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Kristine M. Molina
University of Illinois

Benita Jackson
Smith College, bjackson@smith.edu

Noemi Rivera-Olmedo
Smith College

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Discrimination, Racial/Ethnic Identity, and Substance Use Among Latina/os: Are They Gendered?

Kristine M. Molina, Ph.D.[1,3], **Benita Jackson, Ph.D., M.P.H.**[2], and **Noemi Rivera-Olmedo, B.A.**[2]

Kristine M. Molina: kmolina@uic.edu

[1]Department of Psychology, Community and Prevention Research Area, University of Illinois at Chicago, Chicago, IL, USA

[2]Department of Psychology, Smith College, Northampton, MA, USA

[3]Department of Psychology, University of Illinois at Chicago, 1007 W. Harrison Street, Behavioral Sciences Building, Room 1050A, Chicago, IL 60607, USA

Abstract

Background—Prior research suggests that stronger racial/ethnic identification offsets negative effects of discrimination on substance use. Yet research in this area and on whether gender modifies this association is limited for Latina/os.

Purpose—The purpose of the present study is to examine whether different sources of discrimination (everyday and racial/ethnic) are associated with substance use (alcohol use disorder, smoking), if racial/ethnic identity buffers this association, and the potential moderating role of gender among these variables.

Methods—We present cross-sectional, US population-based data from the Latina/o adult sample (1427 females and 1127 males) of the National Latino and Asian American Study. Respondents completed self-reported measures of everyday and racial/ethnic discrimination, racial/ethnic identity, smoking status, and Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM-IV) lifetime alcohol use disorder.

Results—Weighted logistic regression analyses showed that before inclusion of three-way interactions and adjusting for covariates, everyday discrimination predicted increased risk for any DSM-IV lifetime alcohol use disorders. Moderation analyses revealed that the effect of everyday discrimination on the risk of being a current smoker was strongest for Latino men with *high* levels of racial/ethnic identity compared to those with *low* racial/ethnic identity. No differences were

Correspondence to: Kristine M. Molina, kmolina@uic.edu.

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noted among Latino women. There were no main or interaction effects of racial/ethnic discrimination for any substance use outcome.

Conclusions—Findings suggest differential associations for type of discrimination and outcome and that the role of racial/ethnic identity is gender-specific for smoking, appearing particularly detrimental for Latino men reporting high levels of racial/ethnic identity.

Keywords

Gender; Hispanics; Cigarette smoking; Alcohol disorders; Health behaviors; Intersectionality

Introduction

Although Latina/os generally report lower levels of alcohol abuse and cigarette smoking than most other racial/ethnic groups [1, 2], they face challenges such as discrimination that put them at increased risk for use of both of these substances [3–11]. Indeed, the stress generally associated with perceiving discrimination may lead individuals to use alcohol and smoke cigarettes as forms of coping [12–14] or because being the target of discrimination results in deficits in self-regulatory processes that put one at risk for substance use [8, 15, 16].

In the present study, the Perceived Unfairness Model [17] frames our understanding of the role of perceived unfairness— a unique type of stressor that can be tied to one's group membership (e.g., race/ethnicity) or not—on the stress response. The fundamental component of this model posits that when an individual perceives unfairness (such as in the form of discrimination), a host of responses are activated, including behavioral ones such as engaging in substance use to alleviate stress and, in turn, boost positive mood in the short term [14], but which may increase the likelihood of poor health over time [17]. Whereas various models link stress to health, unique and central to our study is that this model not only links stress to health, but also considers the moderating role of vulnerability and resilience factors, including the role of identity relevance across social groups. The Perceived Unfairness Model postulates that identity relevance can either mitigate or potentiate the toxic stress response of perceiving discrimination, and this process may be shaped by social status identities [17]. Our study focuses on the roles of perceived unfairness (in the forms of everyday discrimination and racial/ethnic-based discrimination) on health-damaging behaviors and the moderating role of racial/ethnic identity among Latino men and women.

In line with Jackson and colleagues [17] theorizing that social identities matter, prior studies find gender differences in the association between discrimination and substance use outcomes, including increased odds of alcohol use/abuse among Latino women [6, 7] and increased odds of smoking for Latino boys [18]. These studies suggest that divergent effects may be due, in part, to gender differences in prevalence rates of self-reported discrimination and gender norms surrounding the use of specific substances [5–7]. However, though limited research exists on what may account for these gendered effects (particularly among adults), they may be partially due to gender differences in *racial/ethnic identity*, i.e., the extent to which females and males, respectively, feel a sense of belonging and attachment to their

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racial/ethnic group [19]. This postulation is consistent with the Perceived Unfairness Model, which suggests that health effects of perceived unfairness may be a function of identity relevance [17].

Research on ethnic socialization among Latina/o families suggests that racial/ethnic identity is more central to Latinas because females more than males are likely to be socialized to value and maintain familial, community, and cultural ties [20]. In a study of Latina/o adolescents [21], girls reported identifying more strongly than did boys with their racial/ethnic identity. Similarly, another study [22] employing a diverse sample of adolescents that included Latina/os showed that girls compared to boys reported higher levels of racial/ethnic identity centrality, endorsed more positive regard responses (i.e., expressions related to pride and appreciation toward one's racial/ethnic background) and fewer responses reflecting racial/ethnic identity disengagement (i.e., belief in colorblindness, low racial/ethnic definition, and individuality). Prior work finds that a stronger racial/ethnic identity is associated with decreased risk of alcohol disorders [23] and smoking [24]. Thus, we would expect that for Latinas more than Latinos, endorsing a stronger racial/ethnic identity facilitates their opportunity to obtain emotional support, develop health-promoting relationships with other co-ethnics and increased sense of belonging, and focus on the positive aspects of their ethnic background, insulating them from the negative behavioral effects of discrimination, particularly from needing to engage with substances to alleviate stress and cope with discrimination.

On the other hand, as the Perceived Unfairness Model also suggests, heightened levels of identity relevance may exacerbate the effects of perceived unfairness [17]. For instance, high levels of racial/ethnic identity may amplify the negative effects of perceiving discrimination for Latino men, given that identifying strongly with a stigmatized racial/ethnic group may make one more attuned to one's difference, consider experiences of discrimination as threats to their racial/ethnic identity (cf. [25]), and increase internalization of a devalued status [26]. For example, previous research with Latina/os has found that high racial/ethnic identity is associated with increased reports of discrimination [27], with Latino men reporting higher perceptions of discrimination than their female counterparts [7, 8, 27], and other research [28] has found that endorsing a stronger cultural background was associated with heightened perceptions of threat to one's identity among Latino male students, but not for Latino women. These findings suggest that a strong racial/ethnic identity may be problematic for Latino men, given that this may heighten their perceptions of discrimination and difference. And, among Puerto Rican men, perceiving discrimination was associated with a perceived lower social status, which was associated with increased psychological distress [29]. Together, these findings suggest that the interplay between strongly identifying with one's racial/ethnic group and being aware of embodying a marginal social position as men *of color* appears to result in heightened levels of threat, internalization of a devalued status, and greater distress. It is possible that Latino men, who are socialized to avoid emotional vulnerability as a way of preserving their masculinity, may turn to health-damaging behaviors such as substance use as a coping strategy to deal with stress and numb the pain from discrimination [30], perceived devalued status [29], and threats to their identity [28]. Thus, it is postulated that for Latino men, a high racial/ethnic identity would exacerbate the negative effects of discrimination on substance use.

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In sum, gender differences in prevalence of discrimination and racial/ethnic identification among Latino men and women suggest differences in the strength of the association between discrimination and substance use by gender.

At the same time, very few studies have examined whether different types of discrimination have distinctive effects on health behaviors and, even fewer, whether racial/ethnic identity has divergent or similar moderating effects on this association. For example, although related constructs, everyday and race-related discrimination appear to represent different aspects of discrimination experiences, with the former tapping into routine, generic incidents that may be attributed to any reason, whereas the latter focuses on experiences specific to race/ethnicity (cf. [23, 31]). Crocker and Major [32] theorize that discrimination that is not ambiguous and more clearly attributed to racial/ethnic factors is less likely to be internalized and more likely attributed to broader structural factors (e.g., "system blame") instead of toward the self. For example, in an experimental study, Latino college students who viewed an interracial interaction where a White person was subtly biased experienced cognitive costs (i.e., impairment during the Stroop task) compared to those exposed to a White person who expressed blatant or no racial bias [33]. This study suggests that everyday discrimination may have a more deleterious effect than racial/ethnic discrimination, given the subtle and ambiguous nature of everyday discrimination, which may make it more difficult to discern and respond to than experiences of discrimination about which one is certain are attributed to one's race/ethnicity [32].

However, only two prior studies have examined whether racial/ethnic identity moderates the association between different sources of discrimination, including racial/ethnic discrimination and more general forms of unfair treatment [23, 24], and behavioral health outcomes. These studies found that strongly identifying with one's racial/ethnic identity had a protective effect on odds of being a current smoker [24] and of having a history of alcohol disorder [23] among Asian American adults in the context of *racial/ethnic discrimination*, but not everyday discrimination. Further, although not comparing racial/ethnic discrimination to everyday discrimination, a study of Latina/o adults [8] found that *overt* forms of everyday discrimination (e.g., being insulted and harassed), which are less attributionally ambiguous and less likely to carry uncertainty (cf. [34]) than subtler forms of everyday discrimination (e.g., being treated with less respect), were associated with decreased risk of past-year alcohol abuse, but only among individuals who reported high levels of racial/ethnic identification.

Thus, although previous studies find that the effects of more ambiguous discrimination may have cognitive costs [33], research that considered the moderating effects of racial/ethnic identity [23, 24] suggests that high levels of racial/ethnic identity may be protective against the adverse behavioral effects of discrimination—but only in the context of instances that are more overt or race/ethnicity-related. Altogether, these works shed light to the importance of drawing distinctions between general, less ambiguous forms of discrimination and those based on race/ethnicity. However, whether gender differences exist in whether racial/ethnic identity buffers or exacerbates the effects of these distinct sources of discrimination on health-damaging behaviors, specifically among Latina/os, remains an empirical question.

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Present Study

This study addresses gaps in the literature by the following: (a) examining whether discrimination (everyday and racial/ethnic) is cross-sectionally associated with substance use (smoking, alcohol abuse) and (b) identifying whether gender differences exist in the potential moderating role of racial/ethnic identity on the association between discrimination and substance use.

Based on the Perceived Unfairness Model [17] and previous empirical work, we make the following predictions. First, we hypothesize that higher levels of both everyday and racial/ethnic discrimination are associated with greater odds of meeting criteria for any Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM-IV) lifetime alcohol use disorder and being a current smoker among the total sample. Second, we predict that racial/ethnic identity moderates the effects of discrimination on substance use differently for Latino men and women. Specifically, we expect that for Latino women, higher levels of racial/ethnic identity will be associated with a lower risk of any DSM-IV lifetime alcohol use disorder and of being current smokers. On the other hand, we expect that for Latino men, higher levels of racial/ethnic identity exacerbate the effects of discrimination on substance use. Lastly, based on previous research [23, 24], we expect that the aforementioned effects will be seen only in the presence of race/ethnic-based discrimination and not for everyday discrimination.

Method

Sample and Procedure

Data were drawn from the National Latino and Asian American Study (NLAAS), a cross-sectional, nationally stratified probability survey of non-institutionalized Asian and Latino adults 18 years of age and older residing in the USA. We focused on the 2554 Latina/o respondents in the NLAAS study. The mean age was 38.0 years (SD= 15.0).

Data collection for the NLAAS took place between 2002 and 2003. The sample design is described briefly (see [35] for more details). To obtain a nationally representative sample of Latino subgroups, regardless of geographic residential patterns, the sampling design included three components: (a) core sampling of primary and secondary sampling units, (b) high-density supplemental samplings of census block groups to oversample geographic areas made up of more than 5 % of the targeted ethnic group, and (c) secondary respondent sampling to recruit participants from households where a primary respondent was already interviewed [36]. Interviews were conducted in either English or Spanish by trained, bilingual interviewers. The final weighted response rate for the Latino sample was 77.6 %. The institutional review board committees of all participating institutions approved all study procedures [35, 36].

Measures

Gender—Respondents' gender was defined as a dichotomous variable, indicating whether the participant self-identified as male (reference category = 1) or female (=2).

Everyday Discrimination—We assessed experiences of everyday discrimination with the Everyday Discrimination Scale (EDS; [37]), which measures the frequency of routine experiences of unfair treatment. Sample items included responding how often one had experienced "being treated with less respect that other people" and "having people act afraid of them." Response options range from 1 "almost everyday" to 6 "never." Responses to the eight items of the EDS were reverse coded and summed. Higher scores reflected greater frequency of discrimination (α=0.89). The dimensionality and construct validity of the eight-item EDS have been confirmed among the NLAAS Latino sample [29].

Racial/Ethnic Discrimination—We measured racial/ethnic discrimination with three items from the Perceived Discrimination Scale [38]. Items assessed how often respondents felt they were disliked or treated unfairly due to race/ethnicity and how often they had seen friends treated unfairly due to race/ethnicity. Response options were on a four-point scale that ranges from 1 "often" to 4 "never." Responses to items were reverse coded and summed. Higher scores reflected greater frequency of racial/ethnic discrimination (α=0.81).

Racial/Ethnic Identification—We used four items adapted from the National Co-morbidity Survey-Replication to assess ethnic identification [39]. Items measured how closely the respondent identified with and how closely the respondent felt in their ideas/ feelings to others of the same racial/ethnic background. Response options ranged from 1 "very close" to 4 "not at all." Responses were reverse coded and summed. Owing to procedures from prior studies with ethnic minorities [40, 41] and to the non-normal distribution of the total scores, we categorized data into tertiles to reflect *low, moderate*, and *high* racial/ethnic identification.

Current Smoker Status—We created a dichotomous variable indicating current smoker status of respondents. Respondents who reported being current smokers were classified as "current smokers." Following the same procedure as previous studies using the NLAAS smoking variable [42], those who indicated that they "had never smoked," "only smoked a few times," or were an "exsmoker" were collapsed into a single category and coded as "non-current smokers."

Any Lifetime Alcohol Use Disorder—We assessed lifetime alcohol abuse/dependence disorder using the Alcohol Abuse and Alcohol Dependence sections in the World Mental Health Survey Initiative of the World Health Organization Composite International Diagnostic Interview (WMH-CIDI; [43]). The WMH-CIDI is a fully structured interview designed to diagnose mental disorders based on the DSM-IV [44]. Given the low prevalence of past-year alcohol abuse, we decided to use a composite diagnostic category of "any lifetime alcohol use disorder" that included alcohol abuse and dependence. Similar to other studies with the NLAAS [6], a dichotomous variable was created, with respondents who indicated lifetime alcohol abuse, alcohol dependence, or both classified as "endorsed any lifetime alcohol use disorder" and respondents who did not indicate any disorder classified as "no lifetime alcohol use disorder."

Covariates—*Covariates* included age, ethnic group (Cuban, Puerto Rican, Mexican, Other Latina/o), nativity status (US- or foreign-born), language of interview (English or Spanish),

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educational attainment, employment status, household income, and marital status. We also controlled for social desirability bias using the ten-item Crowne-Marlowe scale [45]. A sample item included "I have always told the truth." Response options were in true or false format. Affirmative responses to items were summed, with higher values indicating higher socially desirable responding (α=0.74). Further, we controlled for perceived neighborhood safety, measured using three items assessing respondents' perceived level of neighborhood safety and violence [46], because it is shown to be associated with increased tobacco use and risk for substance use disorders [47, 48]. A sample item included "People get mugged in neighborhood." Response options range from 1 "very true" to 4 "not at all true." Responses were reverse coded and summed, with higher values indicating higher perceived neighborhood safety (α=0.72).

Statistical Analyses

We conducted weighted multivariable logistic regressions to model the odds of being a current smoker and meeting criteria for any DSM-IV lifetime alcohol use disorder, respectively. First, step 1 of our model included all main effects (gender, everyday and racial/ethnic discrimination, and racial/ethnic identity). Second, to examine first effect modification by racial/ethnic identification, step 2 included the everyday discrimination × racial/ethnic identity interaction, and in step 3, we further added the interaction between racial/ethnic discrimination × racial/ethnic identity. Third, to test for three-way interactions for discrimination type × racial/ethnic identity × gender, we entered each three-way interaction in successive steps. Finally, the last step of our model included all main effects, two-way interactions, and three-way interactions. In the interactions, continuous variables were mean centered to reduce multicollinearity [49]. All multivariable models adjusted for covariates. We tested formally for differences in slopes associated with the product term. To better understand significant interactions, we used coefficients from the final model to calculate predicted probabilities and graphed simple slopes for each conditional effect at one standard deviation above, at the mean, and below the grand mean of discrimination [49]. We analyzed data using Stata 12 incorporating NLAAS weighting and design variables and accounted for the complex sample survey design to estimate standard errors in the presence of stratification and clustering.

Results

Descriptive Statistics and Preliminary Analyses

Table 1 presents the weighted distribution of selected sociodemographic characteristics for the total sample and by gender. Significant differences by gender were observed only in regard to age, employment status, household income, marital status, and perceived neighborhood safety.

Table 2 shows weighted descriptive statistics for our main study variables. Of the total sample, almost 11 % met criteria for any DSM-IV lifetime alcohol use disorder and 20 % reported being current smokers. There were low levels of self-reported everyday discrimination (M=14.1; SD=6.8; range= 4–48) and moderate levels of racial/ethnic discrimination (M= 5.4; SD=2.3; range=1–12) among the total sample. We found significant

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gender differences for everyday and racial/ethnic discrimination, smoker status, and any DSM-IV lifetime alcohol use disorder, with Latino men reporting higher means and proportions on all four measures compared to Latinas (see Table 2). No gender differences were noted for racial/ethnic identity.

Bivariate correlations indicated that among the total sample, everyday discrimination was significantly associated with all other main variables: racial/ethnic discrimination (r=0.44, p<0.001), racial/ethnic identity (r=−0.15, p<0.001), smoker status (r=0.07, p<0.01), and any DSM-IV lifetime alcohol use disorder (r=0.20, p<0.001), whereas racial/ethnic discrimination was only significantly correlated with any DSM-IV lifetime alcohol use disorder (r=0.10, p<0.001). Racial/ethnic identity was inversely associated with any DSM-IV lifetime alcohol use disorder (r=−0.04, p<0.05). Smoker status was significantly correlated with any DSM-IV lifetime alcohol use disorder (r=0.04, p<0.001). As for gender, being Latina was associated with reporting lower levels of everyday discrimination (r= −0.09, p<0.001), racial/ethnic discrimination (r=−0.08, p<0.001), and lower likelihood of being a current smoker (r=−0.25, p<0.001) or meeting criteria for any DSM-IV lifetime alcohol use disorder (r=−0.35, p<0.001). Electronic Supplementary Material 1 shows correlations by gender.

Multivariable Logistic Regression Models

Current Smoker Status—In the first step of the model (data not shown), results showed that only gender (being female) was associated with a decreased risk of being a current smoker (odds ratio (OR)= 0.39; 95 % confidence interval (CI)=0.28, 0.54). Second, adding the interaction product terms for racial/ethnic discrimination × racial/ethnic identity interaction and everyday discrimination × racial/ethnic identity interaction terms revealed that the slope of those with high racial/ethnic identity differed from those in the low racial/ethnic identity tertile, F[1, 53]= 4.57, p=0.04. Being female remained associated with a decreased risk of being a current smoker (OR=0.39; 95 % CI= 0.28, 0.54). In the final step of the model, where the three-way interaction for everyday discrimination and racial/ethnic discrimination, respectively, with racial/ethnic identity and gender was included (see Table 3), results showed a gender difference in the moderating effects of racial/ethnic identity in the association between everyday discrimination and smoker status, which can be gleaned from the simple slopes for the plotted predicted probabilities of current smoker status (see Fig. 1). At every level of everyday discrimination, Latino men in the high racial/ethnic identity tertile (compared to those in the lowest racial/ethnic identity tertile) had a significantly higher probability of being current smokers, whereas women at each level of everyday discrimination and racial/ethnic identity did not significantly differ in the likelihood of being current smokers.

Any DSM-IV Lifetime Alcohol Use Disorder—In the first step of the model, Latino women (compared to Latino men) had a decreased risk of having an alcohol abuse disorder (OR=0.23; 95 % CI=0.15, 0.35) and that higher frequency of everyday discrimination was associated with increased risk of meeting criteria of any DSM-IV lifetime alcohol use disorder (OR=1.06; 95 % CI=1.03, 1.08). Further adding the interaction product terms for racial/ethnic discrimination × racial/ethnic identity interaction and everyday discrimination

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× racial/ethnic identity interaction terms revealed no significant two-way interactions, only main effects for everyday discrimination (OR=1.05, 95 % CI=1.01, 1.09) and female gender (OR=0.23; 95 % CI=0.15, 0.35). In the final step (see Electronic Supplementary Material 2), there were no significant three-way interactions between type of discrimination, racial/ethnic identity, and gender. Only the main effect for female gender was significant (OR=0.12; 95 % CI=0.06, 0.23).

Discussion

The first aim of the present study was to investigate how different forms of discrimination (everyday and racial/ethnic-based) were associated with substance use. We found partial support for our hypotheses. Before inclusion of all three-way interaction terms, everyday discrimination was associated with increased risk of any lifetime DSM-IV alcohol use disorder after adjusting for covariates, but not with current smoking status. Our findings corroborate empirical research with Latina/o adults that centered on alcohol-related outcomes, which find a positive association with everyday discrimination [5–8]. In line with the Perceived Unfairness Model [17] as well as other stress-coping and social cognitive models, it is plausible that the stress and chronicity of everyday (subtle) discrimination can result in excessive use of alcohol as a coping strategy or in increased disinhibitory processes (e.g., deficits in self-control) that put Latina/os at increased risk of engaging with alcohol use (cf. 8, [15, 17]). Yet, the null findings for smoking may be due to sample or measurement differences compared to other studies with Latina/os, which assessed smoking as number of cigarettes in the past year [10] or as nicotine dependence [11]. Moreover, no statistically significant association was found for racial/ethnic discrimination and any of the substance use outcomes. These findings are consistent with previous research that found no association between racial/ethnic discrimination and lifetime substance use disorders [5, 24]. These findings are also in line with theoretical and empirical works [32, 33] that suggest that it is the more subtle and ambiguous forms of discrimination, rather than the overt or specific (race/ethnic-related) type, that is more likely to be internalized and thereby result in worse cognitive and behavioral effects.

Second, partially consistent with our hypotheses, we found gender differences in the moderating effect of racial/ethnic identity on the association between *everyday discrimination* and *risk of being a current smoker*. More specifically, the effect of everyday discrimination on risk of being a current smoker was greatest for Latino men with high levels of racial/ethnic identity compared to their Latino male counterparts with low levels of racial/ethnic identity. No differences existed for Latino women across different racial/ethnic identity levels.

Our findings suggest that for Latino men, who simultaneously hold privileged and marginalized identities as men of color, endorsing high levels of racial/ethnic identity while, at the same time, reporting greater levels of both types of discrimination than their female counterparts may work to create a tension between ethnic pride and powerlessness that threatens their identity (cf. [50]). Indeed, the Perceived Unfairness Model argues that there are potential costs to privilege, particularly for those who believe that they are high status [17]. Thus, the potential psychological cost of simultaneously embodying marginalized and

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privileged statuses arguably contributes to cognitive dissonance. This, in turn, may result in a unique type of stressor experienced by men of color, draining regulatory resources, and increase risk of engaging in unhealthy behaviors such as smoking, which is more socially acceptable behavior for Latino men than for their female counterparts [51].

On the other hand, our findings that Latino women across all levels of everyday discrimination had lower risk of being current smokers than Latino men and that racial/ethnic identity did not exacerbate the deleterious effects of discrimination suggest that belonging to more than one subordinate social group may carry distinctive advantages (cf. [50]). It is plausible that for Latinas, their social location as both *women* and *of color* helps raise a critical understanding of their multiple marginality, fostering unique ways of negotiating their racial/ethnic identities and coping with discrimination that serve to protect them from engaging in unhealthy behaviors. For example, Masuoka [52] found that Latinas endorsed a stronger sense of group consciousness compared to Latino males and are more likely to report feeling empowered through the political consciousness that they gain from being socially connected to those in their communities facing oppression, which is not present among Latino men (Pardo, 1997 as cited in [52, 53]). Feeling empowered through group consciousness may provide an alternative approach of coping with discrimination (cf. [17]). Empirical research [54] finds that critical ethnic awareness is associated with increased perceptions of discrimination, which, in turn, are associated with emotion-focused engagement coping related to discrimination (e.g., coping through social contacts and expressing emotions) and lower levels of psychological distress. It may be that the meaning of racial/ethnic identity may differ for Latino women and men, which may result in differences in how they cope with discrimination. As argued by Jackson and colleagues [17], future research should aim to also incorporate positive cognitions, emotions, and motivations as potential moderators and mediators of the association between perceived discrimination and health behaviors. Moreover, qualitative data may help provide a rich foundation for understanding and illustrating dynamic processes such as how Latina/os conceptualize and make meaning from their membership in their ethnic group that then could be examined more explicitly in quantitative research.

Limitations

We note key limitations of our study. First, as with all secondary analyses, ours were limited to the variables available. In particular, one potential threat to internal validity is the time frame of the variables. Specifically, the discrimination questions were asked without a time frame, whereas the outcome variables were framed as lifetime occurrence. Our theory-driven analyses are consistent with a temporal ordering of discrimination preceding the substance use variables. However, because of the cross-sectional nature of the data, coupled with the operationalization of discrimination as not explicitly preceding the substance use variables, we cannot rule out that the lifetime substance use variables predicted everyday and/or racial/ethnic-based discrimination. Various studies show that discrimination prospectively predicts health behaviors [55–57] and not the other way around [58], though without prospective data for this project, we acknowledge this as a limitation of the current study. Before longitudinal associations are tested, it is valuable to examine them cross-sectionally, and this study is innovative in including discrimination, racial/ethnic identity, and substance use within the

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context of gender. Nevertheless, longitudinal studies are needed to clarify temporal ordering and examine whether said processes change over time, including perceptions of discrimination, development of and politicization of racial/ethnic identity, and trajectories of substance use.

Second, we use care in interpreting the discrimination variables. The uncontrollable, unpredictable nature of discrimination means that exposure to it may shape dispositional tendencies that develop as coping responses making one vigilant to potential discriminatory threats and rejection cues in one's social environment (cf. [59, 60]). For example, previous research has found that perceptions of discrimination are associated with rejection sensitivity [61], vigilance coping [62], and cynical hostility [63]. However, Hatzenbuehler et al. [57] found that perceived discrimination was prospectively associated with substance use independent of expectation of rejection, and others [64] find that perceptions of discrimination are associated with negative affect even when controlling for attitudinal variables (i.e., hostility, cynicism). Thus, a limitation of the current work is that although we were able to adjust for the personality disposition of social desirability, we are unable to statistically adjust for other dispositional factors as potential confounders or test for mediation effects. Future studies that include more extensive assessments of individual difference factors are warranted. Similarly, another threat to internal validity is the use of self-report measures; future studies should assess outcomes by other means, such as observer reports of behavior, and/or biochemical markers for smoking and alcohol use.

Third, it is difficult to find significant interactions with outcomes where the number of positive cases is low [65], which means that this may have reduced the statistical power and led to the non-significant ORs for models of alcohol abuse. Although we focused on alcohol abuse because of its clinical significance, it will be equally important, from a prevention standpoint, for future studies to include other measures of alcohol use (e.g., binge or heavy drinking), which, at the same time, might increase the likelihood of revealing true associations [9].

Fourth, we included racial/ethnic identity as one aspect of identity; research should aim to evaluate the additive or joint relevance of other social identities (e.g., gender, socioeconomic status, sexual orientation, nationality) as well as stress responses tied to specific identity and non-identity-based stressors and across gendered contexts (e.g., police harassment, medical care, schooling).

Conclusion

Limitations notwithstanding, our study has various strengths, including accounting for two types of discrimination (everyday and racial/ethnic) and substance use outcomes, as well as employing a nationally representative sample of Latina/o adults. Importantly, these innovative analyses highlight that high racial/ethnic identity may not always be protective depending on type of discrimination experienced, outcome under investigation, and a person's social location.

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Overall, our findings have implications for targeted prevention efforts aimed at reducing risk of engaging in health-damaging behaviors in the context of everyday discrimination among Latina/o adults. For example, despite that we only included one modifiable factor to consider for intervention (i.e., racial/ethnic identity), other potential viable health-promoting mechanisms include empowering and supporting Latina/o communities to harness coping resources that support instead of damage health—e.g., social support and meaning-making opportunities such as engaging in critical awareness—which might empower marginalized individuals to work toward social change and advocacy to redress the effects of discrimination at a community and societal level (cf. [54]). Further, research shows that cigarette smoking actually increases rather than alleviates distress [66]. One example, then, of the importance of critical consciousness impacting health behavior comes from being able to understand the outright misinformation that cigarette use, for example, is an effective coping strategy and that, moreover, Latina/os are systematically targeted by cigarette and alcohol companies because they represent growing markets [1].

Altogether, our data underscore the need for integrative conceptual models of Latina/o health that account for discrimination and how racial/ethnic identity may exacerbate its effects in the context of some, but not all, forms of discrimination. In light of the USA's contemporary social demography, the increased rates of anti-Latino sentiments, and targeting of Latina/os by the tobacco industry [1, 67], future studies in this area may help us understand better how to prevent and reduce substance use-related problems among Latina/os, whose health is intricately tied to their families', communities', and our nation's long-term health outlook. Studying Latina/os in the full social context of their lives will bring forth a fuller understanding of their health behaviors and of the health inequities faced by this ever-growing segment of our population.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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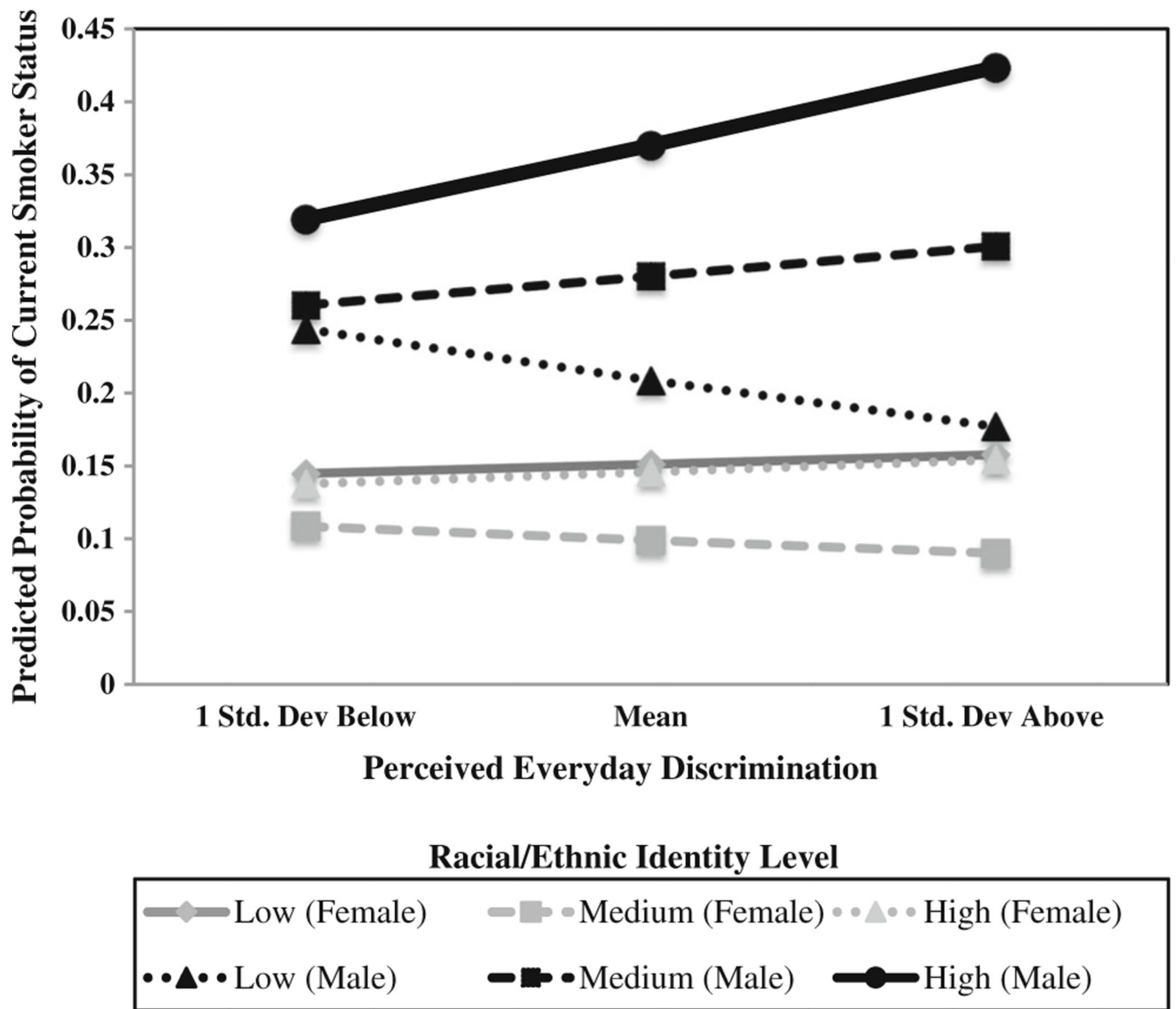

Fig. 1.
Adjusted predicted probability of current smoker status as a function of perceived everyday discrimination, racial/ethnic identity, and gender

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Table 1

Selected sociodemographic characteristics for Latina/o NLAAS total sample and by gender

Characteristics	Total sample N=2554 % or M	Gender: Women n=1427 % or M	Gender: Men n=1127 % or M	p value[a]
Age (in years)	38.0 (15.0)	39.2 (13.2)	37.0 (16.9)	0.002
Ethnic group				1.00
Cuban	4.6	4.6	4.6	
Puerto Rican	10.1	10.1	10.1	
Mexican	56.6	56.6	56.6	
Other Latina/o	28.7	28.7	28.7	
Employment				0.000
Employed	63.1	50.5	75.1	
Not employed	36.9	49.5	24.9	
Household income	$43,108 ($43,058)	$38,944 ($44,755)	$47,029 ($40,674)	0.000
Education				0.59
Less than H.S.	44.1	44.9	43.4	
HS degree	24.5	23.2	25.7	
13–16 years	21.1	21.4	20.9	
>16 years	10.3	10.6	10.0	
Nativity status				0.966
US-born	42.8	42.8	42.7	
Immigrant	57.2	57.2	57.3	
Language of interview				0.462
English	46.8	45.9	47.5	
Spanish	53.2	54.1	52.5	
Marital status				0.000
Married/cohabiting	64.2	59.2	68.9	
D/S/W	14.4	21.1	8.1	
Never married	21.4	19.7	22.9	
Social desirability	2.6 (2.3)	2.6 (2.5)	2.6 (2.1)	0.890
Neighborhood safety	6.5 (1.7)	6.3 (1.9)	6.9 (1.6)	0.000

Values in parentheses represent standard deviations

H.S. high school, *D/S/W* divorced/separated/widowed

[a]Rao-Scott statistics for the Pearson chi-square test for contingency tables were computed for categorical variables. Design-based adjusted Wald tests of differences were computed for continuous variables by gender

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Table 2

Weighted descriptive statistics of main study variables for total sample and by gender

	Total sample		Gender					
	N=2554		Women *n*=1427		Men *n*=1127		Design-based *F* test or X^2	*p* value[a]
Measures	**% or M**	**SE**	**% or M**	**SE**	**% or M**	**SE**		
Everyday discrimination	14.1	(6.8)	13.3	(6.6)	14.9	(6.7)	(1, 53)=16.3	0.000
Racial/ethnic discrimination	5.4	(2.3)	5.2	(2.4)	5.7	(2.2)	(1, 53)=16.7	0.000
Racial/ethnic identity							(1.9, 100.5)=0.51	0.59
Low	36.4	0.01	35.2	0.02	37.6	0.02		
Moderate	37.2	0.01	38.2	0.01	36.3	0.02		
High	26.4	0.01	26.6	0.02	26.2	0.01		
Smoker status							(1, 53) =24.9	0.000
Non-smoker	80.1	0.01	86.9	0.02	73.6	0.01		
Current smoker	20.0	0.01	13.1	0.02	26.4	0.01		
Any lifetime alcohol use disorder							(1, 53) =84.3	0.000
No	89.3	0.01	95.7	0.01	83.4	0.02		
Yes	10.7	0.01	4.3	0.01	16.7	0.02		

Values in parentheses represent standard deviations

[a]Rao-Scott statistics for the Pearson chi-square test for contingency tables were computed for categorical variables. Design-based adjusted Wald tests of differences were computed for continuous variables by gender

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Table 3

Weighted logistic regression model of current smoker status among Latina/o respondents in NLAAS

	Final model OR (95 % CI)
Main effects	
Gender	
Male	Ref
Female	0.37 [0.23, 0.59] ***
Everyday discrimination (ED)	0.97 [0.94, 1.0]
Racial/ethnic discrimination (RED)	0.99 [0.85, 1.44]
Racial/ethnic identity (REI)	
Low	Ref
Moderate	0.77 [0.52, 1.15]
High	0.88 [0.60, 1.29]
Two-way interactions	
ED × REI	
ED × low REI	Ref
ED × moderate REI	1.05 [0.99, 1.10]
ED × high REI	1.07 [1.02, 1.12] **
RED × REI	
RED × low REI	Ref
RED × moderate REI	1.02 [0.86, 1.23]
RED × high REI	1.18 [0.99, 1.40]
Three-way interactions	
ED × REI × gender	
ED × low REI × gender	Ref
ED × moderate REI × gender	0.93 [0.87, 0.99] *
ED × High REI × gender	0.93 [0.86, 1.02]
RED × REI × gender	
RED × Low REI × gender	Ref
RED × moderate REI × gender	1.09 [0.84, 1.42]
RED × high REI × gender	0.84 [0.65, 1.09]
Design-based *F* test	$F(32, 22)=21.1$ ***

Gender (1 (reference) = male; 2 = female). Covariates included age, Latino ethnicity, nativity status, household income, language of interview, educational attainment, work status, marital status, social desirability, and perceived neighborhood safety

Ref reference group, *OR* odds ratio, *CI* confidence interval

Continuous variables included in interaction terms were centered at their means.

* $p<0.05$;

** $p<0.01$;

*** $p<0.001$