Association Between Perceived Discrimination and Racial/Ethnic Disparities in Problem Behaviors Among Preadolescent Youths

Laura M. Bogart, PhD, Marc N. Elliott, PhD, David E. Kanouse, PhD, David J. Klein, MS, Susan L. Davies, PhD, Paula M. Cuccaro, PhD, Stephen W. Banspach, PhD, Melissa F. Peskin, PhD, and Mark A. Schuster, MD, PhD

Objectives. We examined the contribution of perceived racial/ethnic discrimination to disparities in problem behaviors among preadolescent Black, Latino, and White youths.

Methods. We used cross-sectional data from Healthy Passages, a 3-community study of 5119 fifth graders and their parents from August 2004 through September 2006 in Birmingham, Alabama; Los Angeles County, California; and Houston, Texas. We used multivariate regressions to examine the relationships of perceived racial/ethnic discrimination and race/ethnicity to problem behaviors. 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 youths. Compared with Whites, Blacks were significantly more likely to report problem behaviors, whereas Latinos were significantly less likely (a "reverse disparity"). When we set Blacks' and Latinos' discrimination experiences 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. Eliminating discrimination could considerably reduce mental health issues, including problem behaviors, among Black and Latino youths. (*Am J Public Health.* 2013;103:1074–1081. doi:10.2105/AJPH.2012.301073)

Racial/ethnic disparities in mental health, including problem behaviors (e.g., disruptive or aggressive behaviors), are substantial among US youths. Black adolescents report higher rates of problem behaviors than do their White counterparts.[1,2] Latino adolescents generally report lower rates of these behaviors than do Blacks but greater rates than do 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 or why youths of different races/ethnicities show distinct outcomes.

One factor that may contribute to disparities in mental health is discrimination.[3–7] Biopsychosocial models of discrimination[3–7] 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 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 among children and adolescents.[9–24] This work, which has primarily focused on Black youths, 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 youths 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 youths.[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 nonsignificant when discrimination is controlled, suggesting that discrimination influences inequities. For example, a study found that, after controlling for everyday perceived discrimination, Black (vs White) differences in self-reported health decreased even after adjusting for socioeconomic 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 the effects of discrimination on disparities among Latino youths. Furthermore, previous analyses have conflated the effects of racial discrimination against 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 nonsignificant after adjusting for age, gender, socioeconomic 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 groups 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.

We extended previous work on the discrimination–health relationship by testing the magnitude of the statistical contribution of perceived discrimination to disparities in problem behaviors among preadolescent 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–funded study of 5119 fifth graders on risk factors, protective factors, health behaviors, and health outcomes.[30] Previous multivariate analyses of these data demonstrated that Black youths were more likely to have perpetrated both physical aggression (e.g., hit another child) and nonphysical aggression (e.g., put down other children to their faces) than were White youths; although Latino youths were more likely to have perpetrated aggression than were White youths in bivariate analyses, this disparity was reversed in multivariate analyses.[31] Perceived discrimination was associated with mental health problems for both Black and Latino youths.[32]

METHODS

Our sampling frame was fifth graders in regular classrooms with ≥ 25 students at 118 public schools containing 11 532 students, representing more than 99% of all fifth graders enrolled in regular classrooms in 10 contiguous school districts in and around Birmingham, Alabama; 25 contiguous districts in Los Angeles County, California; and the largest district in Houston, Texas.[30,31] We used a 2-stage sampling procedure to ensure sufficient numbers of Blacks, Latinos, and Whites for analysis. At each site (i.e., stratum), we randomly sampled schools 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, we invited all fifth graders in regular classrooms of sampled schools to participate. We mailed each child's primary caregiver (referred to as "parent"; 96% were parents) a letter asking for permission to contact them. Among the 11 532 students in the sampled schools, 6663 parents agreed to be contacted or indicated uncertainty; 77% of their children (n = 5147) participated. The final sample size was 5119 (28 dyads were missing a parent interview).

We obtained informed consent from parents and assent from children. We conducted interviews from 2004 to 2006, primarily at the children's homes. Each parent–child dyad completed computer-assisted personal interviews; we used audio computer-assisted self-interview modules for sensitive questions. Parents and children could complete the interview in English or Spanish. Following data collection, we deidentified all data and assigned each participant a unique identification number.

Sociodemographic Characteristics

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. We grouped household income for the preceding January–December into less than $25 000, $25 000 to $49 999, $50 000 to $99 999, $100 000 or more, and unknown or refused (n = 374). We categorized parent education as less than high school, high school graduate or general equivalency diploma, some college, 4-year college degree or higher, or missing (n = 66). We dichotomized parent marital status as married or living with a partner versus not married; we imputed the mean (0.64) for 14 missing cases.

We coded child race/ethnicity as non-Latino Black, Latino, non-Latino White, or other (Native American, Asian, Pacific Islander, and multiresponse).

We adapted discrimination questions from prior research.[21,33] We asked children, "Have you been treated badly because of your race or ethnicity?" and "Have you been treated badly because of the color of your skin?" We coded children who responded yes to either question as experiencing racial/ethnic discrimination.

Problem Behaviors

The problem behaviors that we assessed included perpetration of aggression, aggressive and retaliatory behavior, and delinquent behavior.

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?"; $\alpha = 0.81$). 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?"; $\alpha = 0.81$). Response options were 1 = never, 2 = 1–2 times, 3 = 3–5 times, 4 = 6 or more times.[34–36] We summed the items.

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.

We adapted 6 items from the Youth Risk Behavior Surveillance Survey[38] to form a lifetime violent and delinquent behavior index. We asked participants if they ever ran away from home overnight, skipped 1 or more days of school without permission, or were in a fight. We asked participants who had ever been in a fight if they had ever been injured in a fight, injured someone else in a fight, or participated in a gang fight. We summed yes responses.

Because this measure is a summed index rather than an unobserved variable with an underlying true score, we did not calculate internal consistency.

Statistical Analysis

After computing descriptive statistics of the variables of interest, we conducted a multistage analysis to determine the statistical contribution of perceived discrimination to disparities in problem behaviors (i.e., physical and nonphysical aggression, aggressive or 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, we first used multivariate linear regressions to predict problem behaviors from racial/ethnic discrimination in the Black and Latino samples separately, controlling for potential confounding by sociodemographic characteristics. To examine the extent of disparities between Blacks and Whites and between Latinos and Whites, multivariate linear regressions predicted each problem behavior outcome with race/ethnicity, controlling for sociodemographic covariates. We next calculated the proportion of Blacks and Latinos who perceived that they had experienced discrimination. We multiplied this proportion by the sociodemographically adjusted effect of discrimination in 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 the perceived discrimination effect accounted for.

We used Stata version 11.0 (StataCorp LP, College Station, TX)[39] to account for effects of design and nonresponse weights, clustering of children in schools, and stratification by site; we corrected for the clustering of schools in 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, Cary, NC). Hypothesis tests were 2-sided ($\alpha = .05$).

RESULTS

Table 1 describes the sample. Whites reported higher levels of education and income than did 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 with White parents (82%).

Problem behaviors and perceived discrimination significantly varied by race/ethnicity in bivariate analyses. Black and Latino youths reported more nonphysical aggression ($P < .001$ for Blacks; $P = .031$ for Latinos) and aggressive or retaliatory behavior ($P < .001$ for both groups) than did White youths; 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%; $P < .001$) youths reported experiencing discrimination than did White youths (7%).

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

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. Unadjusted results showed that Blacks had higher problem behaviors on all 4 outcomes and that Latino youths showed significantly more nonphysical aggression and retaliatory behaviors than did Whites (Table 3). After sociodemographic adjustment, Blacks continued to show significantly higher levels of all 4 problem behaviors than did Whites (physical aggression: $P = .004$; nonphysical aggression: $P = .011$; aggressive or retaliatory behavior: $P \leq .001$; delinquency: $P \leq .001$). By contrast, the multivariate models for Latinos indicated a reverse disparity: after sociodemographic adjustment, Latinos showed significantly lower levels of nonphysical aggression ($P \leq .001$), physical aggression ($P = .049$), and delinquency ($P \leq .001$) than did Whites; levels of aggressive and retaliatory behaviors were not significantly lower ($P = .097$; Table 3).

Table 3 and Figure 1 (which illustrates Table 3 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), Blacks continued to show higher levels of problem behaviors than did Whites on all outcomes, but the disparity between Blacks and Whites was reduced substantially, to less than 0.20 of a SD across outcomes (a small effect[41]). 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). For example, for nonphysical aggression, 69% of the disparity was associated with perceived discrimination, and the gap between Blacks and Whites would be very small—0.06 of a SD (Table 3)—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). For example, after removing the estimated effects of discrimination, the gap favoring Latinos for nonphysical aggression grew 41% (Table 3), from a small effect size

TABLE 1—Sample Characteristics Overall and by Race/Ethnicity: Healthy Passages; Birmingham, AL; Los Angeles County, CA; and Houston, TX; August 2004–September 2006

Characteristic	Overall (n = 4612), % or Mean (SD)	White[a] (n = 1249), % or Mean (SD)	Black (n = 1748), % or Mean (SD)	Latino (n = 1615), % or Mean (SD)
Parent or family sociodemographic				
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 or associate degree	24.4	17.4	37.0	19.4
≥ 4-year college degree	27.7	71.3	22.5	7.7
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
Married/living with partner	66.1	81.5	40.7***	75.9**
Child demographic				
Age	11.2 (0.5)	11.2 (0.4)	11.2 (0.5)	11.1 (0.6)
Gender (female)	48.7	46.6	48.9	49.8
Problem behavior				
Delinquency	0.6 (0.7)	0.5 (0.7)	0.9*** (0.7)	0.5 (0.7)
Nonphysical 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)
Racial discrimination	14.9	7.4	20.2***	15.1***

Note. Table includes the 4612 Black, White, and Latino children in the Healthy Passages sample; we omitted those who endorsed "other" race/ethnicity.
[a]Reference group for racial/ethnic comparisons is non-Latino White.
[b]Tested as ordinal for racial/ethnic comparisons.
*$P < .05$; **$P < .01$; ***$P < .001$.

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).

DISCUSSION

We found that the elimination of discrimination may lead to considerable improvements in the health of Black and Latino preadolescent youths, 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 youths. Blacks showed more problem behaviors than did 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 did Whites with similar sociodemographics, Latinos' discrimination experiences may have reduced their advantage over Whites by more than a third. These substantial population-level reductions in racial/ethnic disparities occurred although only 15% to 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 previous analyses of the statistical contribution of perceived discrimination to health disparities[25–29] by isolating, for Black and Latino youths 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 do Whites.

Our finding of a lower prevalence of problem behaviors (adjusted for sociodemographic characteristics) among Latinos is consistent with prior research showing better health outcomes (e.g., lower mortality) for Latinos than for Whites.[42,43] Research suggests that this relative advantage may be smaller among Latinos who were born in the United States or have been living in the United States for a considerable period. For example, Latino immigrants, especially women, may adopt unhealthy behaviors as they become more acculturated to the United States.[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 than do Whites on problem behaviors because of stronger effects of discrimination.

TABLE 2—Effects of Perceived Discrimination on Problem Behaviors Among Black and Latino Youths: Healthy Passages; Birmingham, AL; Los Angeles County, CA; and Houston, TX; August 2004–September 2006

Outcome	Adjusted Discrimination, b (SE)	Proportion Reporting Discrimination	Disparity Related to Discrimination[a]
Black youths (n = 1748)		0.20	
Delinquency	0.50*** (0.13)		0.10
Nonphysical aggression	0.64*** (0.10)		0.13
Physical aggression	0.44*** (0.09)		0.09
Retaliatory behavior	0.35*** (0.08)		0.07
Latino youths (n = 1615)		0.15	
Delinquency	0.42*** (0.08)		0.06
Nonphysical aggression	0.60*** (0.09)		0.09
Physical aggression	0.51*** (0.08)		0.08
Retaliatory behavior	0.41*** (0.08)		0.06

Note. We standardized outcomes for the entire Healthy Passages sample (n = 5119). We derived the discrimination b and adjusted mean 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^2 for each model is nonphysical aggression (0.17 Black, 0.11 Latino); physical aggression (0.16 Black, 0.15 Latino); retaliatory behavior (0.18 Black, 0.13 Latino); delinquency (0.19 Black, 0.19 Latino).
[a]Product of first and second columns.
***$P < .001$.

Results should not be generalized beyond the 3 metropolitan study areas. In addition, the discrimination measure was a combination of 2 items about "being treated badly" because of race/ethnicity or skin color. Previous 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 did 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 lifespan. Staff at schools and other youth-serving organizations should be made aware of laws targeting hate crimes, and school policies against discrimination are essential. Moreover, mental health clinicians who treat Black and Latino youths 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

TABLE 3—Magnitude of Differences in Problem Behaviors Between Blacks or Latinos and Whites and Percentage of Differences Associated With Perceived Discrimination: Healthy Passages; Birmingham, AL; Los Angeles County, CA; and Houston, TX; August 2004–September 2006

Outcome	Difference vs Whites, Unadjusted, b (SE)	Difference vs Whites, Sociodemographically Adjusted,[a] b (SE)	Difference vs Whites, Sociodemographically Adjusted, Further Adjusted for Discrimination,[b] b (SE)	Adjusted Difference Associated With Discrimination,[c] %
Black youths (n = 1748)				
Delinquency	0.45*** (0.04)	0.19** (0.06)	0.09	54
Nonphysical 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
Latino youths (n = 1615)				
Delinquency	–0.05 (0.04)	–0.31*** (0.06)	–0.38	–20
Nonphysical 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

[a]We derived adjusted differences from multivariate regressions predicting standardized outcomes with race/ethnicity (reference group is 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). R^2 for each model is nonphysical aggression (0.09), physical aggression (0.12), retaliatory behavior (0.15), and delinquency (0.20).
[b]Adjusted difference from Whites after removing the disparity attributed to discrimination (Table 3, second column minus Table 2, third column).
[c]Amount by which disparities are reduced by removing effects of discrimination (percentage change from second column to third column).
*$P < .05$; **$P < .01$; ***$P < .001$.

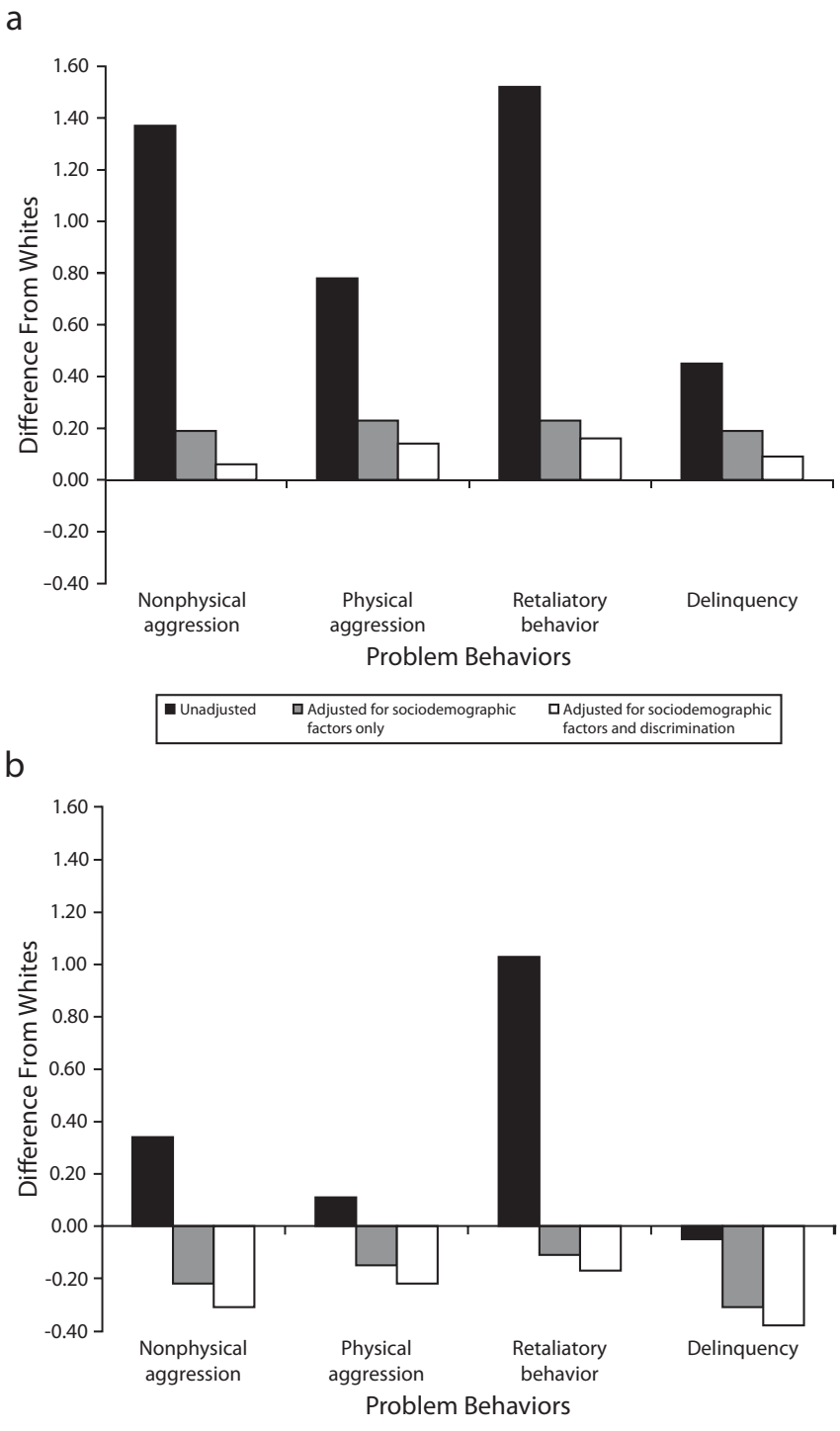

FIGURE 1—Differences in problem behaviors between (a) Blacks and Whites and (b) Latinos and Whites: Healthy Passages; Birmingham, AL; Los Angeles County, CA; and Houston, TX; August 2004–September 2006

discrimination with adaptive coping strategies (e.g., support seeking, such as talking with school staff, family, and peers) and for avoiding maladaptive coping strategies that prolong distress (e.g., anger or rumination, i.e., repetitively focusing on the situation) and that could lead to longer-term health problems, such as substance use.[12,52–58]

Black-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., in faith-based organizations).[59–61] Research is needed to examine which coping strategies are helpful for managing discrimination among Black and Latino youths as well as to identify additional ways youths 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 and between racial/ethnic groups. A growing body of research suggests that discrimination may be experienced differently and have distinct effects by racial/ethnic group[62]; a potential explanation is that intersecting stigmas in addition to race/ethnicity (e.g., both race/ethnicity and undocumented immigration status for some Latinos) 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 youths on 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 teachers and administrators promote respect for diversity and facilitate positive intergroup interactions through curriculum and activities) have been shown to protect 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, a 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, 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 socioeconomic 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 youths that acknowledge the existence of racial/ethnic discrimination, help them explore its implications, and foster greater community, school, and family social supports. ■

About the Authors

Laura M. Bogart and Mark A. Schuster are with the Division of General Pediatrics, Department of Medicine, Boston Children's Hospital, Boston, MA, and the Department of Pediatrics, Harvard Medical School, Boston. Marc N. Elliott and David E. Kanouse are with RAND Corporation, Santa Monica, CA. David J. Klein is with the Division of General Pediatrics, Department of Medicine, Boston Children's Hospital. Susan L. Davies is with the Department of Health Behavior, School of Public Health, University of Alabama, Birmingham. Paula M. Cuccaro and Melissa F. Peskin are with the Center for Health Promotion and Prevention Research, University of Texas Health Science Center, Houston. Stephen W. Banspach is with the National Center for Chronic Disease Prevention and Health Promotion, Division of Adolescent and School Health, Centers for Disease Control and Prevention, Atlanta, GA.

Correspondence should be sent to Laura M. Bogart, PhD, Division of General Pediatrics, Boston Children's Hospital, 300 Longwood Avenue, Boston, MA 02115 (e-mail: laura.bogart@childrens.harvard.edu). Reprints can be ordered at http://www.ajph.org by clicking the "Reprints" link.

This article was accepted September 8, 2012.

Contributors

L. M. Bogart was responsible for conceptualization of the research questions and interpretation of findings and led the writing of the article. M. N. Elliott contributed to the conceptualization of the research questions and writing of the article and led the design of the analysis plan. D. E. Kanouse contributed to the conceptualization of the overall study and interpretation of findings. D. J. Klein contributed to the conception of the analysis plan, conducted the data analyses, helped to interpret the results, and contributed to the writing of the article. S. L. Davies, P. M. Cuccaro, S. W. Banspach, and M. F. Peskin contributed to the interpretation of findings. M. A. Schuster led the conceptualization of the overall study and contributed to interpretation of findings. All authors reviewed the article.

Acknowledgments

The Healthy Passages Study is funded by the Centers for Disease Control and Prevention, Prevention Research Centers (cooperative agreements U48DP000046, U48DP000057, and U48DP000056).

Note. The findings and conclusions of this study are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

Human Participant Protection

Institutional review boards at RAND Corporation, University of Texas at Houston, University of Alabama at Birmingham, and the Centers for Disease Control and Prevention approved this study. The Los Angeles Unified School District and the Houston School District also reviewed and approved the data collection at their sites.

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.

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: US 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.

4. Clark R, Anderson NB, Clark VR, Williams DR. Racism as a stressor for African Americans: a biopsychosocial model. *Am Psychol.* 1999;54(10):805–816.

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. *J Black Psychol.* 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.

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.

8. Pascoe EA, Smart Richman L. Perceived discrimination and health: a meta-analytic review. *Psychol Bull.* 2009;135(4):531–554.

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.

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.

11. Gaylord-Harden NK, Cunningham JA. The impact of racial discrimination and coping strategies on internalizing symptoms in African American youth. *J Youth Adolesc.* 2009;38(4):532–543.

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.

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.

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.

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.

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.

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.

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.

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 Q.* 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.

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.

22. Umaña-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.

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.

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.

25. Williams DR, Yu Y, Jackson JS, Anderson NB. Racial differences in physical and mental health: socio-economic

status, stress and discrimination. *J Health Psychol.* 1997; 2(3):335–351.

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.

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.

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.

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.

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.

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(8):735–745.

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.

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.

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.

35. Farrell AD, Kung EM, White KS, Valois R. The structure of self-reported aggression, drug use, and delinquent behaviors during early adolescence. *J Clin Child Psychol.* 2000;29(2):282–292.

36. Crick NR, Bigbee MA. Relational and overt forms of peer victimization: a multiinformant approach. *J Consult Clin Psychol.* 1998;66(2):337–347.

37. Little TD, Henrich CC, Jones SM, Hawley PH. Disentangling the "whys" from the "whats" of aggressive behaviour. *Int J Behav Dev.* 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.

39. *Stata Statistical Software, Version 11.0.* [computer program]. 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 ed. Hillsdale, NJ: Erlbaum; 1988.

42. Abraído-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.

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.

44. Bethel JW, Schenker MB. Acculturation and smoking patterns among Hispanics: a review. *Am J Prev Med.* 2005;29(2):143–148.

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.

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.

47. Pérez-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.

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.

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.

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.

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. *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.

53. Cohen S. Psychosocial models of the role of social support in the etiology of physical disease. *Health Psychol.* 1988;7(3):269–297.

54. Hatzenbuehler ML, Nolen-Hoeksema S, Dovidio J. How does stigma "get under the skin"?: the mediating role of emotion regulation. *Psychol Sci.* 2009;20(10): 1282–1289.

55. Hatzenbuehler ML. How does sexual minority stigma "get under the skin"? A psychological mediation framework. *Psychol Bull.* 2009;135(5):707–730.

56. Nolen-Hoeksema S, Wisco BE, Lyubomirsky S. Rethinking rumination. *Perspect Psychol Sci.* 2008;3(5): 400–424.

57. Gross JJ. Emotion regulation in adulthood: timing is everything. *Curr Dir Psychol Sci.* 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.

59. Utsey SO, Brown C, Bolden MA. Testing the structural invariance of the Africultural coping systems inventory across three samples of African descent populations. *Educ Psychol Meas.* 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.

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, eds. *African Americans and HIV/AIDS: Understanding and Addressing the Epidemic.* New York, NY: Springer; 2010:223–238.

62. Earnshaw V, Bogart LM, Dovidio J, Williams D. Stigma and racial/ethnic HIV disparities: moving towards resilience. *Am Psychol.* In press.

63. Le TN, Johansen S. The relationship between school multiculturalism and interpersonal violence: an exploratory study. *J Sch Health.* 2011;81(11):688–695.

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.

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.

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.