006). Cultural socialization refers to messages that foster knowledge and appreciation for the cultural heritage and values of the child's ethnic group (Hughes et al., 2006). Preparation for bias refers to messages that prepare the child for possible encounters of discrimination (Hughes et al., 2006). Promotion of mistrust refers to messages that promote wariness of other ethnic groups (Hughes et al., 2006). Of these strategies cultural socialization appears to be the strategy most commonly used by parents (Ayón, Tran, & Nieri, 2019; Hughes et al., 2006). It is also the strategy most commonly studied by scholars, particularly in studies of Latinos. Few studies examine more than one strategy (Ayón, Nieri, & Ruano, 2019; Hughes et al., 2006). Thus, there is a need to simultaneously examine multiple strategies to understand their relative use and effects.

ERS has been directly linked to various youth outcomes, though not consistently, and its effects appear to vary by strategy (for a review, see Hughes et al., 2006). Cultural socialization has been most consistently associated with positive effects, whereas the effects of preparation for bias and promotion of mistrust are less clear (Hughes et al., 2006). With regard to substance use, results on ERS' direct effects have been mixed. For example, Grindal and Nieri (2015b) found that cultural socialization was associated with less substance use, preparation for bias was not associated with substance use, and promotion of mistrust was associated with more substance use. In terms of their explanation of the last finding, they contended that promotion of mistrust

may operate as a stressor because it alerts youth to the possibility of maltreatment without providing strategies for responding to it. In contrast to the aforementioned studies, Espinoza and colleagues (2016) found no effect of any of the three socialization strategies on substance use.

A primary function of ERS is to prepare youth to recognize and cope with discrimination (Hughes et al., 2006). In fact, the experience of discrimination by children has been associated with greater ERS by parents (Direso, 2006; Stevenson, Cameron, Herrero-Taylor, & Davis, 2002). That said, few empirical studies examine ERS as a moderator of perceived discrimination's effects. The few studies that have examined ERS as a moderator of perceived discrimination have focused on mental health outcomes or school adjustment. Harris-Britt and colleagues (2007) found that preparation for bias reduced the undesirable effects of perceived discrimination on youths' self-esteem. Neblett and colleagues (2008) found that racial socialization reduced the undesirable effects of perceived discrimination on adolescents' stress and problem behaviors. Atkin and colleagues (2019) found that cultural socialization buffered, and promotion of mistrust exacerbated, the negative effect of perceived discrimination on psychological distress. Schires and colleagues (2018) found that preparation for bias buffered the negative effect of perceived discrimination on psychological distress and externalizing behaviors. Seol and colleagues (2016) found that cultural socialization and preparation for bias moderated the effect of perceived discrimination on school adjustment. Espinoza and colleagues (2016) found that ERS (all three strategies) increased the undesirable effects of perceived discrimination (in this case, parents' experiences) on youths' self-esteem. In contrast to the three above-mentioned studies, Huynh and Fuligni (2010) found that the three ERS strategies did not moderate the undesirable effects of discrimination on mental health. Although Neblett and colleagues (2010) argued that ERS has the potential to moderate the effects of perceived

discrimination on youth substance use, we found no studies that tested that possibility. The present study addresses this gap.

This study

Garcia Coll and colleagues (1996) encourage the use of an ecological perspective in research on ethnic minority children and families in order to account for unique factors, such as discrimination, that affect ethnic minority youth and explain disparities in adolescent developmental outcomes. The model highlights the roles of social stratification and minority populations' adaptive resources which mitigate stratification's effects. Guided by Garcıa Coll and colleagues' (1996) integrative model for the study of developmental competencies in ethnic minority children, the current study examined adolescents in the ecological contexts of their families (socialization) and mainstream society (discrimination) and identified both a risk (discrimination) and a resource (ERS) that may be important for ethnic minority adolescents' substance use.

We examined ERS as a moderator, using data with two time points, an advantage over prior studies on perceived discrimination's relation to substance use among ethnic minority adolescents which had data from only a single time point (Martin, Bacher, Conger, & Robins, 2018). We hypothesized that ethnic-racialization would moderate the relation of perceived discrimination to substance use; however, the direction of the effect could vary by socialization strategy. Given the consistency of results in prior research, we hypothesized that cultural socialization would reduce the undesirable effect of discrimination on substance use. We hypothesized that the moderating effect of preparation for bias and promotion of mistrust could be either positive or negative, given the inconsistent results in prior research.

Methods

Data

Data came from paper-and-pencil surveys administered to 315 10th-grade students from a suburban, public high school in southern California. They were collected in the fall and spring of the 2011-2012 academic year. The school enrolled about 3,000 students: 68% Latino, 18% Asian/Pacific Islander, 8% Caucasian, 5% African American, and 1% other ethnicity or race. Slightly over half of the students (57%) participated in the school's free and reduced-price lunch program. Seven percent of the students were English language learners.

The university's institutional review board (IRB) and the school administrators approved the study. The research team distributed parental consent forms and recruited participants in the school's 10th-grade English classes. Fifty percent of the students returned signed parental consent forms. A week after recruitment, the team distributed assent forms to students whose parents provided consent. Of those students, 93% assented to participate. Participating students completed self-administered surveys in the classroom during the school day, with the research team present to answer any questions. Non-participating students received an alternate exercise.

Sample

The sample included the 259 students who identified their race/ethnicity as anything other than European American or White only. The average age of the sample was 15 years (SD = 0.394). As indicated in Table 1, the majority was female (n = 158, 61%) and participated in either the free or reduced-price lunch program (n = 162, 62.6%). Only 7% (n = 18) of the sample was foreign born. The sample was comparable to the larger school population in terms of these characteristics. The sample was slightly more Latino (n = 190, 73.4%) than the school population as a whole.

Measures

Perceived ethnic discrimination. The key independent variable—perceived ethnic discrimination—created by Kulis, Marsiglia, and Nieri (2009) and measured at Time 1, had five items with responses ranging from 1 = "strongly disagree" to 4 = "strongly agree": (1) "People don't like me because of my ethnic group," (2) "Kids at school say bad things or make jokes about me because of my ethnic group," (3) "Kids my age exclude me from their activities or games because my ethnic group is different," (4) "People think my English is bad," and (5) "Kids like me, who are from my ethnic group, can't get good grades at school." Higher values on the scale indicate more perceived discrimination. The measure had good reliability ($\alpha = 0.812$).

Ethnic-racial socialization. The moderating variables – three ERS variables – were derived from previously validated measures (Brown & Krishnakumar, 2007; Tran and Lee, 2010) and further validated and used successfully in prior research (Grindal, & Nieri, 2015a; Grindal, & Nieri, 2015b). They were measured at Time 1. The cultural socialization measure included six items measuring the frequency of parental messages stressing pride in one's ethnic group, the promotion of one's ethnic heritage through attending cultural events, learning about the history of the one's ethnic group, and the transmission of ethnic cultural values (e.g., ''My parents encourage me to be proud about my ethnic culture''). Each item contained five response categories options from ''never'' to ''very often.'' The items were averaged to create an index ranging from 0 to 4, with a higher score indicating more frequent cultural socialization. The measure had good reliability ($\alpha = 0.89$). The preparation for bias measure included four items measuring the frequency of parental messages addressing instances of discrimination, unfair treatment, and limitations that the child could experience based on membership in his/her racial group (e.g., ''My parents speak with me about others who may try to limit me because of my race''). Each item contains five response options ranging from ''never'' to ''very often.'' The

items were averaged to create an index ranging from 0 to 4, with a higher score indicating more frequent preparation for bias. The measure had good reliability ($\alpha = 0.779$). The promotion of mistrust measure included three items measuring the frequency of parental messages promoting wariness and distrust of people from other racial groups (e.g., "My parents have done or said things that have kept me from trusting people from other races"). Each item contains five response options ranging from ''never'' to ''very often.'' The items were averaged to create an index ranging from 0 to 4, with a higher score indicating more frequent promotion of mistrust. The measure had good reliability ($\alpha = 0.809$).

Substance use. The dependent variables – substance use – came from the Drug Resistance Strategies Project IV (DRS4; https://sirc.asu.edu/content/keepin'-it-real-efficacy-trial) and have been used extensively in prior research to assess youth substance use (e.g., Grindal & Nieri, 2015b; Hodge, Marsiglia, & Nieri, 2011; Marsiglia, Kulis, Yabiku, Nieri, & Coleman, 2011; Marsiglia, Kulis, Hussaini, Nieri, & Becerra, 2010; Marsiglia, Yabiku, Kulis, Nieri, & Lewin, 2010; Parsai et al., 2009). The measures, captured at Time 2, focused on the substances most commonly used by adolescents: alcohol, cigarettes, and marijuana. For substance use amount, students reported the number of drinks, cigarettes, and marijuana hits they consumed in the last 30 days. Responses were on a seven-point Likert scale, ranging from 0 (none) to 6 (more than 30 drinks, more than 20 cigarettes, and more than 40 hits). This measure captures the quantity of the substance consumed, regardless of whether it was consumed in one sitting or multiple sittings. For substance use frequency, students reported the number of times in the last 30 days that they consumed each substance, regardless of the amount of the substance consumed in any one time. Responses were on a seven-point Likert scale, ranging from 0 (none) to 6 (more than 40 times). A single additional item captured binge drinking, also known as heavy episodic drinking (Adan,

Benaiges, & Forero, 2019). It measured how many times in the last 30 days that the youth had consumed five or more drinks of alcohol within a few hours. Responses ranged from 0 (zero times) to 4 (6 or more times). We also produced a set of these measures in which the responses were dichotomized: 0 = no use, 1 = some use in the case of the use variables and 0 = no binge drinking, 1 = some binge drinking in the case of the binge drinking variable.

Covariates. Time 1 control variables included gender (1 = female, 0 = male), participation in the free or reduced-price lunch program (1= free/reduced-price lunch, 0 = regular-priced lunch), race/ethnicity (1 = Latino, 0 = non-Latino), nativity (1 = foreign born, 0= native born), linguistic acculturation to English (1 = low, 5 = high), and self-reported usual grades received in school (1 = Mostly F's to 9 = Mostly A's). With regard to linguistic acculturation to English, participants reported that on average, they use English very much when talking with family members or friends, watching television, and listening to music or the radio (M = 4.3256, SD = 0.6128). With regard to the usual grades received in school, participants reported that on average, they receive mostly B grades (M = 7.11, SD = 1.377).

Analyses

We conducted descriptive analyses to assess the levels of perceived discrimination, ERS, and substance use. We conducted bivariate analyses (independent samples t-tests, Pearson correlations, and Spearman correlations) to assess variations in perceived discrimination by participant demographics, the relation of the ERS variables to each other, the relation of perceived discrimination to ERS, and the relation of perceived discrimination and ERS to substance use. While we originally produced ordinary least squares regression models, we ultimately produced binary logistic regression models, given the distributions of the dependent variables toward low use. We first produced models to assess the main effects of perceived

discrimination and the three ERS strategies on substance use, net of each other and covariates. We then produced three additional sets of models. In each additional set, we added to the models an interaction term to assess the interaction of perceived discrimination with one of the ERS strategies. The interaction terms in these models were based on the mean-centered versions of the original variables. Finally, we conducted a sensitivity analysis, estimating alternative models that adjusted for the skewed distributions in the substance use outcomes.

Preliminary analyses showed low rates of cigarette use: only 8% reported recent use, with low means for both amount (M = .2278, SD = .8751) and frequency (M = .1583, SD = .7167). Furthermore, we found no relations between cigarette use and key predictors, likely due to the low rates of use in the sample. Therefore, we restricted our presentation of results to the alcohol and marijuana outcomes.

Results

Descriptive and bivariate analyses

Table 1 contains the means and standard deviations of the variables in the analysis. Table 2 contains the correlations of the variables in the analysis with the substance use outcomes. The average level of perceived discrimination was low in the sample as a whole, and it varied by participant demographics. Relative to girls (M = 1.3405, SD = 0.4357), boys (M = 1.4802, SD = 0.5004) reported more discrimination (t = 2.303, df = 191.72, p = 0.022). Relative to students not in the free/reduced-price lunch program (M = 1.2928, SD = 0.3895), students in the free/reduced-price lunch program (M = 1.4562, SD = 0.4976) reported more perceived discrimination (t = -2.2938, df = 239.124, p = 0.004). Relative to Latinos (M = 1.3395, SD = 0.451), Non-Latinos (M = 1.5478, SD = 0.4761) reported more discrimination (t = 3.157, df = 115.135, p = 0.002). Relative to native-born youth (M = 1.3693, SD = 0.4365), foreign-born youth (M = 1.7389, SD =

0.687) reported more discrimination (t = -2.249, df = 18.04, p = 0.037). Usual grades was negatively correlated with discrimination (r_s = -.130, p = .036).

Participants reported that among the three ERS strategies, their parents engaged in cultural socialization most frequently. The mean frequency of cultural socialization indicated that parents sometimes engaged in the strategy. The mean frequency of preparation for bias indicated that parents rarely engaged in the strategy. The mean frequency of promotion of mistrust indicated that parents rarely engaged in the strategy. Cultural socialization was positively correlated with preparation for bias (r_s = .518, p = .000) and promotion of mistrust (r_s = .136, p = .029). Preparation for bias and promotion of mistrust were positively correlated with each other (r_s = .579, p = .000). Perceived discrimination was not correlated with cultural socialization (r_s = -.016, p = .796) but was positively correlated with preparation for bias (r_s = .185, p = .003) and promotion of mistrust (r_s = .317, p = .000).

Thirty-nine percent of the sample reported recent use of at least one of the three substances. Thirty-six percent reported recent use of alcohol. Twenty percent reported recent use of marijuana. Eighteen percent reported binge drinking in the last thirty days. The mean amounts and frequencies of recent use were generally low in the sample (as seen in Table 1). Perceived discrimination was not correlated with any of the substance use variables. Cultural socialization was negatively correlated with all of the substance use measures. Preparation for bias and promotion of mistrust were not correlated with substance use.

Multivariate analyses

The tests of the interaction of perceived discrimination with each of the ERS variables yielded no statistically significant interactions, and the addition of the interaction term did not

improve the models, as indicated by the χ^2 for the log-likelihood difference (results not shown in tables).

Table 3 contains regression results for models of the main effects of perceived discrimination and the three ERS strategies, net of covariates, on the likelihood of alcohol and marijuana use. Perceived discrimination had negative coefficients but was not statistically significantly related to the outcomes. Cultural socialization was negatively related to all of the outcomes. Preparation for bias was positively related to all of the outcomes. Promotion of mistrust had negative coefficients but was not statistically significantly related to the outcomes.

With regard to covariates in these models, being Latino had negative coefficients for all outcomes but was only statistically significantly related to the likelihood of alcohol amount. Being foreign born had negative coefficients for all outcomes but was only statistically significantly related to the likelihood of binge drinking. Usual school grades statistically significantly and negatively predicted all outcomes except alcohol amount in which case the p value was .059. Being female, participating in the free/reduced-price lunch program and acculturation to English were not related to the outcomes.

The sensitivity analysis involved estimating alternate models that adjusted for the skewed distributions in the substance use outcomes. Poisson models did not fit the data well (results not shown). Despite our dependent variables not being true count variables, negative binomial models fit the data well. Relative to the binary linear regression models, the negative binomial models yielded substantively similar results in terms of magnitude and direction of the effects of perceived discrimination and the socialization measures, although the probability values shifted upward slightly. In the case of covariates, being Latino flipped direction but remained

statistically significant; being foreign born flipped direction and became statistically significant; and the probability value for usual grades shifted upward slightly (see the Appendix).

Discussion

Informed by Garcia Coll and colleague's integrative model (1996), the purpose of this study was to examine the relations of perceived discrimination, ERS, and substance use among ethnic minority students, using data with two time points. Our moderation hypotheses were not supported, as ERS was not statistically significant as a moderator. Yet, the findings shed light on several factors that warrant our attention on how ERS functions, and the relations between perceived discrimination and substance use among ethnic minority youth.

Although the substance use prevalence rates in the sample may appear low, they were higher than national rates in 2011 (the year our data were collected). Relative to 36% of the sample, 27.2% of 10th graders nationwide reported last 30-day use of alcohol. Relative to 20% of the sample, 17.6% reported last 30-day use of marijuana. Relative to 18% of the sample, 13.7 reported having been drunk in the last 30 days (Johnston et al., 2019). Contrary to previous research (Cano, et al., 2015; Cardoso, Goldbach, Cervantes, & Swank, 2016; Walsh, Sagis-Krebs, & Gross, 2018), perceived discrimination was not associated with the likelihood of substance use in our sample. It is possible that other, unmeasured moderating variables were operating to weaken the relations between perceived discrimination and substance use. For instance, Zapolski et al. (2018) found that youth with high distress tolerance reported a weaker relationship between perceived discrimination and substance use. Alternatively, since the study occurred in a minority majority geographic area, the discrimination may have operated differently than in other studies. For example, given that white adolescents may engage in more

substance use than other adolescents (Johnston et al., 2019), minority students who perceived discrimination from white students may have socialized less with them and, in turn, had less opportunity to use substances. Another possibility is that the discrimination may have been related to the religious involvement of minority students which itself could be associated with less substance use (Hodge, Marsiglia, & Nieri, 2011).

The rates of discrimination in the sample were low. There are two possible explanations for this result. First, the school where youth were recruited is majority minority; so it is possible that in this setting the youth do not experience high levels of discrimination based on their ethnic/racial background. Second, the measure of discrimination assessed interpersonal discrimination based on ethnicity. Existing research has used diverse measures of perceived discrimination (Kulis, Marsiglia, Nieri, 2009), some are race based (Park et al., 2018), and others account for race, acculturations stress, or nonspecific forms of discrimination (Williams, Yu, Jackson, & Anderson, 1997). In bivariate analyses of our sample foreign-born youth reported higher levels of discrimination; thus, it is possible that youth in the sample school are targeted based on their nativity or assumptions about their documentation or immigration status rather than their ethnic/racial attributes. Córdova & Cervantes (2010) found that Latino youth reported within-group discrimination based on immigration status or generation, country of origin, and skin tone; and foreign-born Latino youth attributed their experiences of discrimination to low acculturation indicators such as use of Spanish, limited English proficiency, and wearing traditional attire. The sample of foreign-born youth was too small to conduct further analyses to test this possibility.

In efforts to better target interventions aiming to address the impact of discrimination on youth, additional research is needed to examine various forms of discrimination (i.e., within

group, between group, structural/institutional discrimination). With recent changes in the U.S. immigration policy climate, immigrants and Latinos report higher levels of discrimination. For instance, in states that have passed several anti-immigrant policies, Latinos reported high levels of perceived discrimination (Almeida et al., 2016). Recognizing and labeling institutional and structural discrimination as well as discrimination by in-group members and out-group members is a critical step towards taking action or developing coping strategies (Ayón, Wagaman, & Philbin, 2018).

The present study showed that it is important to examine ERS strategies independently as they operate differently. The ERS strategies function to reduce or increase the likelihood of substance use in our sample. Consistent with previous literature, the multivariate results showed that cultural socialization was protective of youth (Berkel et al. 2010; Bynum et al., 2007; Espinoza et al. 2016; Grindal & Nieri, 2015b; Neblett et al. 2008), as it was associated with lower likelihoods of all of the outcomes. Preparation for bias was associated with greater likelihoods of all of the outcomes. Measures of preparation for bias focus parents' efforts to increase youth awareness of discrimination; however, they do not assess coping strategies that parents may impart as part of their messaging. One explanation of the finding of this association is that youth who feel excluded or targeted may turn to substances as a way to cope. At the same time, additional research is needed to determine the adaptive coping strategies youth use to navigate stressful ethnic/racial environments. Promotion of mistrust was not a significant predictor of the likelihood of any of the outcomes, perhaps due to the fact that the strategy is used so infrequently.

Similar to Huynh and Fuligni (2010) who found no moderating role of ERS in the relation of discrimination to mental health outcomes, we found that ERS strategies did not buffer

the effects of perceived discrimination on the likelihood of substance use in the present study. It is possible that parenting strategies do not outweigh the effects of peer interaction such as discrimination. Other studies have found that parenting strategies have a direct effect, but not a buffering effect, to protect youth from substance use (Becerra et al., 2016). Additional research is needed to assess if ERS can serve as a buffer for other youth outcomes (Neblett, Terzian, & Harriott, 2010).

Findings from this study can inform practice with ethnic minority families and substance use prevention interventions. Cultural socialization is consistently linked to positive outcomes among ethnic minority youth. In keeping with interventions that are culturally responsive to the needs of youth and families (Ayón et al., 2016; Barrio & Yamada, 2010; Okamoto et al., 2012), substance use prevention programs can integrate cultural socialization strategies to promote youth ethnic identity, strengthen youths' acceptance of who they are, and recognize inherent strengths in their cultural background. Interventions with parent components can also raise parents' awareness of the benefits of engaging in cultural socialization and include interactive activities to facilitate engaging children in learning more about their culture and heritage. Integrating cultural socialization can protect youth from substance use and translate into other aspects of their lives to protect youth from negative outcomes.

Limitations

While this study focused on the three most commonly studied ERS strategies, other ERS strategies exist. For example, Hughes and colleagues (2006) identified egalitarianism – that is, parental messages encouraging children to value individual characteristics over ethnic-racial group membership, thrive in mainstream settings, avoid discussions about race-ethnicity, and take a colorblind perspective. Other research has identified strategies associated with immigrant

status (Ayón, 2018). Data on these strategies were not available in our dataset. However, future research can gather data on these strategies to assess their direct and interactive effects. Given the salience of nativity in this study, it would be important to look at immigrant-related ERS. While the analysis compared Latinos to non-Latinos, enabling us to see the effect of being Latino, we did not have sufficient subsample size to break down the non-Latino group to facilitate more specific racial-ethnic sub-group comparisons.

Conclusion

Research on ERS with diverse groups of ethnic minority youth is still in development. Few studies have examined the relationship between different ERS strategies and substance use. Findings from this study suggest that ERS, specifically cultural socialization, has promise as a protective, though not buffering, strategy that parents can use to help build youth's internal resources against substance use.

References

Adan, A., Benaiges, I., & Forero, D.A. (2016). In V.R. Preedy (Ed.), *Neuropathology of Drug Addictions and Substance Misuse. Volume 1: Foundation of Understanding Tobacco, Alcohol, Cannabinoids, and Opioids*, Heavy episodic drinking or binge drinking: A booming consumption pattern *(pp. 389-287)*. Amsterdam, The Netherlands: Academic Press, Elsevier Inc. doi: 10.1016/B978-0-12-800213-1.00036-5

Alemi, Q., Siddiq, H., Baek, K., et al. Effects of perceived discrimination on depressive symptoms in 1st- and 2nd-generation Afghan-Americans. *Journal of Primary Prevention, 38*, 613-626. doi: 10/1007/s10935-017-0492-5

Almeida, J., Biello, K., Pedraza, F., Wintner, S., & Viruell-Fuentes. (2016). The association between anti-immigrant policies and perceived discrimination among Latinos in the US: A multilevel analysis. *SSM - Population Health, 2*, 897-903. doi: 10.1016/j.ssmph.2016.11.003

Assari, S., Mistry, R., & Caldwell, C.H. (2018). Perceived discrimination and substance use among Caribbean Black youth: Gender differences. *Brain Sciences, 8*(7), 131-148. doi: 10.3390/brainsci8070131

Atkin, A. L., Yoo, H. C., & Yeh, C. J. (2019). What types of racial messages protect Asian American adolescents from discrimination? A latent interaction model. *Journal of Counseling Psychology, 66*(2), 247–254. https://doi.org/10.1037/cou0000297

Ayón, C., Baldwin, A., Umaña-Taylor, A.J., Marsiglia, F.F., & Harthun, M. (2016). *Agarra el momento/*seize the moment: Developing communication activities for a drug prevention

intervention with and for Latino families in the US Southwest. *Qualitative Social Work, 15*(2), 281-299. doi : 10.1177/1473325014566487

Ayón, C., Tran, A., & Nieri, T. (2019). Ethnic-racial socialization practices among Latino immigrant families: A latent profile analysis. *Family Relations, 68*, 246-259. doi: 10.1111/fare.12356

Ayón, C., Nieri, T., & Ruano, E. (2019). *Ethnic/racial socialization among Latino immigrant families: A systematic review of the literature*. Manuscript submitted for publication.

Ayón, C., Wagaman, M.A., & Philbin, S.P. (2018). *No te dejes pisotear por nadie*: Examining Latino immigrants' efforts to resist discrimination**.** *Journal of Social Service Research, 44*(1), 78-95. doi: 10.1080/01488376.2017.1395381

Ayón, C. (2018). Latino Immigrant Family Socialization (LIFS) scale: Development and validation of a multi-dimensional ethnic-racial socialization measurement. *Social Work, 63*, 222–233. https://doi .org/10.1093/sw/swy016

Barrio, C. & Yamada, A. (2010). Culturally based intervention development: The case of Latino families dealing with schizophrenia. *Research on Social Work Practice, 20*(5), 483–492. doi: 10.1177/1049731510361613

Barton, A.W., and Brody, G.H. (2018). Parenting as a buffer that deters discrimination and race-related stressors from "getting under the skin:" Theories, findings, and future directions. In B. Major, J.F. Dovidio, and B.G. Link (Eds.), *The Oxford Handbook of Stigma* (pp. 335-354). doi: 10.1093/oxfordhb/9780190243470.013.21

Becerra, D., Castillo, J., Ayón, C., & Blanchard, K.N. (2014). The moderating role of parenting practices on the influence of peer drug norms on alcohol and cigarette use among

adolescents in Mexico. *Journal of Child and Adolescent Substance Abuse, 23*(5), 297-306. doi: 10.1080/1067828x.2013.869138

Berkel, C., Knight, G. P., Zeiders, K. H., Tein, J.-Y., Roosa, M. W., Gonzales, N. A., & Saenz, D. (2010). Discrimination and adjustment for Mexican American adolescents: A prospective examination of the benefits of culturally-related values. *Journal of Research on Adolescence: The Official Journal of the Society for Research on Adolescence, 20*(4), 893–915. http://doi.org/10.1111/j.1532-7795.2010.00668.x

Biglan, A., & Cody, C. (2003). Preventing multiple problem behaviors in adolescence. In D. Romer (Ed.), *Reducing adolescent risk: Toward an integrated approach* (pp. 125–131). Thousand Oaks, CA: Sage.

Brown, T. L., & Krishnakumar, A. (2007). Development and validation of the Adolescent Racial and Ethnic Socialization Scale (ARESS) in African American families. *Journal of Youth and Adolescence, 36*, 1072–1085. doi: 10.1007/s10964-007-9197-z

Buchanan, R.L., & Smokowski, P.R. (2009). Pathways from acculturation stress to substance use among Latino adolescents. *Substance Use and Misuse, 44*, 740-762. doi: 10.1080/10826080802544216

Buckle, M. (2018). Exploring the relationships between perceived discrimination, perceived social support, ethnic identity, critical consciousness, and psychological distress and school engagement in adolescents. Downloaded on 4/13/19 from https://scholarsbank.uoregon.edu/xmlui/handle/1794/23095

Burt, C. H., Simons, R. L., & Gibbons, F. X. (2012). Racial discrimination, ethnic racial socialization, and crime: A micro-sociological model of risk and resilience. *American Sociological Review, 77*, 648–677. doi: 10.1177/0003122412448648

Cano, M.A., Schwartz, S.J., Castillo, L.G., Romero, A.J., Huang, S., Lorenzo-Blanco, E.I., et al. (2015). Depressive symptoms and externalizing behaviors among Hispanic immigrant adolescents: examining longitudinal effects of cultural stress. *Journal of Adolescence, 42*, 31-39. doi: 10/1016/j.adolescenc.2015.03.017

Cardoso, J.B., Goldbach, J.T., Cervantes, R.C., & Swank, P. (2016). Stress and multiple substance use behaviors among Hispanic adolescents. *Prevention Science, 17*(2), 208-217. doi: 10.1007/s11121-015-0603-6

Cervantes, R.C., Padilla, A.M., Napper, L.E., & Goldbach, J.T. (2013). Acculturation-related stress and mental health outcomes among three generations of Hispanic adolescents. *Hispanic Journal of Behavioral Sciences, 35*(4), 451-468. doi: 10.1.177/0739986313500924

Chia-Chen Chen, A., Szalacha, L.A., & Menon, U. (2014) Perceived discrimination and its associations with mental health and substance use among Asian American and Pacific Islander undergraduate and graduate students. *Journal of American College Health, 62*(6), 390-398. doi: 10.1080/07448481.2014.917648

Coker, T.R., Elliot, M.N., Kanouse, D.E., et al., (2009). Perceived racial/ethnic discrimination among fifth-grade students and its association with mental health. *American Journal of Public Health, 99*(5), 878-884. doi: 10.2105/AJPH.2008.144329

Córdova, D., Jr., & Cervantes, R. C. (2010). Intergroup and within-group perceived discrimination among U.S.-born and foreign-born Latino youth. *Hispanic Journal of Behavioral Sciences, 32*, 259–274. doi: 10.1177/0739986310362371

Delgado, M.Y., Updegraff, K.A., Roosa, M.W., & Umaña-Taylor, A.J. (2011). Discrimination and Mexican-origin adolescents' adjustment: The moderating roles of adolescents', mothers', and fathers' cultural orientations and values. *Journal of Youth and Adolescence, 40*, 125-139. doi: 10.1007/s10964-009-9467-z

Direso, S.A. (2006). *Racial socialization practices of Asian American and White American parents* (Doctoral dissertation). Retrieved from ProQuest Dissertation Publishing, #1435866.

Espinoza, G., Gonzales, N.A., & Fuligni, A.J. (2016). Parent discrimination predicts Mexican-American adolescent psychological adjustment one year later. *Child Development, 87*(4), 1079-1089. doi: 10.1111/cdev.12521.

Garcia Coll, C., Crnic, K., Lamberty, G., et al., (1996). An integrative model for study of developmental competencies in minority children. *Child Development, 67* (5), 1891-1914. doi: 10.1111/j.1467-8624.1996.tb01834.x

Garrett, B.A., Livingston, B.J., Livingston, M.D., & Komro, K.A. (2017). The effects of perceived racial/ethnic discrimination on substance use among youths living in the Cherokee nation. *Journal of Child and Adolescent Substance Abuse, 26*(3), 242-249. doi: 10.1080/1067828X.2017.1299656

Gibbons, F.X., & Stock, M.L. (2018). Perceived racial discrimination and health behavior: Mediation and moderation. In B. Major, J.F. Dovidio, and B.G. Link (Eds.), *The Oxford handbook of stigma* (pp. 355-378). doi: 10.1093/oxfordhb/9780190243470.013.21

Griffin, K. W. (2010). The epidemiology of substance use among adolescents and young adults: A developmental perspective. In L. M. Scheier (Ed.), *Handbook of drug use etiology: Theory, methods, and empirical findings* (pp. 73–92). Washington, DC: American Psychological Association.

Grindal, M., & Nieri, T. (2015a). An examination of ethnic identity and academic performance: Assessing the multidimensional role of parental ethnic-racial socialization among a sample of Latino adolescents. *Race and Social Problems, 7*(3), 242-255. doi: 10.1007/s12552-015-9154-5

Grindal, M., & Nieri, T. (2015b). The relationship between ethnic-racial socialization and adolescent substance use: An examination of social learning as a causal mechanism. *Journal of Ethnicity in Substance Abuse, 15*(1), 3-24. doi: 10.1080/15332640.2014.993785

Grollman, E.A. (2015). Multiple forms of perceived discrimination and health among adolescents and young adults. *Journal of Health and Social Behavior, 53*(2), 199-214. doi: 10.1177/0022146512444289

Harris-Britt, A., Valrie, C.R., Kurtz-Costes, B., & Rowley, S.J. (2007). Perceived racial discrimination and self-esteem in African American youth: Racial socialization as a protective factor. *Journal of Research on Adolescence, 17*(4), 669-682. doi: 10.1111/j.1532-7795.2007.00540.x.

Hodge, D.R., Marsiglia, F.F., & Nieri, T. (2011). Religion and substance use among youth of Mexican heritage: A social capital perspective. *Social Work Research, 35*(3), 137-146. doi: 10.1093/swr/35.3.137

Hughes, D., Rodriguez, J., Smith, E. P., Johnson, D. J., Stevenson, H. C., & Spicer, P. (2006). Parents' ethnic racial socialization practices: A review of research and directions for future study. *Developmental Psychology, 42*, 747–770. doi: 10.1037/0012-1649.42.5.747

Hughes, D. (2003). Correlates of African American and Latino parents' messages to children about ethnicity and race: A comparative study of racial socialization. *American Journal of Community Psychology, 31*, 15–33. doi: 10.1023/ A:1023066418688

Huynh, V. W., & Fuligni, A. J. (2010). Discrimination hurts: The academic, psychological, and physical well-being of adolescents. *Journal of Research on Adolescence, 20*(4), 916–941. doi: 10.1111/j.1532-7795.2010.00670.x

Johnston, L. D., Miech, R. A., O'Malley, P. M., Bachman, J. G., Schulenberg, J. E., & Patrick, M. E. (2019). *Monitoring the Future national survey results on drug use, 1975-2018: Overview, key findings on adolescent drug use*. Ann Arbor: Institute for Social Research, The University of Michigan, 119 pp.

Kam, J.A., Cleveland, M.J., & Hecht, M.L. (2010). Applying General Strain Theory to examine perceived discrimination's indirect relation to Mexican-heritage youth's alcohol, cigarette, and marijuana use. *Prevention Science, 11*, 397-410. doi: 10.1007/s11121-010-0180-7

Kulis, S., Marsiglia, F.F., & Nieri, T. (2009). Perceived discrimination versus acculturation stress: Influences on substance use among Latino youth in the Southwest. *Journal of Health and Social Behavior*, *50*, 443-459. doi: 10.1177/002214650905000405

Majeno, A., Tsai, K.M., Huynh, V.W., McCreath, H., & Fuligni, A.J. (2018). Discrimination and sleep difficulties during adolescence: The mediating roles of loneliness and perceived stress. *Journal of Youth and Adolescence, 47*, 135–147. doi: 10.1007/s10964-017-0755-8

Marsiglia, F.F., Kulis, S., Hussaini, K., Nieri, T., & Becerra, D. (2010). Gender differences in the effect of linguistic acculturation on substance use among Mexican-origin youth in the Southwest U.S. *Journal of Ethnicity in Substance Abuse, 9*, 40-63. doi: 10.1080/15332640903539252

Marsiglia, F.F., Yabiku, S.T., Kulis, S., Nieri, T., & Lewin, B. (2010). Influences of school Latino composition and linguistic acculturation on a prevention program for youth. *Social Work Research, 34*, 6-19. doi: 10.1093/swr/34.1.6

Martin, M.J., Bacher, K.B., Conger, R.D., & Robins, R.W. (2018). Prospective relationships between ethnic discrimination and substance use by Mexican-American adolescents. *Child Development*. Advance online publication. doi: 10.111/cdev.13096

Neblett, E. W., Terzian, M., & Harriott, V. (2010). From racial discrimination to substance use: The buffering effect of racial socialization. *Child Development Perspectives, 4*, 131–137. doi: 10.1111/j.1750-8606.2010.00131.x

Neblett, E.W., White, R.L., Ford, K.R., Philip, C.L., Nguyen, H.X., & Sellers, R.M. (2008). Patterns of racial socialization and psychological adjustment: Can parental communications about race reduce the impact of racial discrimination? *Journal of Research on Adolescence, 18*(3), 477–515. doi: 10.1111/j.1532-7795.2008.00568.x

Okamoto, S.K., Helm, S., Pel, S., McClain, L.L., Hill, A.P., & Hayashida, J.K.P. (2014). Developing empirically based, culturally grounded drug prevention interventions for indigenous youth populations. *Journal of Behavioral Health Services & Research, 41*(8), 8–19. doi: 10.1007/s11414-012-9304-0

Park, I.J.K., Wang, L., Williams, D.R., & Alegría, M. (2018). Coping with racism: Moderators of the discrimination–adjustment link among Mexican-origin adolescents. *Child Development, 89*(3), e293–e310. doi: 10.1111/cdev.12856

Parsai, M., Voisine, S., Marsiglia, F.F., Kulis, S., & Nieri, T. (2009). The protective and risk effects of parents and peers on the substance use attitudes and behaviors of Mexican and Mexican American female and male adolescents. *Youth and Society, 40*(3), 353-376. doi: 10.1177/0044118X08318117

Ponting, C., Lee, S.S., Escovar, E.L., Rapp, A.M., Camacho, A., Calderon, I., & Chavira, D.A. (2018). Family factors mediate discrimination–related stress and externalizing symptoms in rural Latino adolescents. *Journal of Adolescence, 69*, 11-21. doi: 10.1016/j.adolescence.2018.08.007

Schires, S.M., Buchanan, N.T., Lee, R.M., McGue, M., Iacono, W.G., & Burt, S.A. (2018). Discrimination and ethnic-racial socialization among youth adopted from South Korea into White American families. *Child Development*. Advance online publication. doi: 10.1111/cdev.13167

Seol, K. O., Yoo, H. C., Lee, R. M., Park, J. E., & Kyeong, Y. (2016). Racial and ethnic socialization as moderators of racial discrimination and school adjustment of adopted and nonadopted Korean American adolescents. *Journal of Counseling Psychology, 63*(3), 294–306. https://doi.org/10.1037/cou0000120

Stevens, G., & Thijs, J. (2018). Perceived group discrimination and psychological well-being in ethnic minority adolescents. *Journal of Applied Social Psychology, 48*, 599-570. doi: 10.1111/jasp.12547

Stevenson, H.C., Cameron, R., Herrero-Taylor, T., & Davis, G.Y. (2002). Development of the Teenager Experience of Racial Socialization Scale: Correlates of race-related socialization frequency from the perspective of Black youth. *Journal of Black Psychology, 28*(2), 84-106. doi: 10.1177/0095798402028002002

Szapocznik, J., & Coatsworth, J. D. (1999). An ecodevelopmental framework for organizing the influences on drug abuse: A developmental model of risk and protection. In M. D. Glantz & C. R. Hartel (Eds.), *Drug abuse: Origins & interventions* (pp. 331-366). Washington, DC: American Psychological Association.

Tran, A. G. T. T., & Lee, R. M. (2010). Perceived ethnic-racial socialization, ethnic identity, and social competence among Asian American late adolescents. *Cultural Diversity and Ethnic Minority Psychology, 16*, 169–178. doi: 10.1037/a0016400

Umaña-Taylor, A. J., & Guimond, A. B. (2010). A longitudinal examination of parenting behaviors and perceived discrimination predicting Latino adolescents' ethnic identity. *Developmental Psychology, 46*, 636–650. doi: 10.1037/ a0019376

Walsh, S.D., Sagis-Krebs, M., & Gross, A. (2018). Emotional alienation as a mediator of the relationship between perceived discrimination and alcohol use among immigrant

adolescents in Israel. *Journal of Ethnicity in Substance Use, 17*(4), 501-518. doi: 10.1080/15332640.2017.1300555

Whitbeck, L.B., Hoyt, D.R., McMorris, B.J., Chen, X., & Stubben, J.D. (2001). Perceived discrimination and early substance abuse among American Indian children. *Journal of Health and Social Behavior, 42*, 405-424. doi: 10.2307/3090187

Williams, D. R., Yu, Y., Jackson, J. S., & Anderson, N. B. (1997). Racial differences in physical and mental health: Socio-economic status, stress and discrimination. *Journal of Health Psychology, 2*(3), 335–351. doi: 10.1177/135910539700200305

Yoo, H.C., & Lee, R.M. (2008). Does ethnic identity buffer or exacerbate the effects of frequent racial discrimination on situational well-being of Asian Americans? *Journal of Counseling Psychology 55*(1), 63–74. doi: 10.1037/0022-0167.55.1.63

Zapolski, T.C.B., Rowe, A.T., Banks, D.E., & Faidley, M. (2019). Perceived discrimination and substance use among adolescents: Examining the moderating effect of distress tolerance and negative urgency. *Substance Use & Misuse, 54*(1), 156-165. doi: 10.1080/10826084.2018.1512625

Table 1

Sample Means and Standard Deviations

	Mean	Standard Deviation
Perceived discrimination	1.395	.466
Cultural socialization	1.932	1.012
Preparation for bias	1.112	.896
Promotion of mistrust	.501	.764
Amount of recent alcohol use	.846	1.422
Frequency of recent alcohol use	.583	1.170
Amount of recent marijuana use	.815	1.760
Frequency of recent marijuana use	.568	1.408
Recent binge drinking	.351	.860
Female[a]	.61	.489
Free/reduced price lunch[b]	.626	.485
Latino[c]	.734	.443
Foreign born[d]	.070	.255
Acculturation to English	4.326	.613
Usual grades in school	7.11	1.377

Note. Reference groups: [a] Male, [b] Full-price lunch, [c] non-Latino, and [d] Native born.

Table 2

Correlations with Substance Use

	Alcohol amount	Alcohol frequency	Marijuana amount	Marijuana frequency	Binge drinking
Perceived discrimination	-.088	-.092	.004	.036	-.033
Cultural socialization	-.139*	-.170**	-.182**	-.195**	-.151*
Preparation for bias	.063	.015	.052	.019	.006
Promotion of mistrust	.050	.006	.086	.051	.033
Female[a]	.052	-.014	-.035	-.026	.014
Free/reduced price lunch[b]	.034	.004	.114	.068	.029
Latino[c]	.181**	.136**	.110+	.088	.155*
Foreign born[d]	.008	.072	.046	.052	.065
Acculturation to English	.012	.014	.021	.022	-.070
Usual grades in school	-.175**	-.166**	-.254**	-.240**	-.249**

Note. Reference groups: [a] Male, [b] Full-price lunch, [c] non-Latino, and [d] Native born.

+$p < .10$, *$p < .05$, **$p < .01$, ***$p < .001$.

Table 3

Binary Logistic Regression Models Predicting Substance Use

	Alcohol amount		Alcohol frequency		Marijuana amount		Marijuana frequency		Binge drinking	
	β (SE β)	e^{β}	*β (SE β)*	e^{β}	*β (SE β)*	e^{β}	*β (SE β)*	e^{β}	*β (SE β)*	e^{β}
Perceived	-.501	.606	-.612+	.542	-.308	.735	-.024	.976	-.485	.616
discrimination	(.342)		(.365)		(.404)		(.403)		(.434)	
Cultural	-.477**	.620	-.550**	.577	-.714**	.490	-.761**	.467	-.619**	.538
socialization	(.177)		(.188)		(.236)		(.244)		(.239)	
Preparation for	.579*	1.784	.576*	1.779	.767*	2.153	.768*	2.155	.656*	1.927
bias	(.238)		(.251)		(.306)		(.314)		(.315)	
Promotion of	-.128	.880	-.257	.773	-.286	.751	-.408	.665	-.324	.723
mistrust	(.238)		(.254)		(.299)		(.318)		(.315)	
Female[a]	-.267	.765	-.211	.810	.034	1.034	.011	1.011	-.018	.982
	(.288)		(.301)		(.349)		(.357)		(.361)	
Free/reduced-	-.157	.855	-.118	.889	-.502	.606	-.469	.626	.181	1.199
price lunch[b]	(.298)		(.311)		(.383)		(.394)		(.382)	

(continued)

	Alcohol amount		Alcohol frequency		Marijuana amount		Marijuana frequency		Binge drinking	
	β (SE β)	e^{β}	*β (SE β)*	e^{β}	*β (SE β)*	e^{β}	*β (SE β)*	e^{β}	*β (SE β)*	e^{β}
Latino[c]	-.923*	.397	-.650	.522	-.689	.502	-.639	.528	-.978+	.376
	(.376)		(.395)		(.481)		(.485)		(.543)	
Foreign born[d]	-.500	.607	-.813	.443	-1.289+	.276	-1.210+	.270	-1.858**	.156
	(.616)		(.624)		(.715)		(.716)		(.706)	
Acculturation	.054	1.056	.002	1.002	.112	1.118	.163	1.177	-.317	.728
to English	(.237)		(.247)		(.292)		(.301)		(.286)	
Usual grades	-.197+	.821	-.255*	.775	-.508***	.601	-.488***	.614	-.547***	.579
	(.104)		(.108)		(.126)		(.128)		(.134)	
Constant	2.413	11.163	3.304*	27.232	4.129*	62.140	3.437+	31.099	6.690**	804.554
	(1.594)		(1.665)		(1.912)		(1.941)		(2.001)	
$\chi^2(df)$, *p*	27.567(10),		25.28(10),		38.53(10),		37.318(10)		36.075(10),	
	.002		.005		.000		, .000		.000	
Nagelkerke r^2	.140		.133		.218		.216		.212	
N	257		257		257		257		257	

Note. Reference groups: [a] Male, [b] Full-price lunch, [c] non-Latino, and [d] Native born. +$p < .10$, *$p < .05$, **$p < .01$, ***$p < .001$.

Appendix

Negative Binomial Regression Models Predicting Substance Use (N = 257)

	Alcohol amount		Alcohol frequency		Marijuana amount		Marijuana frequency		Binge drinking	
	B (SE)	*CI*	*B (SE)*	*CI*	*B (SE)*	*CI*	*B (SE)*	*CI*	*B (SE)*	*CI*
Perceived	-.538+	-1.085	-.425	-1.010	-.373	-1.212	-.168	-.995	-.641	-1.426 –
discrimination	(.279)	– .009	(.299)	– .161	(.428)	– .466	(.422)	– .659	(.401)	.145
Cultural	-.255+	-.512	-.243+	-.525	-.372+	-.803	-.333	-.769	-.332+	-.699
socialization	(.131)	– .001	(.144)	– .038	(.220)	– .059	(.222)	– .102	(.187)	– .035
Preparation for	.431*	.058	.233	-.187	.540+	-.068 –	.384	-.242 –	.287	-.227
bias	(.191)	– .805	(.214)	– .653	(.310)	1.147	(.319)	1.010	(.262)	– .801
Promotion of	-.212	-.640	-.183	-.665	-.140	-.897	-.301	-1.054	-.179	-.827
mistrust	(.219)	– .216	(.246)	– .300	(.386)	– .617	(.384)	– .452	(.331)	– .469
Female[a]	.144	-.315	-.072	-.590	-.234	-1.014	-.299	-1.076	-.102	-.768
	(.234)	– .604	(.265)	– .447	(.398)	– .546	(.397)	– .478	(.340)	– .564
Free/reduced-	-.092	-.579	-.253	-.805	.520	-.282 –	.196	-.590	-.210	-.937
price lunch[b]	(.249)	– .396	(.282)	– .299	(.409)	1.321	(.401)	– .982	(.371)	– .517

(continued)

	Alcohol amount		Alcohol frequency		Marijuana amount		Marijuana frequency		Binge drinking	
	B (SE)	*CI*	*B (SE)*	*CI*	*B (SE)*	*CI*	*B (SE)*	*CI*	*B (SE)*	CI
Latino[c]	.789*	.170 –	.752*	.072 –	.901+	-.056 –	.666	-.280 –	1.287*	.217 –
	(.316)	1.408	(.347)	1.432	(.488)	1.858	(.483)	1.613	(.546)	2.357
Foreign born[d]	1.132*	.143 –	1.456**	.370 –	1.589+	-.230 –	1.691+	-.052 –	2.177**	.674 –
	(.504)	2.120	(.554)	2.542	(.928)	3.407	(.890)	3.435	(.767)	3.680
Acculturation to	-.101	-.464	-.096	-.511	.235	-.428	.050	-.588	-.459+	-.979
English	(.185)	– .262	(.212)	– .318	(.339)	– .889	(.326)	– .689	(.265)	– .060
Usual grades	-.272***	-.436 –	-.245	-.435 –	-.482***	-.753 –	-.482***	-.737 –	-.416**	-.666 –
	(.084)	-.108	(.099)*	-.055	(.138)	-.213	(.130)	-.227	(.128)	-.166
Intercept	2.205+	-.360 –	1.901	-.974 –	1.567	-2.917 –	2.343	-2.072 –	3.888	.198 –
	(.131)	4.770	(1.467)	4.776	(2.288)	6.052	(2.253)	6.758	(1.883)	7.579
(Neg. binomial)	1.683	1.092 –	1.920	1.189 –	5.859	3.886 –	5.084	3.230 –	2.569	1.409 –
	(.372)	2.594	(.469)	3.101	(1.228)	8.835	(1.177)	8.003	(.787)	4.682
LR χ^2	28.397		20.639		23.663		22.207		30.199	
	df = 10, *p* = .002		*df* = 10, *p* = .024		*df* = 10, *p* = .009		*df* = 10, *p* = .014		*df* = 10, *p* = .001	

Note. Reference groups: [a] Male, [b] Full-price lunch, [c] non-Latino, and [d] Native born. +$p < .10$, *$p < .05$, **$p < .01$, ***$p < .001$.