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Association Between Perceived Discrimination and Racial/ Ethnic Disparities in Problem Behaviors Among Pre-Adolescent Youth

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Abstract

Objectives—We examined the contribution of perceived racial/ethnic discrimination to disparities in problem behaviors among pre-adolescent Black, Latino, and White youth.

Methods—We used cross-sectional data from *Healthy Passages*, a three-community study of 5,119 fifth-graders and their parents. Multivariate regressions were used to examine the relationships of perceived racial/ethnic discrimination and race/ethnicity to problem behaviors

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(physical and non-physical aggression, retaliatory behaviors, and delinquency). We used values from these regressions to calculate the percentage of disparities in problem behaviors associated with the discrimination effect.

Results—In multivariate models, perceived discrimination was associated with greater problem behaviors among Black and Latino youth. Compared to Whites, Blacks were significantly more likely to report problem behaviors, whereas Latinos were significantly less likely (a “reverse disparity”). When Blacks’ and Latinos’ discrimination experiences were set to zero, the adjusted disparity between Blacks and Whites was reduced by an estimated one-third to two-thirds; the reverse adjusted disparity favoring Latinos widened by about one-fifth to one-half.

Conclusions—Results suggest that the elimination of discrimination could lead to considerable reductions in mental health issues, including problem behaviors, among Black and Latino youth.

INTRODUCTION

Racial/ethnic disparities in mental health, including problem behaviors (e.g., disruptive/aggressive behaviors), are substantial among U.S. youth. Black adolescents report higher rates of problem behaviors than their White counterparts.^{1, 2} Latino adolescents generally report rates of these behaviors lower than Blacks, but greater than Whites. In a nationally representative survey of high school students, 41% of Blacks, 36% of Latinos, and 28% of Whites reported involvement in a physical fight in the preceding year.² However, little research has gone beyond mere documentation of disparities to examine reasons for disparities, as well as why youth of different races/ethnicities show distinct outcomes.

One factor that may contribute to disparities in mental health is discrimination.³⁻⁷ Biopsychosocial models of discrimination³⁻⁷ posit that discrimination can lead to stress responses that are detrimental to physical and mental health, including physiological changes and poor health behaviors. Chronic discrimination can wear away at protective psychological mechanisms and lead to a lower capacity for coping with new stressors, precipitating maladaptive coping responses. Such responses can include poor self-control, including substance use and externalizing behaviors (e.g., aggression). A substantial body of work, mostly among adults, indicates that discrimination is significantly related to poor mental and physical health and health behaviors, including problem behaviors among children.⁸

Discrimination experienced at young ages may have implications for mental health disparities across the life course. Nevertheless, a relatively small amount of research has examined health effects of discrimination for children and adolescents.⁹⁻²⁴ This work, which has primarily focused on Black youth, has shown relationships between discrimination and greater externalizing symptoms (i.e., problem behaviors),^{9, 10, 16, 19, 20} internalizing symptoms (anxiety, depression),^{9, 11, 14, 15, 21-24} and substance use.^{12, 13} Little is known regarding whether Latino youth similarly experience mental health deficits following discrimination.

A major gap in the discrimination literature is examination of the extent to which discrimination explains health disparities, especially among youth.⁶ Some research indicates

that discrimination has a mediating or explanatory effect on the relationship between race/ethnicity and mental and physical health in adults, although no research has examined health behaviors.^{25–29} These studies have demonstrated that significant associations between race/ethnicity and health outcomes decrease or become non-significant when discrimination is controlled, suggesting that discrimination influences inequities. For example, one study found that, after controlling for everyday perceived discrimination, Black (versus White) differences in self-reported health decreased even after adjusting for socio-economic status.²⁵

Although work examining potential roles of discrimination in disparities has advanced the field, it has limitations. No research in this vein has examined effects of discrimination on disparities among Latino youth. Further, previous analyses have conflated effects of racial discrimination toward Whites and disadvantaged racial/ethnic groups (e.g., Blacks) by measuring perceptions of discrimination among all groups, including Whites. For example, in a study of New Zealand Maori and Europeans, the disparity favoring Europeans on health outcomes was non-significant after adjusting for age, sex, socio-economic status, and discrimination experiences among both Maori (the disadvantaged group) and Europeans (the dominant group).²⁸ Such models do not provide a clear demonstration of the distinct effects of discrimination against a disadvantaged group only, separate from the effects of discrimination against Whites. Rather, these analyses test effects of discrimination against both the dominant and the disadvantaged group as potential reasons for health inequalities. Conceptually, however, discrimination is posited to be a reason for poor health in disadvantaged groups only,⁶ because the dominant group tends both to fare better on health outcomes and to perpetrate discrimination, and because the nature of discrimination experienced by dominant and minority groups may differ qualitatively. An analysis that considers the effects of discrimination against the disadvantaged group in particular would be more consistent with conceptual models discussing discrimination as a reason for health disparities.

The present research extends prior work on the discrimination-health relationship by testing the magnitude of the statistical contribution of perceived discrimination to disparities in problem behaviors among pre-adolescent Black and Latino children. Our analytic approach differs from previous approaches, which have documented the extent of disparities and effects of discrimination, but have not examined the magnitude of disparities explained by discrimination specifically from the Black and Latino perspectives. We used data from *Healthy Passages*, a Centers for Disease Control and Prevention (CDC)-funded study of 5,119 fifth-graders on risk factors, protective factors, health behaviors, and health outcomes.³⁰ Prior multivariate analyses of these data demonstrated that Black youth were more likely to have perpetrated both physical aggression (e.g., hit another child) and non-physical aggression (e.g., put down another child to their face) than were White youth; although Latino youth were more likely to have perpetrated aggression than were White youth in bivariate analyses, this disparity was reversed in multivariate analyses.³¹ Perceived discrimination was associated with mental health problems for both Black and Latino youth.³²

METHODS

Sampling Frame and Participants

Our sampling frame was fifth-graders in regular classrooms with 25 students at 118 public schools containing 11,532 students, representing over 99% of all fifth-graders enrolled in regular classrooms in 10 contiguous school districts in and around Birmingham, AL; 25 contiguous districts in Los Angeles County, CA; and the largest district in Houston, TX.^{30, 31} A 2-stage sampling procedure was used to ensure sufficient numbers of Blacks, Latinos, and Whites for analysis. Within each site (i.e., stratum), schools were randomly sampled using probabilities that were a function of the extent to which a school's racial/ethnic distribution corresponded to the site's racial/ethnic target. Next, all fifth graders in regular classrooms of sampled schools were invited to participate. Each child's primary caregiver (referred to as "parent;" 96% were parents) was mailed a letter asking permission to contact them. Among the 11,532 students in the sampled schools, 6,663 parents agreed to be contacted or indicated uncertainty; 77% of their children (n=5,147) participated. The final sample size was 5,119 (28 dyads were missing a parent interview).

Data Collection Procedures

We obtained informed consent from parents and assent from children. Interviews were conducted from 2004–2006, primarily at home. Each parent-child dyad completed computer-assisted-personal-interviews (CAPIs); audio computer-assisted-self-interview (ACASI) modules were used for sensitive questions. Parents and children could complete the interview in English or Spanish. Following data collection, all data were de-identified, and each participant was assigned a unique identification number.

Predictors, Covariates, and Outcomes

Sociodemographic Covariates—For each parent-child dyad, we collected data from the parent on household income, highest educational level in household, responding parent's marital status, study site, and child race/ethnicity, gender, and age. Household income for the preceding January-December was grouped into: <\$25,000, \$25,000–49,000, \$50,000–99,000, \$100,000, and unknown/refused (n=374). Parent education was categorized as less than high school, high school graduate or general equivalency diploma, some college, 4-year college degree or higher, or missing (n=66). Parent marital status was dichotomized as married/living with a partner versus not married; the mean (0.64) was imputed for 14 missing cases.

Race/Ethnicity—Child race/ethnicity was coded as non-Latino Black, Latino, non-Latino White, and/or other (Native American, Asian, Pacific Islander, and multiresponse).

Perceived Racial/Ethnic Discrimination—Discrimination questions were adapted from prior research.^{21, 33} Children were asked, "Have you been treated badly because of your race or ethnicity?" and "Have you been treated badly because of the color of your skin?" Children who responded "yes" to either question were coded as experiencing racial/ethnic discrimination.

Perpetration of Physical and Nonphysical Aggression—The 7-item physical aggression subscale measured actual and threatened physical aggression (e.g., “In the last 30 days, how many times have you shoved or pushed another kid?”; $\alpha = .81$). The 11-item nonphysical aggression subscale assessed verbal and nonverbal aggression (e.g., “In the last 30 days, how many times have you put someone down to their face?”; $\alpha = .81$). Response options were: 1=never, 2=1–2 times, 3=3–5 times, 4=6 or more times.^{34–36} Items were summed.

Aggressive/Retaliatory Behavior—A 4-item summary scale measured children’s retaliatory responses to perceived aggressive behaviors toward them (e.g., “When you are mad at others, you spread rumors about them”).³⁷ Response options were: 1=never true, 2=hardly ever true, 3=sometimes true, 4=true most of the time.

Delinquent Behavior—Six items were adapted from the Youth Risk Behavior Surveillance Survey³⁸ to form a lifetime violent/delinquent behavior index. All participants were asked if they ever ran away from home overnight, skipped one or more days of school without permission, or were in a fight. Participants who had ever been in a fight were asked if they had ever been injured in a fight, injured someone else in a fight, or participated in a gang fight. “Yes” responses were summed. Because this measure is a summed index rather than an unobserved variable with an underlying true score, internal consistency was not calculated.

Statistical Analysis

After computing descriptive statistics of the variables of interest, we conducted a multi-stage analysis to determine the statistical contribution of perceived discrimination to disparities in problem behaviors (i.e., physical and non-physical aggression, aggressive/retaliatory behavior, and delinquency), by (1) investigating the association of discrimination with problem behaviors for Blacks and Latinos separately; (2) determining the overall magnitude of racial/ethnic disparities in problem behaviors, and (3) examining the contribution of discrimination effects among Blacks and Latinos to racial/ethnic disparities in problem behaviors. Specifically, multivariate linear regressions were first used to predict problem behaviors from racial/ethnic discrimination within the Black and Latino samples separately, controlling for potential confounding by socio-demographic characteristics. To examine the extent of disparities between Blacks and Whites, and Latinos and Whites, multivariate linear regressions predicted each problem behavior outcome with race/ethnicity, controlling for socio-demographic covariates. We next calculated the proportion of Blacks and Latinos who perceived that they had experienced discrimination. This proportion was multiplied by the sociodemographically-adjusted effect of discrimination within each group to determine the decrease in problem behaviors that would be predicted to result from the elimination of perceived discrimination among Blacks and Latinos.

To estimate the magnitude of the disparity in the absence of perceived discrimination, we subtracted the change in problem behaviors if discrimination were eliminated from the previous sociodemographically-adjusted race/ethnicity coefficient. We also divided this value (the decrease in problem behaviors if discrimination were eliminated) by the

sociodemographically-adjusted race/ethnicity coefficient to determine the portion of the observed Black-White (or Latino-White) sociodemographically-adjusted disparity that was accounted for by the perceived discrimination effect.

Stata v.11³⁹ was used to account for effects of design and nonresponse weights, clustering of children within schools, and stratification by site; we corrected for the clustering of schools within sites using a “sandwich”-style estimator.⁴⁰ For all outcomes, we used a single Markov chain Monte Carlo imputation from SAS Proc MI for the few missing data points (SAS Institute Inc, Cary, NC). Hypothesis tests were 2-sided, alpha=0.05.

RESULTS

Participant Description

Table 1 describes the sample. Whites reported higher levels of education and income than Blacks and Latinos ($p < .001$ for all). A smaller proportion of Black (41%; $p < .001$) and Latino (76%; $p = .005$) parents were married or living with a partner compared to White parents (82%).

Descriptive Statistics for Problem Behaviors and Perceived Discrimination

Problem behaviors and perceived discrimination significantly varied by race/ethnicity in bivariate analyses. Black and Latino youth reported more non-physical aggression ($p < .001$ for Blacks; $p = .031$ for Latinos) and aggressive/retaliatory behavior ($p < .001$ for both groups) than did White youth; Blacks additionally showed higher levels of physical aggression ($p < .001$) and delinquency ($p < .001$) than did Whites. A higher percentage of Black (20%; $p < .001$) and Latino (15%; $p < .001$) youth reported experiencing discrimination than did White youth (7%).

Relationship of Discrimination to Problem Behaviors for Blacks and Latinos

Table 2 (Column i) shows the effects of discrimination in separate multivariate regressions for Blacks and Latinos, with outcomes standardized at a mean of 0 and a standard deviation of 1 for the entire *Healthy Passages* population. For both groups and across every outcome, perceived discrimination was significantly associated with worse problem behaviors. Column ii shows the percentage reporting discrimination in each racial/ethnic group. Column iii (the product of Columns i and ii) represents the amount of sociodemographically-adjusted disparities in problem behaviors (between Blacks and Whites, and Latinos and Whites) that are associated with Blacks' and Latinos' discrimination experiences, i.e., the reduction in disparities that might be expected in the absence of Blacks' and Latinos' discrimination experiences.

Relationship of Race/Ethnicity to Problem Behaviors

Table 3 shows the magnitude of the differences in problem behaviors between Blacks (or Latinos) and Whites from both bivariate and multivariate regressions predicting each problem behavior with race/ethnicity. As noted above, compared to Whites, unadjusted results showed that Blacks had higher problem behaviors on all four outcomes and that Latino youth showed significantly more non-physical aggression and retaliatory behaviors

(Table 3, Column i). After sociodemographic adjustment, Blacks continued to show significantly higher levels of all four problem behaviors than did Whites (physical aggression: $p=.004$; non-physical aggression: $p=.011$; aggressive/retaliatory behavior: $p=.0007$; delinquency: $p=.0011$). In contrast, the multivariate models for Latinos indicated a reverse disparity: Compared to Whites, after sociodemographic adjustment Latinos showed significantly lower levels of non-physical aggression ($p=.0006$), physical aggression ($p=.049$), and delinquency ($p<.0001$); levels of aggressive/retaliatory behaviors were not significantly lower ($p=.097$) (Table 3, Column ii).

Relationship of Discrimination to Disparities

Table 3 and Figures 1a and 1b (which illustrate Table 3's results) show the magnitude of unadjusted, sociodemographically-adjusted, and fully adjusted (for sociodemographics and discrimination) differences in each of the problem behaviors between Blacks (or Latinos) versus Whites. After removing the estimated effects of discrimination (Table 3, Column iii), Blacks continued to show higher levels of problem behaviors than Whites on all outcomes, but the disparity between Blacks and Whites was reduced substantially, to $<.20$ of a standard deviation across outcomes (a small effect⁴¹). Perceived discrimination was associated with one-third to more than two-thirds of the disparity between Blacks and Whites, depending on the outcome (Table 3, Column iv). For example, for non-physical aggression, 69% of the disparity was associated with perceived discrimination, and the gap between Blacks and Whites would be very small – $.06$ of a standard deviation (Table 3, Column iii) – if the estimated effects of perceived discrimination were eliminated.

Latinos fared even better when the estimated effects of perceived discrimination were removed, with the reverse disparity between Latinos and Whites widening by between one-fifth and one-half across problem behaviors (Table 3, Column iii). For example, after removing the estimated effects of discrimination, the gap favoring Latinos for non-physical aggression grew 41% (Table 3, Column iv), from a small effect size difference of 0.22 (when discrimination was present) to a small-to-medium effect size difference of 0.31 (when discrimination was absent) (Table 3, Column iii).

DISCUSSION

Our study suggests that the elimination of discrimination could lead to considerable improvements in the health of Black and Latino pre-adolescent youth, substantially reducing problem behaviors. Consistent with prior research,^{11, 13–15, 17, 18, 21–24} perceived discrimination was associated with problem behaviors among both Black and Latino youth. Blacks showed more problem behaviors than Whites with similar sociodemographics, and Blacks' reported discrimination accounted, on average, for about half of the disparity with Whites. Although Latinos generally fared better than Whites with similar sociodemographics, Latino's discrimination experiences may have reduced their advantage over Whites by over a third. These substantial population-level reductions in racial/ethnic disparities occurred despite the fact that only 15–20% of Black and Latino children reported discrimination; the effects of discrimination on this subset may be so profound that they substantially affect population-level racial/ethnic differences. These results extend prior

analyses of the statistical contribution of perceived discrimination to health disparities^{25–29} by isolating, for Black and Latino youth separately, the distinct effects of perceived discrimination on health-related problem behaviors. In the case of Latinos, these results suggest that discrimination can have an insidious impact, even when a traditionally disadvantaged group appears to have better sociodemographically-adjusted health outcomes than Whites.

Our finding of a lower prevalence of problem behaviors (adjusted for socio-demographic characteristics) among Latinos is consistent with prior research showing better health outcomes (e.g., lower mortality) for Latinos than Whites.^{42, 43} Research suggests that this relative advantage may be smaller among Latinos who were born in the U.S. or have been living in the U.S. for a considerable period of time. For example, Latino immigrants, especially women, may adopt unhealthy behaviors as they become more acculturated to the U.S.^{42, 44–48} Greater acculturation has also been associated with higher levels of perceived discrimination among Latino immigrants.^{49, 50} Those who are acculturated have more exposure to non-Latinos and the dominant White culture, and thus may have greater opportunities for experiencing discrimination. Future research should determine whether Latinos who are more acculturated exhibit less of an advantage over Whites on problem behaviors due to stronger effects of discrimination.

Results should not be generalized beyond the three metropolitan study areas. In addition, the discrimination measure was a combination of two items about “being treated badly” because of race/ethnicity or skin color. Prior research suggests that different dimensions of discrimination have distinct effects on health,⁵¹ but we did not specifically assess the extent of discrimination in different contexts, the specific situations in which discrimination occurred, or the types of discrimination experienced. For example, when responding to our discrimination measure, participants may have included, but not distinguished between, acts of traumatic discrimination (e.g., physical assault), institutional discrimination (e.g., by school administration), and interpersonal discrimination (e.g., from classmates). In addition, although the gap between Blacks and Whites narrowed when the estimated effects of discrimination were removed, Blacks showed higher levels of problem behaviors than Whites. Thus, other, unmeasured factors likely work in tandem with discrimination and poverty to sustain disparities.

Our results underscore the importance of policy changes that recognize and address the significant levels of discrimination across the life span. Staff at schools and other youth-serving organizations should be made aware of laws targeting hate crimes, and school policies against bullying are essential. Moreover, mental health clinicians who are treating Black and Latino youth for behavioral problems such as aggression may need to delve into current life stressors such as discrimination. If discrimination is found to be an issue, clinicians may be able to provide skills for realistically appraising and managing discrimination with adaptive coping strategies (e.g., support-seeking, such as talking with school staff, family, and peers),^{52–58} and for avoiding maladaptive coping strategies that prolong distress (e.g., anger or rumination, i.e., repetitively focusing on the situation)^{52–58} and that could lead to longer-term health issues, such as substance use.¹² African-American-focused coping models that specify culturally relevant forms of adaptive coping additionally

suggest the value of obtaining social support in the face of racism, such as reliance on social, family, and community networks (e.g., within faith-based organizations).^{59–61} Research is needed to examine which coping strategies are helpful for managing discrimination among Black and Latino youth, as well as to identify additional ways in which youth respond to discrimination; such information could serve as a basis for intervention development.

Our findings also suggest a need to study the unique effects of discrimination within as well as between racial/ethnic groups. A growing body of research suggests that discrimination may be experienced differently and have distinct effects by racial/ethnic group⁶²; one potential explanation is that intersecting stigmas in addition to race/ethnicity (e.g., both race/ethnicity and undocumented immigration status for some Latinos) may moderate the effects of racial/ethnic discrimination. To further our knowledge about discrimination and disparities, studies are needed that identify overall effects of discrimination that hold across races/ethnicities, the mechanisms by which discrimination may affect health differently by racial/ethnic group, and culturally specific moderators of the effects of discrimination that may vary within racial/ethnic group.

School- and community-wide programs could also be useful for educating teachers, parents, and youth how to recognize mental health issues that may be related to discrimination, as well as how to support children who may be targets of discrimination. Multicultural programs in schools (in which the teachers and administrators promote respect for diversity and facilitate positive intergroup interactions through curriculum and activities) have been shown to be protective against youth violence.⁶³ Research also suggests that supportive parenting styles protect Black boys from the effects of discrimination on delinquent behavior, possibly because nurturing parents may lead children to develop a less hostile and cynical view of relationships and, in turn, a lower propensity for aggression in response to perceived mistreatment.²⁰ Thus, one potential approach would be to discuss these issues in the context of a program to improve parenting skills. Another approach would be to promote adolescent ethnic identity development and socialization by parents, schools, media, and community organizations, as these can buffer the effects of discrimination on mental health and behavioral outcomes.^{33, 64–66}

In sum, our research provides compelling support for the role of discrimination in Blacks' and Latinos' mental health, including problem behaviors, beyond the effects of socio-economic status. Although research has uncovered numerous health inequities affecting Blacks and Latinos, fewer studies have evaluated potential mechanisms through which disparities arise. Our statistical strategy provides a flexible and novel tool to examine the contribution of discrimination to mental and physical health disparities. Interventions should be developed for Black and Latino youth that acknowledge the existence of racial/ethnic discrimination, help them explore its implications, and foster greater community, school, and family social supports for affected youth.

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References

1. Shetgiri R, Kataoka S, Ponce N, Flores G, Chung PJ. Adolescent fighting: racial/ethnic disparities and the importance of families and schools. *Acad Pediatr*. 2010; 10(5):323–329. [PubMed: 20674530]
2. Centers for Disease Control and Prevention. Selected Health Risk Behaviors and Health Outcomes by Race/Ethnicity-National Youth Risk Behavior Survey 2009. Atlanta, GA: U.S. Department of Health and Human Services; 2009.
3. Brondolo E, Rieppi R, Kelly KP, Gerin W. Perceived racism and blood pressure: a review of the literature and conceptual and methodological critique. *Ann Behav Med*. 2003; 25(1):55–65. [PubMed: 12581937]
4. Clark R, Anderson NB, Clark VR, Williams DR. Racism as a stressor for African Americans: a biopsychosocial model. *Am Psychol*. 1999; 54:805–816. [PubMed: 10540593]
5. Landrine H, Klonoff EA. The schedule of racist events: a measure of racial discrimination and a study of its negative physical and mental health consequences. *Journal of Black Psychology*. 1996; 22(2):144–168.
6. Williams DR, Mohammed SA. Discrimination and racial disparities in health: evidence and needed research. *J Behav Med*. 2009; 32(1):20–47. [PubMed: 19030981]
7. Williams DR, Neighbors HW, Jackson JS. Racial/ethnic discrimination and health: findings from community studies. *Am J Public Health*. 2003; 93(2):200–208. [PubMed: 12554570]
8. Pascoe EA, Smart Richman L. Perceived discrimination and health: a meta-analytic review. *Psychol Bull*. 2009; 135(4):531–554. [PubMed: 19586161]
9. Brody GH, Chen YF, Murry VM, et al. Perceived discrimination and the adjustment of African American youths: a five-year longitudinal analysis with contextual moderation effects. *Child Dev*. 2006; 77(5):1170–1189. [PubMed: 16999791]
10. DuBois DL, Burk-Braxton C, Swenson LR, Tevendale HD, Hardesty JL. Race and gender influences on adjustment in early adolescence: investigation of an integrative model. *Child Dev*. 2002; 73(5):1573–1592. [PubMed: 12361320]
11. Gaylord-Harden NK, Cunningham JA. The impact of racial discrimination and coping strategies on internalizing symptoms in African American youth. *Journal of Youth and Adolescence*. 2009; 38(4):532–543. [PubMed: 19636726]
12. Gibbons FX, Etcheverry PE, Stock ML, et al. Exploring the link between racial discrimination and substance use: what mediates? what buffers? *J Pers Soc Psychol*. 2010; 99(5):785–801. [PubMed: 20677890]
13. Kulis S, Marsiglia FF, Nieri T. Perceived ethnic discrimination versus acculturation stress: influences on substance use among Latino youth in the Southwest. *J Health Soc Behav*. 2009; 50(4):443–459. [PubMed: 20099450]
14. Lambert SF, Herman KC, Bynum MS, Ialongo NS. Perceptions of racism and depressive symptoms in African American adolescents: the role of perceived academic and social control. *J Youth Adolesc*. 2009; 38(4):519–531. [PubMed: 19636725]
15. Milburn NG, Batterham P, Ayala G, et al. Discrimination and mental health problems among homeless minority young people. *Public Health Rep*. 2010; 125(1):61–67. [PubMed: 20402197]
16. Nyborg VM, Curry JF. The impact of perceived racism: psychological symptoms among African American boys. *J Clin Child Adolesc Psychol*. 2003; 32(2):258–266. [PubMed: 12679284]
17. Pachter LM, Coll CG. Racism and child health: a review of the literature and future directions. *J Dev Behav Pediatr*. 2009; 30(3):255–263. [PubMed: 19525720]
18. Sanders-Phillips K, Settles-Reaves B, Walker D, Brownlow J. Social inequality and racial discrimination: risk factors for health disparities in children of color. *Pediatrics*. 2009; 124(suppl 3):S176–S186. [PubMed: 19861468]

19. Simons RL, Chen Y-F, Stewart EA, Brody GH. Incidents of discrimination and risk for delinquency: a longitudinal test of strain theory with an African American sample. *Justice Quarterly*. 2003; 20(4):827–854.
20. Simons RL, Simons LG, Burt CH, et al. Supportive parenting moderates the effect of discrimination upon anger, hostile view of relationships, and violence among African American boys. *J Health Soc Behav*. 2006; 47(4):373–389. [PubMed: 17240926]
21. Szalacha LA, Erkut S, Garcia Coll C, Alarcon O, Fields JP, Ceder I. Discrimination and Puerto Rican children's and adolescents' mental health. *Cultur Divers Ethnic Minor Psychol*. 2003; 9(2): 141–155. [PubMed: 12760326]
22. Umana-Taylor AJ, Updegraff KA. Latino adolescents' mental health: exploring the interrelations among discrimination, ethnic identity, cultural orientation, self-esteem, and depressive symptoms. *J Adolesc*. 2007; 30(4):549–567. [PubMed: 17056105]
23. Whitbeck LB, Hoyt DR, McMorris BJ, Chen X, Stubben JD. Perceived discrimination and early substance abuse among American Indian children. *J Health Soc Behav*. 2001; 42(4):405–424. [PubMed: 11831140]
24. Wong CA, Eccles JS, Sameroff A. The influence of ethnic discrimination and ethnic identification on African American adolescents' school and socioemotional adjustment. *J Pers*. 2003; 71(6): 1197–1232. [PubMed: 14633063]
25. Williams DR, Yu Y, Jackson JS, Anderson NB. Racial differences in physical and mental health: socio-economic status, stress and discrimination. *Journal of Health Psychology*. 1997; 2(3):335–351. [PubMed: 22013026]
26. Ren XS, Amick BC, Williams DR. Racial/ethnic disparities in health: the interplay between discrimination and socioeconomic status. *Ethn Dis*. 1999; 9(2):151–165. [PubMed: 10421078]
27. Thomas KS, Bardwell WA, Ancoli-Israel S, Dimsdale JE. The toll of ethnic discrimination on sleep architecture and fatigue. *Health Psychol*. 2006; 25(5):635–642. [PubMed: 17014281]
28. Harris R, Tobias M, Jeffreys M, Waldegrave K, Karlsen S, Nazroo J. Effects of self-reported racial discrimination and deprivation on Maori health and inequalities in New Zealand: cross-sectional study. *Lancet*. 2006; 367(9527):2005–2009. [PubMed: 16782491]
29. Larson A, Gillies M, Howard PJ, Coffin J. It's enough to make you sick: the impact of racism on the health of Aboriginal Australians. *Aust N Z J Public Health*. 2007; 31(4):322–329. [PubMed: 17725009]
30. Windle M, Grunbaum JA, Elliott M, et al. Healthy passages: a multilevel, multimethod longitudinal study of adolescent health. *Am J Prev Med*. 2004; 27(2):164–172. [PubMed: 15261905]
31. Schuster MA, Elliott MN, Kanouse DE, et al. Racial and ethnic health disparities among fifth-graders in three cities. *N Engl J Med*. 2012; 367:735–745. [PubMed: 22913683]
32. Coker TR, Elliott MN, Kanouse DE, et al. Perceived racial/ethnic discrimination among 5th grade students and its association with mental health. *Am J Public Health*. 2009; 99(5):878–884. [PubMed: 19299673]
33. Greene ML, Way N, Pahl K. Trajectories of perceived adult and peer discrimination among Black, Latino, and Asian American adolescents: patterns and psychological correlates. *Dev Psychol*. 2006; 42(2):218–236. [PubMed: 16569162]
34. Farrell AD, Danish SJ, Howard CW. Relationship between drug use and other problem behaviors in urban adolescents. *J Consult Clin Psychol*. 1992; 60(5):705–712. [PubMed: 1401386]
35. Farrell AD, Kung EM, White KS, Valois R. The structure of self-reported aggression, drug use, delinquent behaviors during early adolescence. *J Clin Child Psychol*. 2000; 29(2):282–292. [PubMed: 10802836]
36. Crick NR, Bigbee MA. Relational and overt forms of peer victimization: a multiinformant approach. *J Consult Clin Psychol*. 1998; 66(2):337–347. [PubMed: 9583337]
37. Little TD, Henrich CC, Jones SM, Hawley PH. Disentangling the "whys" from the "whats" of aggressive behaviour. *International Journal of Behavioral Development*. 2003; 27(2):122–133.
38. Brener ND, McMahon PM, Warren CW, Douglas KA. Forced sexual intercourse and associated health-risk behaviors among female college students in the United States. *J Consult Clin Psychol*. 1999; 67(2):252–259. [PubMed: 10224736]

39. StataCorp. Stata Statistical Software: Release. Vol. 11. College Station, TX:: StataCorp LP; 2009.
40. Kish, L. Survey Sampling. New York, NY: Wiley & Sons; 1995.
41. Cohen, J. Statistical power analysis for the behavioral sciences. 2nd edition. Hillsdale, NJ: Erlbaum; 1988.
42. Abraido-Lanza AF, Chao MT, Florez KR. Do healthy behaviors decline with greater acculturation? Implications for the Latino mortality paradox. *Soc Sci Med*. 2005; 61(6):1243–1255. [PubMed: 15970234]
43. Markides KS, Eschbach K. Aging, migration, and mortality: current status of research on the Hispanic paradox. *J Gerontol B Psychol Sci Soc Sci*. 2005; 60(Spec No 2):68–75. [PubMed: 16251594]
44. Bethel JW, Schenker MB. Acculturation and smoking patterns among Hispanics: a review. *Am J Prev Med*. 2005; 29(2):143–148. [PubMed: 16005811]
45. Lee J, Hahm HC. Acculturation and sexual risk behaviors among Latina adolescents transitioning to young adulthood. *J Youth Adolesc*. 2010; 39(4):414–427. [PubMed: 20020189]
46. Afable-Munsuz A, Brindis CD. Acculturation and the sexual and reproductive health of Latino youth in the United States: a literature review. *Perspect Sex Reprod Health*. 2006; 38(4):208–219. [PubMed: 17162313]
47. Perez-Escamilla R, Putnik P. The role of acculturation in nutrition, lifestyle, and incidence of type 2 diabetes among Latinos. *J Nutr*. 2007; 137(4):860–870. [PubMed: 17374645]
48. Zemore SE. Acculturation and alcohol among Latino adults in the United States: a comprehensive review. *Alcohol Clin Exp Res*. 2007; 31(12):1968–1990. [PubMed: 18034692]
49. Finch BK, Kolody B, Vega WA. Perceived discrimination and depression among Mexican-origin adults in California. *J Health Soc Behav*. 2000; 41(3):295–313. [PubMed: 11011506]
50. Cook B, Alegria M, Lin JY, Guo J. Pathways and correlates connecting Latinos' mental health with exposure to the United States. *Am J Public Health*. 2009; 99(12):2247–2254. [PubMed: 19834004]
51. Brondolo E, Hausmann LR, Jhalani J, et al. Dimensions of perceived racism and self-reported health: examination of racial/ethnic differences and potential mediators. *nn Behav Med*. 2011; 42(1):14–28.
52. Uchino BN, Cacioppo JT, Kiecolt-Glaser JK. The relationship between social support and physiological processes: a review with emphasis on underlying mechanisms and implications for health. *Psychol Bull*. 1996; 119(3):488–531. [PubMed: 8668748]
53. Cohen S. Psychosocial models of the role of social support in the etiology of physical disease. *Health Psychol*. 1988; 7(3):269–297. [PubMed: 3289916]
54. Hatzenbuehler ML, Nolen-Hoeksema S, Dovidio J. How does stigma "get under the skin"? the mediating role of emotion regulation. *Psychological Science*. 2009; 20(10):1282–1289. [PubMed: 19765237]
55. Hatzenbuehler ML. How does sexual minority stigma "get under the skin"? A psychological mediation framework. *Psychol Bull*. 2009; 135(5):707–730. [PubMed: 19702379]
56. Nolen-Hoeksema S, Wisco BE, Lyubomirsky S. Rethinking rumination. *Perspectives on Psychological Science*. 2008; 3(5):400–424.
57. Gross JJ. Emotion regulation in adulthood: timing is everything. *Current Directions in Psychological Science*. 2001; 10(6):214–219.
58. Gross JJ, John OP. Individual differences in two emotion regulation processes: implications for affect, relationships, and well-being. *J Pers Soc Psychol*. 2003; 85(2):348–362. [PubMed: 12916575]
59. Utsey SO, Brown C, Bolden MA. Testing the structural invariance of the aficultural coping systems inventory across three samples of African descent populations. *Educational and Psychological Measurement*. 2004; 64(1):185–195.
60. Wyatt GE. Enhancing cultural and contextual intervention strategies to reduce HIV/AIDS among African Americans. *Am J Public Health*. 2009; 99(11):1941–1945. [PubMed: 19762666]
61. Jones, KT.; Wilton, L.; Millett, G.; Johnson, WD. Formulating the stress and severity model of minority social stress for Black men who have sex with men. In: McCree, DH.; Jones, KT.;

- O'Leary, A., editors. African Americans and HIV/AIDS: Understanding and Addressing the Epidemic. New York, NY: Springer; 2010. p. 223-238.
62. Earnshaw V, Bogart LM, Dovidio J, Williams D. Stigma and racial/ethnic HIV disparities: moving towards resilience. *Am Psychol*. Invited manuscript under revision.
 63. Le TN, Johansen S. The relationship between school multiculturalism and interpersonal violence: an exploratory study. *J Sch Health*. 2011; 81(11):688–695. [PubMed: 21972989]
 64. Mandara J, Gaylord-Harden NK, Richards MH, Ragsdale BL. The effects of changes in racial identity and self-esteem on changes in african american adolescents' mental health. *Child Dev*. 2009; 80(6):1660–1675. [PubMed: 19930344]
 65. Whaley AL, McQueen JP. Evaluating cohort and intervention effects on black adolescents' ethnic-racial identity: a cognitive-cultural approach. *Eval Program Plann*. 2010; 33(4):436–445. [PubMed: 20392495]
 66. Greig R. Ethnic identity development: implications for mental health in African-American and Hispanic adolescents. *Issues Ment Health Nurs*. 2003; 24(3):317–331. [PubMed: 12623688]

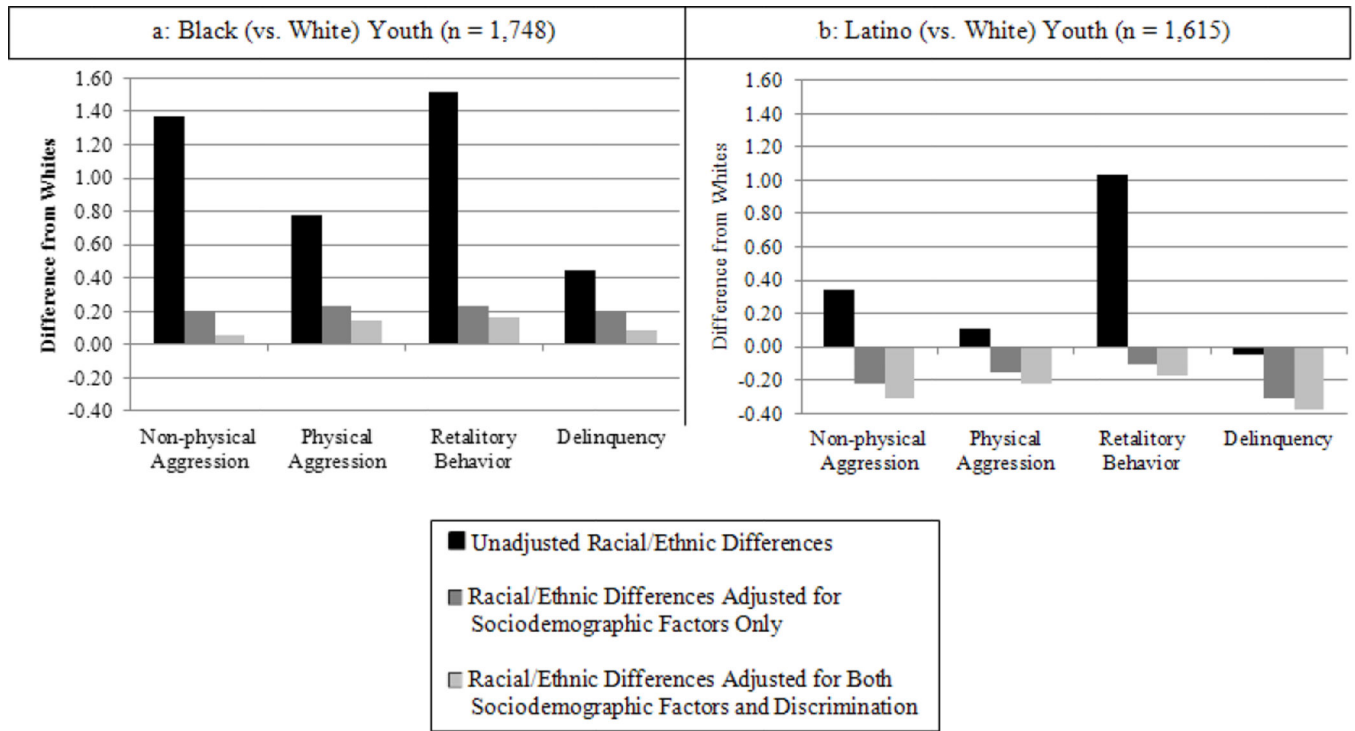


Figure 1. a and 1b. Differences in Problem Behaviors between Blacks and Whites (1a), and Latinos and Whites (1b)

Table 1

Characteristics of the *Healthy Passages* Sample Overall and by Race/Ethnicity

Characteristic	Overall (N=4,612)	White ^a (n=1,249)	Black (n=1,748)	Latino (n=1,615)
Parent/Family Socio-Demographic Characteristics				
Household Income ^b			***	***
<\$25,000	43.2	8.5	54.3	55.2
\$25,000–\$49,999	26.8	16.2	27.3	32.8
\$50,000–\$99,999	17.4	35.0	13.9	9.6
\$100,000	12.6	40.3	4.5	2.5
Highest Education in Household ^b			***	***
<High School Graduate	25.0	2.8	9.7	47.7
High School Graduate	22.9	8.5	30.7	25.3
Some College/Associate Degree	24.2	17.4	37.0	19.4
4-Year College Degree	27.7	71.3	22.5	7.7
Married/Living with Partner	66.1	81.5	40.7***	75.9**
Child Demographic Characteristics				
Gender (Female)	48.7	46.6	48.9	49.8
Age	11.2 (0.5)	11.2 (0.4)	11.2 (0.5)	11.1 (0.6)
Problem Behavior				
Non-physical Aggression	13.4 (2.9)	12.9 (2.3)	14.2 (3.1)***	13.2 (3.1)*
Physical Aggression	8.4 (1.8)	8.1 (1.6)	8.8 (1.9)***	8.2 (1.8)
Retaliatory Behavior	7.8 (2.5)	6.8 (2.1)	8.4 (2.4)***	7.9 (2.8)***
Delinquency	0.6 (0.7)	0.5 (0.7)	0.9 (0.7)***	0.5 (0.7)
Racial Discrimination	14.9	7.4	20.2***	15.1***

* p<.05;

** p<.01;

*** p<.001

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Reference group for racial/ethnic comparisons is non-Latino White

^bTested as ordinal for racial/ethnic comparisons

Table includes the 4,612 Black, White, and Latino children in the *Healthy Passages* sample; those who endorsed "other" race/ethnicity were omitted.

Table 2
Effects of Perceived Discrimination on Problem Behaviors among Black and Latino Youth

Outcome	i. Adjusted Discrimination beta (Standard Error)	ii. Proportion Reporting Discrimination	iii. Disparity related to Discrimination [^]
Black Youth (n = 1,748)			
Non-physical Aggression	0.64 (0.10) ***	0.20	0.13
Physical Aggression	0.44 (0.09) ***		0.09
Retaliatory Behavior	0.35 (0.08) ***		0.07
Delinquency	0.50 (0.13) ***		0.10
Latino Youth (n = 1,615)			
Non-physical Aggression	0.60 (0.09) ***	0.15	0.09
Physical Aggression	0.51 (0.08) ***		0.08
Retaliatory Behavior	0.41 (0.08) ***		0.06
Delinquency	0.42 (0.08) ***		0.06

p < .001

Note: Outcomes were standardized for the entire *Healthy Passages* sample (n=5,119). The discrimination beta and adjusted mean were derived from multivariate regressions predicting standardized outcomes with discrimination separately for Blacks and Latinos, controlling for highest education in household (categorical), household income (categorical), marital status (married or living with a partner vs. other), child age, child gender, and child school. The R-squared for each model is: non-physical aggression (.17 Black, .11 Latino); physical aggression (.16 Black, .15 Latino); retaliatory behavior (.18 Black, .13 Latino); delinquency (.19 Black, .19 Latino).

[^] Product of Columns i and ii

Table 3

Magnitude of Differences in Problem Behaviors between Blacks (or Latinos) and Whites, and Percentage of Differences Associated with Perceived Discrimination

Outcome	i. Difference vs. Whites: Unadjusted b (SE)	ii. Difference vs. Whites: Sociodemographically-Adjusted b (SE) ¹	iii. Difference vs. Whites: Sociodemographically-Adjusted b (SE), Further Adjusted for Discrimination ²	iv. Percentage of Adjusted Difference Associated with Discrimination ³
Black Youth (n = 1,748)				
Non-physical aggression	1.37 (0.17)***	0.19 (0.07)*	0.06	69%
Physical Aggression	0.78 (0.11)***	0.23 (0.08)**	0.14	39%
Retaliatory Behavior	1.52 (0.15)***	0.23 (0.07)***	0.16	31%
Delinquency	0.45 (0.04)***	0.19 (0.06)**	0.09	54%
Latino Youth (n = 1,615)				
Non-physical aggression	0.34 (0.15)*	-0.22 (0.06)***	-0.31	-41%
Physical Aggression	0.11 (0.10)	-0.15 (0.07)*	-0.22	-53%
Retaliatory Behavior	1.03 (0.16)***	-0.11 (0.07) ⁺	-0.17	-56%
Delinquency	-0.05 (0.04)	-0.31 (0.06)***	-0.38	-20%

⁺ p < .10;

* p < .05;

** p < .01;

*** p < .001

¹ Adjusted differences were derived from multivariate regressions predicting standardized outcomes with race/ethnicity (reference group = non-Latino White), controlling for highest education in household (categorical), household income (categorical), marital status (married or living with a partner vs. other), child age, child gender, and child school. Models include data from children of other race/ethnicities (n=507; results not shown for this group). The R-squared for each model is: non-physical aggression (.09); physical aggression (.12); retaliatory behavior (.15); delinquency (.20).

² Adjusted difference from Whites after removing the disparity attributed to discrimination (Table 3 Column ii – Table 2 Column iii)

³ Amount by which disparities are reduced by removing effects of discrimination (percentage change from Column ii to Column iii)