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Perceptions of Racism and Depressive Symptoms in African American Adolescents: The Role of Perceived Academic and Social Control

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Abstract

Experiences with racism are a common occurrence for African American youth and may result in negative self perceptions relevant for the experience of depressive symptoms. This study examined the longitudinal association between perceptions of racism and depressive symptoms, and whether perceived academic or social control mediated this association, in a community epidemiologically-defined sample of urban African American adolescents ($N = 500$; 46.4% female). Structural equation modeling revealed that experiences with racism were associated with low perceived academic control, which in turn was associated with increased depressive symptoms. Findings suggest that experiences with racism can have long lasting effects for African American youth's depressive symptoms, and highlight the detrimental effects of experiences with racism for perceptions of control in the academic domain. Implications for intervention are discussed.

Keywords

adolescent depression; African American; racism; perceived control

Contextual stressors are critical for understanding depression and other psychosocial outcomes in African American adolescents (Garcia Coll et al., 1996; Hammack, 2003). One type of contextual stress central to the experience of many African American adolescents is the experience of racism and discrimination (Harrell, 2000). Clark and colleagues define racism as “beliefs, attitudes, institutional arrangements, and acts that tend to denigrate individuals or groups because of phenotypic characteristics or ethnic group affiliation” (Clark, Anderson, Clark, & Williams, 1999, p. 805). According to their model of racism as a biopsychosocial stressor, the perception of an event as racist activates a set of psychological and emotional stress responses to the event (Clark et al., 1999).

A significant body of work has documented the harmful effects of racism on the physical and mental health outcomes of African American adults (e.g., Clark et al., 1999; Jackson et al., 1996). In particular, racism has been linked to adverse birth outcomes (Giscombe & Lobel, 2005), hypertension (Brondolo, Rieppi, Kelly, & Gerin, 2003), substance abuse (Gibbons, Gerrard, Cleveland, Wills, & Brody, 2004), and psychological distress (Williams, Neighbors, & Jackson, 2003). Although much of the empirical research linking adults' experiences with racism with mental health has been cross-sectional (Williams et al., 2003), prospective studies have found that adult experiences with racism and discrimination are linked with later mental health difficulties. For example, Schulz and colleagues (2006) found that increases in discrimination over a two-year period were positively associated with increases in depressive symptoms over that same period even after adjusting for baseline symptoms of discrimination and depression (Schulz et al., 2006). Thus, experiences with racism can have long lasting adverse health consequences for adults.

Relative to research examining consequences of racism with adult samples, comparatively fewer studies have been conducted with African American adolescents. These studies have documented associations between experiences with racism and discrimination and adolescents' poorer mental health outcomes, including general psychological distress and internalizing problems (DuBois, Burk-Braxton, Swenson, Tevendale, & Hardesty, 2002; Fisher, Wallace, & Fenton, 2000), externalizing behavior (Caldwell, Kohn-Wood, Schmeelk-Cone, Chavous, & Zimmerman, 2004), and substance use (Guthrie, Young, Williams, Boyd, & Kintner, 2002). However, few studies have focused specifically on the longitudinal association between racism and depression in this population or specified explanatory mechanisms. The present study examines whether perceptions of control mediate the relationship between experiences with racism and depressive symptoms in a sample of urban, predominantly low income African American adolescents.

Racism and depressive symptoms in African American adolescents

The available research suggests that experiences with racism are associated with depressive symptoms in African American adolescents, and provides support for Clark and colleagues' model. For example, Simons and colleagues (2002) found that exposure to racism at the individual and community level was positively associated with depressive symptoms among African American preadolescents. Similarly, Nyborg and Curry (2003) found that reports of personal experiences with racism were associated with greater self-reported internalizing symptoms, lower self-concept, and greater levels of hopelessness in African American boys ages 10–15. In addition to cross-sectional associations, African American adolescents' experiences with discrimination also have been linked with later distress (i.e., depressive and anxious symptoms) (Gibbons et al., 2004), and African American adolescents' experience of increasing discrimination over time has been linked with increased internalizing problems (Brody et al., 2006; Greene, Way, & Pahl, 2006). Importantly, prior prospective longitudinal research with African American adolescents also has demonstrated that the association between experiences with discrimination and later internalizing problems is stronger than the reverse direction of association (i.e., internalizing problems predicting later perception of discrimination) (Brody et al., 2006; Gibbons et al., 2004).

Results of the aforementioned research are consistent with socioecologic models of depression that propose that depressive symptoms among African American youth are due, in part, to experiences unique to their context, specifically social and economic oppression associated with ethnic minority status (Hammack, 2003). Lacking from socioecologic models, however, is discussion of mechanisms linking the broader context with depressive symptoms. For example, youth may internalize particular stressful experiences and aspects of their environment that may shape cognitions relevant for understanding the onset and maintenance

of depressive symptoms. Internalization of societal racism or perceptions of discrimination may result in maladaptive cognitions and negative self-perceptions which, in turn, influence health outcomes, including depression (Clark et al., 1999).

Hypothesized mechanisms linking experiences with racism and depressive symptoms

Control-related beliefs, including attributions for causes of events and perceptions of control over outcomes, have been identified in cognitive models of depression as significant for the onset and maintenance of depression (e.g., Abramson, Metalsky, & Alloy, 1989; Peterson & Seligman, 1984; Weisz, 1986; Weisz & Stipek, 1982). Relatedly, competence-based models of depression propose that individuals evaluate themselves in ways that reflect how others regard them (e.g., Cole, 1990). If youth receive aversive feedback about themselves from their environment, negative self-perceptions, including low perceptions of control over their environment, may result. Experiences with racism and the messages of racial inferiority inherent in such experiences can contribute to negative self-perceptions that place youth at increased risk for depressive symptoms.

According to Weisz and colleagues' (2001) conceptualization, control is an individual's capacity to produce a desired outcome, and at the low end of the continuum reflects a perception of personal helplessness to achieve outcomes. Experiences with racism and discrimination may diminish individuals' sense of control because such experiences are based on social inequities that are often beyond the individual's power to address. As a result, youth who experience racism and discrimination may feel a low sense of contingency between their behaviors and outcomes. Research with community and clinic samples has confirmed associations between children and adolescents' self report of depressive symptoms and low perceived control (e.g., Muris, Shouten, Meesters, & Gijbbers, 2003; Weisz, Sweeney, Proffitt, & Carr, 1993), and constructs related to perceived control, such as negative attributional style (see Birmaher et al., 1996 and Gladstone & Kaslow, 1995 for reviews).

There is preliminary evidence that control beliefs mediate between contextual stressors, such as experiences with racism, and depression. Deardorff and colleagues (2003) found that perceived control partially mediated the association between stress, including experiences with discrimination, and depression in their sample of ethnically diverse 7th and 8th grade students attending inner city schools (Deardorff, Gonzales, & Sanders, 2003). Similarly, other studies suggest that perceptions of control mediate between experiences of stress and depression (e.g., Fogas, Wolchik, Braver, Freedom, & Bay, 1992; Kim, Sandler, & Tien, 1997). Environmental stress also has been linked with lower personal control. For example, neighborhood stress has been linked with an external locus of control (Coley & Hoffman, 1996) and lower control-related beliefs (Lambert, Brown, Phillips, & Jalongo, 2005). Likewise, Cowen and colleagues (1992) found that an internal locus of control discriminated stress-resilient from stress-affected youth. Experiences with racism may similarly be linked with decreased control-related beliefs, and thus have both direct and indirect effects on depressive symptoms. Therefore, the primary goal of this study was to examine whether experiences with racism predicted perceptions of control, and whether these cognitions accounted for the effect of racism experiences on depression that has been observed in prior research.

The present study

The present study examined the longitudinal association between experiences with racism and depressive symptoms among a community epidemiologically-defined sample of urban African American adolescents, and whether the association was mediated by perceptions of control. Adolescence is an ideal time to examine the effects of racism on depressive symptoms because

adolescents possess the cognitive capabilities to recognize racism and discrimination, and in what situations attributions of racism are appropriate (Brown & Bigler, 2005). Thus, the negative effects of experiences with racism may be particularly salient during adolescence. We hypothesized that exposure to racism results in adolescent depressive symptoms through two pathways: (1) via its direct impact on youth's psychological functioning; and (2) via its impact on adolescents' perception of control. It was expected that adolescents' experience of racism would have direct relevance for their beliefs about their ability to achieve desired outcomes (i.e., perceived control), and that these beliefs would in turn, be negatively associated with depressive symptoms.

Method

Participants

Participants were 500 middle school students initially assessed in the fall of first grade as part of an evaluation of two school-based preventive interventions whose immediate targets were early learning and aggressive behavior in first grade (Ialongo, Werthamer, et al., 1999). The original sample consisted of 678 children and families, representative of students entering first grade in nine Baltimore City public elementary schools, who were recruited for participation in the intervention trials. Three first grade classrooms in each of nine elementary schools were randomly assigned to one of the intervention conditions or to a control condition. The interventions were provided over the first grade year. Of the 678 children who participated in the intervention trial (i.e., in an intervention or control group), 585 were African American. Of these 585 youth, 85.5% ($N = 500$) had parental consent, provided assent, and completed measures of perceived racism, control beliefs, and depressive symptoms in grades 8, 9 or 10. These 500 youth comprised the sample of interest for this study. The majority of the sample (i.e., 70%) had complete data on all study constructs. Approximately half of the sample was female ($N = 232$; 46.4%). Nearly all (92.5%) of the participants' primary caregiver was female, and in the majority of cases the caregiver was the biological mother (77.9%). As an indicator of the socioeconomic status of the sample, 72% of the sample received free lunch or reduced lunches according to parent report at the 1st grade assessment. At the 8th grade assessment, youth ranged in age from 13.13 to 15.26 ($M = 13.75$, $SD = .36$).

The 500 African American students participating in this study did not differ from the 85 African American students not included in this study in terms of gender, percentage receiving free or reduced lunch, intervention status ($ps > .05$), age at entry into the study, first grade self-reports of anxiety or depressive symptoms, or teacher ratings of first grade externalizing problems ($ps > .05$). Similarly, participants with data in grades 8 through 10 did not differ from those missing data at one or more assessments in terms of gender, percentage receiving free or reduced lunch, intervention status ($\chi^2s ps > .05$), age at entry into the study, first grade self-reports of anxiety or depressive symptoms, or teacher ratings of first grade externalizing problems ($ps > .05$).

Assessment Design

Data for this study were obtained in the spring of grade 8 and the two subsequent years. A face-to-face interview was used to gather data from youth at each grade, and each of the study constructs was assessed annually. Data were collected at school for the majority of participants (90%). For participants who were not able to be interviewed in school, interviews were conducted in a setting selected by the adolescent (e.g., library, fast food restaurant, participant's home). The majority of interviewers were African American. Experiences with racism and discrimination were assessed in grade 8. The hypothesized mediators, perceived academic control and perceived social control, were assessed in grade 9. Depressive symptoms were assessed in grade 10. The time lag between variables was selected in order to permit conclusions

about the influence of experiences with racism and discrimination on subsequent control-related beliefs and depressive symptoms.

Measures

The constructs examined in this study were operationalized as latent variables. It has been suggested that latent variable modeling with parcels as indicators of latent constructs offers advantages over path analysis using observed total or scale scores (see Coffman & MacCallum, 2005 for a review). For example, as noted by Naser and Wisenbaker (2003), item parcels are often used and preferred over individual items in structural equation modeling analyses because they are more likely to meet assumptions of the maximum likelihood procedures used in structural equation modeling, provide more precise estimates of parameters, and simplify models by reducing the number of parameters. Therefore, item parcels for experiences with racism, depressive symptoms, perceived academic control, and perceived social control were created and used as indicators of latent variables representing these constructs. The fit of the indicator variables to their respective latent constructs was evaluated using structural equation modeling techniques.

Perceived racism—Seven items drawn from the Racism and Life Experiences Scales (RaLES; Harrell, 1997) were used to assess experiences with racism and discrimination. The RaLES assesses how often youth have experienced racism or negative events associated with his or her race (e.g., “How often have you been ignored, overlooked, or not given service in a restaurant, store, etc?”; “How often have you been treated rudely or disrespectfully because of your race?”). Youth respond to each item using a six-point frequency scale (1 = “never,” 2 = “less than once a year,” 3 = “a few times a year,” 4 = “about once a month,” 5 = “a few times a month,” 6 = “once a week or more”). A summary score may be created by taking the mean of the seven items, and higher scores indicate more experiences with racism. In this sample, mean summary scores ranged from 1.00 to 5.57 ($M = 1.78$) in grade 8. Coefficient alpha for the 7-item scale in grade 8 was .88. For this study, the seven RaLES items were randomly divided into 2 sets. The 2 sets of items were summed, and these sums were used as indicators of a latent construct representing *perceived racism*.

In terms of concurrent validity, the RaLES correlates positively with conceptually similar measures including the Index of Race-Related Stress (Utsey & Ponterotto, 1996) which assesses stress experienced as a result of experiences with racism and discrimination. Criterion validity of the RaLES can be demonstrated by its ability to discriminate between African American and White respondents. For the present sample, in each of grades 8, 9, and 10 African American participants reported significantly more experiences with racism and discrimination on the RaLES than White participants.

Depressive symptoms—Depressive symptoms were assessed using the Baltimore How I Feel-Adolescent Version, Youth Report (BHIF-AY; Ialongo, Kellam, & Poduska, 1999), a youth self-report measure of depressive and anxious symptoms. The BHIF was designed as a first-stage measure in a two-stage epidemiologic investigation of the prevalence of child and adolescent mental disorders as defined in the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., rev.; DSM-IV; American Psychiatric Association, 1994). Items for the depression scale were generated directly from DSM-IV criteria or drawn from existing child self-report measures, including the Children’s Depression Inventory (Kovacs, 1983), the Depression Self-Rating Scale (Asarnow & Carlson, 1985), and the Hopelessness Scale for Children (Kazdin, Rodgers, & Colbus, 1986). Youth report the frequency of depressive symptoms over the last two weeks on a four-point scale (1 = “never,” 4 = “most times”), recoded such that items are scored 0 to 3 and a score of 0 indicates no symptoms. A summary score may be created by taking the mean of the items, and higher scores indicate more depressive

symptoms. In 10th grade, BHIF-AY depression scores ranged from 0 to 2.29 ($M = .55$, $SD = .42$). In terms of concurrent validity, the BHIF Depression subscale is significantly associated with a diagnosis of Major Depressive Disorder on the Diagnostic Interview Schedule for Children IV (Shaffer, Fisher, Lucas, Dulcan, & Schwab-Stone, 2000). The BHIF-AY Depression subscale correlates significantly with self-oriented perfectionism and socially prescribed perfectionism (McCreary, Joiner, Schmidt, & Ialongo, 2004), and anxiety sensitivity (Lambert et al., 2004). Chronbach's alpha for the Depression scale in grade ten was .87. For this study, the 15 depression items were randomly divided into 3 sets. The 3 sets of items were summed, and these sums were used as indicators of *depressive symptoms*.

Perceived control—Perceived control was assessed using the Control scale developed by Weisz and colleagues (Weisz, Southam-Gerow, & Sweeney, 1998; Weisz, Sweeney, Proffitt, & Carr, 1993). The Control scale assesses beliefs about one's ability to exert control over outcomes in academic (e.g., "I can get really good grades if I try"), social (e.g., "I can make friends with other kids if I really try"), and behavioral (e.g., "Even if I try to follow the rules, I will get in trouble for my behavior") domains. Youth respond to each item using a 4-point scale ranging from 1 (not at all true) to 4 (very true). In prior research, the Control scale has demonstrated positive associations with perceived personal competence and perceived contingency of outcomes, as well as negative associations with depressive symptoms (Weisz et al., 2001). Given the salience of self-perceptions in the academic and social domains for the development of depression (Cole, Jacquez, & Maschman, 2001), only perceived academic control and perceived social control were examined in this study. In grade 9, the coefficient alphas for the academic and social control scales were .71 and .61, respectively. For this study, the 6 perceived academic control items were randomly divided into two sets, and each set of items was summed to create two parcels which were used as indicators of a latent construct representing *perceived academic control*. Similarly, the 6 perceived social control items were randomly divided into two sets which were summed and used as indicators of a latent construct representing *perceived social control*.

Demographic information and intervention status—Information was collected on participants' age, gender, and receipt of free or reduced lunch. Intervention status (i.e., participation in an intervention or control condition during first grade) also was recorded.

Analytic Strategy

Structural equation modeling was used to examine the hypothesized relationships among the latent constructs and to examine the relations between the observed (indicator) variables and their respective latent constructs. Structural equation modeling was conducted using *Mplus* 5.1 (Muthén & Muthén, 1998–2008) using full information maximum likelihood estimation; this approach allows for missing data under missing at random (MAR, see Little & Rubin, 1990; Rubin, 1987) assumptions, where students who have data on at least one study variable are included in the analysis. Model fit was evaluated using multiple indicators of fit: Chi-square, the Comparative Fit Index (CFI), and the Root Mean Square Error of Approximation (RMSEA). Hu and Bentler (1999) suggest that CFI values above .95 and RMSEA values less than .08 represent acceptable fit; RMSEA values equal or less than .05 represent good fit (Browne & Cudek, 1993).

Mediation was tested with three models according to guidelines outlined by Baron and Kenny (1986) and Holmbeck (1997). First, the direct effect of the predictor (experiences with racism) on the outcome (depressive symptoms) was assessed. Next, the indirect effects were assessed. Specifically, the fit of a model with paths from the predictor to the mediators (perceived academic control and perceived social control) and from the mediators to the outcome was tested. A third model including the indirect and direct effects was tested to determine whether

the direct effect was reduced with the hypothesized mediators in the model; a reduction in the direct effect suggests mediation. To provide an additional test of mediation, the confidence-interval based test of mediation recommended by MacKinnon, Lockwood, Hoffman, West, and Sheets (2002) was performed to determine the significance of the indirect effect; if the confidence interval for the indirect effect does not contain zero, the indirect effect is considered significant.

In recognition that prospective associations between 8th grade perceptions of racism and 10th grade depressive symptoms might be observed due to the concurrent association between 8th grade perceived racism and initial levels of depressive symptoms, 8th grade depressive symptoms were included as a control variable in the analyses. Similarly, we controlled for the effects of 8th grade perceived academic control and perceived social control on 9th grade perceived academic and social control in order to better examine whether perceptions of racism in grade 8 were associated with changes in these domains of perceived control. Intervention status was controlled in each of the structural equation models. Analyses were conducted separately for males and females because prior research has suggested that the effects of low perceived competence on depressive symptoms may be stronger for females than for males (e.g., Herman, Lambert, Reinke, & Ialongo, 2008). To examine gender differences in identified significant direct and/or indirect effects of perceived racism on depressive symptoms, multiple group analyses were performed. For these analyses, models in which paths were freely estimated for males and females were compared with models in which paths for males and females were constrained to be equal. A significant decrement in chi square model fit for the constrained model provides evidence of a significant gender difference in the path that was constrained.

Results

Descriptive Information

Means, standard deviations, and intercorrelations for observed study variables are presented in Table 1. Female and male participants did not differ in their reports of experiences with racism, or perceived academic or social control. Female participants reported significantly more depressive symptoms than males in grade 8 ($t = 3.20, p = .001$; $M_{\text{boys}} = .54, SD_{\text{boys}} = .34$; $M_{\text{girls}} = .66, SD_{\text{girls}} = .45$) and in grade 10 ($t = 3.19, p = .002$; $M_{\text{boys}} = .49, SD_{\text{boys}} = .40$; $M_{\text{girls}} = .61, SD_{\text{girls}} = .42$).

For females, perceived racism in grade 8 was significantly positively associated with concurrent and later depressive symptoms, and significantly negatively associated with grade 8 and grade 9 perceived academic and social control. Consistent with expectation, perceived academic and social control in grade 9 were significantly negatively associated with females' depressive symptoms in grade 10. For males, perceived racism in grade 8 was significantly positively associated with concurrent and later depressive symptoms, but not associated with academic or social control in grades 8 or 9. As hypothesized, perceived academic control and perceived social control in grade 9 were significantly negatively associated with grade 10 depressive symptoms for males.

Mediation Analyses for Females

For females, the direct model, containing a direct path from perceptions of racism in grade 8 to depressive symptoms in grade 10, provided an adequate fit to the data, $\chi^2(10) = 24.49, p = .006$; CFI = .95; RMSEA = .079 (90% CI: .040–.119). Perceptions of racism in grade 8 were significantly positively associated with depressive symptoms in 10th grade ($\beta = .30, p = .001$), after controlling for grade 8 depressive symptoms. Intervention status was not associated with

10th grade depressive symptoms. Depressive symptoms in grade 8 were significantly positively associated with perceived racism in grade 8 and depressive symptoms in grade 10.

The second model, containing only the paths from perceptions of racism to perceived academic control and perceived social control, and from these control beliefs to depressive symptoms yielded an adequate fit to the data, $\chi^2(50) = 91.36, p < .001$; CFI = .93; RMSEA = .060 (90% CI: .040–.079). Perceptions of racism in grade 8 were significantly negatively associated with perceived academic control in grade 9 ($\beta = -.22, p = .004$), which in turn was significantly negatively associated with depressive symptoms in grade 10 ($\beta = -.20, p = .036$). There was no association between 8th grade perceptions of racism and 9th grade perceived social control, and no association between 9th grade perceived social control and 10th grade depressive symptoms (see Figure 1). Thus, perceived academic control emerged as a possible mediator of the significant effect of perceived racism on girls' depressive symptoms. However, the bootstrap confidence interval for the indirect effect included zero (95% CI = $-.001$ to $.035, ns$). Moreover, the model containing the indirect paths and the direct path from perceived racism to depressive symptoms provided a significant improvement over the indirect effects model, $\chi^2_{diff}(1) = 7.05, p = .008$. In this full model, the effect of perceived racism on depressive symptoms was significant ($\beta = -.27, p = .002$); while the effect of perceived racism on perceived academic control was significant in this full model, the path from perceived academic control to depressive symptoms was reduced to nonsignificance ($\beta = -.129, p = .196$) suggesting that perceived academic control did not mediate the effect of perceived racism on depressive symptoms (Holmbeck, 1997).

Mediation Analyses for Males

For males, the direct model, containing a direct path from perceptions of racism in grade 8 to depressive symptoms in grade 10, provided a good fit to the data, $\chi^2(10) = 10.34, p = .41$; CFI = .99; RMSEA = .011 (90% CI: .000–.068). However, perceptions of racism in grade 8 were not associated with depressive symptoms in 10th grade ($\beta = .13, p = .12$) after controlling for the effect of grade 8 depressive symptoms ($\beta = .35, p < .001$), and the association between grade 8 depressive symptoms and grade 8 perceptions of racism ($\beta = .26, p < .001$). The second model for males, containing only the paths from perceptions of racism to perceived academic control and perceived social control, and from these control beliefs to depressive symptoms yielded a good fit to the data, $\chi^2(50) = 85.26, p = .001$; CFI = .95; RMSEA = .051 (90% CI: .032–.070). This model revealed marginal associations between perceived academic control and depressive symptoms ($\beta = -.19, p = .06$) and between perceived social control and depressive symptoms ($\beta = .18, p = .08$). However, as noted in the bivariate correlations, perceived racism was not associated with perceived academic or social control suggesting that there was no indirect effect of perceived racism on males' depressive symptoms operating through these variables.

Discussion

The limited attention to environmental and contextual factors that may be associated with depression, and may predict cognitions relevant for depression, has raised concern about the relevance of cognitive models for African American youth (Hammack, 2003). Findings from the present study revealed that African American adolescents' experiences with racism may have indirect effects on their depressive symptoms, with the effects of racism partly operating through perceptions of control over academic outcomes for females. Specifically, female adolescents reporting greater perceptions of racism endorsed a decreased belief in their ability to achieve desired academic outcomes. These low perceptions of control in the academic domain were associated with increased depressive symptoms. This finding is consistent with cognitive models highlighting the role of decreased personal control in the etiology of

depression, and suggests that experiences with racism are one source of low perceived control. Results revealed a significant effect of experiences with racism on depressive symptoms even after accounting for low perceptions of control over academic outcomes, highlighting the need for future research to identify other mechanisms that may account for observed associations between experiences with racism and later depressive symptoms.

Experiences with racism and perceived control

The direct link between experiences with racism and female adolescents' perceptions of control suggests that experiences with racism provide youth with information about environmental contingencies for themselves, and inform adolescents' expectations about their ability to achieve desired outcomes. In this sample of African American adolescents, perceived racism was associated with female adolescents' lower perceptions of perceived academic control the following year. That this longitudinal association was evident after adjusting for initial levels of perceived academic control suggests that perceived racism is associated with changes in these self-perceptions, and highlights the powerful effect experiences with racism can have on adolescent self-processes concurrently and over time. While perceived racism was associated with decreases in perceived academic control, it was not significantly associated with decreases in perceived social control. This distinction may indicate that adolescents' encountered less racism with peers and/or in social domains compared to academic and evaluative domains. If so, it would be reasonable to expect a stronger association with perceived academic control. However, because the source of the racism experiences was not assessed, it is not possible to test this speculation in these data. Another possible explanation for this finding is that the majority of youth in the sample resided in highly segregated areas, and it is likely that many of their peers were of similar racial and ethnic backgrounds. Consequently, their experiences with racism may have been less likely to influence their perceptions of control related to social concerns such as making friends.

The association between perceived racism and perceived academic control may inform our understanding of mechanisms linking stereotype threat (Steele & Aronson, 1995) and adolescent outcomes. According to Steele and Aronson (1995), when a stereotype about one's expected performance in a particular domain is made salient, the target (i.e., the individual being stereotyped) experiences feelings of threat that compromise their performance in that domain. Similarly, experiences with racism inform adolescents' expectations about how they and members of their group will be treated, their opportunities for success, and as observed here, their ability to achieve desired outcomes. Numerous studies have documented associations between stereotype threat and decreased performance (see Steele, 1997 and Wheeler & Petty, 2001 for reviews). However, the mechanisms underlying the association between stereotype threat and performance have not received much attention (Smith, 2004). Our findings suggest that decreased perceptions of academic control may be one mechanism linking stereotype threat with lowered academic performance, either directly or via depressive symptoms.

Cognitions and African American adolescents' depressive symptoms

Consistent with cognitive models of depression (e.g., Abramson et al., 1989; Peterson & Seligman, 1984; Weisz & Stipek, 1982), low perceptions of academic control for the female African American adolescents in this sample predicted increased depressive symptoms. In addition to providing preliminary evidence that these control beliefs have a similar function in African American adolescent samples as found in other samples, our findings provide information about origins of these personal control beliefs. Specifically, results indicate that experiences with racism can lead to decreased self-perceptions, and that the effect of experiences with racism on personal control beliefs may be focused in specific domains. These longitudinal findings are consistent with prior cross-sectional research that has linked the

experience of environmental stress with diminished control beliefs, and increased depressive symptoms (e.g., Deardorff et al., 2003).

Gender differences

Prior research indicates that female adolescents have greater cognitive vulnerability to depression (Hankin & Abramson, 2001), suggesting that cognitive mediation may be more evident in female than male adolescents. In this study, bivariate analyses revealed that low perceived academic and social control were associated with depressive symptoms for males and females. However, the association between perceived racism and low perceived academic control was stronger for females than for males, suggesting that females may be more likely than males to internalize experiences with racism. Thus, experiences with racism may not necessarily influence male adolescents' perception of their own ability to achieve desired academic outcomes. Broidy and Agnew (1997) note that males and females often show different responses to the subjective experience of strain. Perhaps, the link between experiences with racism and perceived control was weaker in males for this reason; other types of cognitions or behavioral responses to racism may better account for the association between racism and depressive symptoms for male adolescents. Alternatively, the academic domain may have been more salient for females compared to males in this sample. Both possibilities should be explored in future research.

Summary and implications

Our findings suggest that experiences with racism can have long lasting consequences for female African American adolescents' mood; as such, it is important to include experiences with racism and discrimination when assessing exposure to stress. Conceptualizing racism as a stressor, strategies for intervention include eliminating the stressor, changing how the stressor is perceived, and enhancing resources for managing the stressor (Harrell, 2000). To the extent that it may not be possible to eliminate encounters with racism and because ethnic minority youth's experiences with racism are common, practitioners should assess the nature of youth's experiences with racism, how they perceive and respond to this stressor, and their resources for managing this type of stress. At the same time, it is important to recognize that African American adolescents' experience of and responses to racism vary along several dimensions, including chronicity and severity of exposure to racism, appraisal of racism experiences, support for coping with racism, and the source of the racist experience. Thus, when assessing experiences of racism, it is important to assess timing, duration, situational context, and interpretation of racism events, in addition to whether they have been experienced. Finally, in cognitive interventions, it is important to examine the possible origins of cognitions, including those specific to the unique experience of ethnic minority youth, because whether or not particular cognitions suggest vulnerability to depression may depend on the context and source of the cognitions. For example, in some circumstances, a perception of low control may be realistic, and perhaps adaptive. In sum, it is important to assess not only whether adolescents have experienced racism, but also factors relevant for understanding how adolescents manage experiences with racism, to gain a more comprehensive understanding of the links between experiences with racism and adolescent adjustment.

In addition to clinical implications, our results have relevance for African American adolescents' educational experience. Findings suggest that the experience of racism can result in decrements in perceived academic control, which in turn can have negative consequences for adolescents' depressive symptoms (e.g., Bandura, Barbaranelli, Caprara, & Pastorelli, 1996; Herman et al., 2008). This result parallels the stereotype threat literature, and highlights the potential for experiences with racism to undermine African American adolescents academic and psychological well being. Informing students about the possible effects of stereotype threat may help to improve youth outcomes (e.g., Johns, Schmader, & Martens, 2005). In addition,

findings highlight the importance of assessing school racial climate and perceptions of racial fairness as each have been linked with student achievement and behavior (e.g., Mattison & Aber, 2007). Attention to the potential negative effects of racism on academic cognitions and behavior may offer useful insights for methods aimed at improving African American adolescents' academic outcomes.

Strengths, limitations, and directions for future research

This research extends our understanding of the development of depression in several important ways. First, although control-related beliefs have been linked with depression in prior research, few have considered contextual factors that influence perceptions of control. Our examination of perceptions of racism acknowledges the historical and current societal forces which may underlie control-related beliefs and internalizing behavior problems among African American youth. Second, the longitudinal design permits inferences about directionality in contrast to cross-sectional designs used in prior research examining mechanisms linking contextual stress and depression (e.g., Deardorff et al., 2003). Third, the majority of prior research examining relationships between racism and mental health have relied on cross-sectional designs or used single-item measures to assess racism (Williams et al., 2003), limiting our understanding of the effects and consequences of racism on mental health outcomes, including depression. Finally, relatively little is known about how differences in the social contexts of African American adolescents may be relevant for understanding the manifestation of depressive symptoms (Garcia Coll et al., 1996). However, these study strengths should be considered in the context of some limitations.

While it is generally accepted that adolescents are well-equipped to report about their internal experiences, such as depressive symptoms and perception of racism experiences (Grant, Compas, Thurm, McMahon, & Gipson, 2004), we acknowledge that it would have been ideal to have additional reporters of depressive symptoms and other means of assessing discrimination experiences. In terms of measurement, it is important to note that the cultural validity of the measures used to assess control-related beliefs and depressive symptoms may be limited because these measures were not developed and standardized with ethnically diverse samples (Arnold & Matus, 2000). Thus, some findings reported here may be the result of the instrumentation used in this study. Unfortunately, there is limited empirical research examining the validity of instruments to assess depression and related constructs with youth from different racial, ethnic, and cultural backgrounds; this should be a priority for future research. Ideally, future research will include mixed methods to examine factors associated with adolescents' exposure to discrimination and their perception of such events, as well as the processes linking discrimination experiences and psychological adjustment, to further examine whether the meaning and effect of these constructs varies across contexts. Future longitudinal research also should examine how experiences with racism may impact male adolescents' psychological well being and behavior, and other mechanisms that account for associations between experiences with racism and adolescent adjustment.

This study focused on depressive symptoms as a consequence of experiences with racism, but other behavioral responses are possible. For example, in a discussion of general strain theory, Agnew (2001) notes that the experience of unjust treatment, such as experiences of racism and discrimination, creates strain or stress, which in turn may generate negative affect. Anger or involvement in delinquent behavior may occur as an attempt to alleviate this negative affect, or in an attempt to create a sense of control. In future research, it will be important to examine this possibility.

Although the present study examined experiences with racism and discrimination as predictors of depressive symptoms, the reverse direction of association also is possible. For example, adolescents who are experiencing depressed mood may interpret their environments negatively

and be more likely to experience their environments as hostile (Lawson & MacLeod, 1999). Similarly, recent research examining individual characteristics that might relate to whether experiences are perceived as racist or discriminatory (e.g., Cassidy, O'Connor, Howe, & Warden, 2005; Phinney, Madden, & Santos, 1998) suggests bidirectional associations between experiences with racism and discrimination, and psychological variables. In future research, it will be important to examine the dynamic and reciprocal processes linking experiences with racism, cognitions, and depressive symptoms.

Finally, the community epidemiologically-defined sample of urban African American youth is a strength of this study. At the same time, it is important to note that results from this research only generalize to urban African American adolescents of similar economic backgrounds, and who reside in similar urban areas. Future research should include African American youth from a range of socioeconomic backgrounds to understand better the differences in types of racism experiences and resources for coping with racism for youth of different economic circumstances. In future research, it will be important to examine for whom experiences with racism are associated with increased vulnerability to depression or other difficulties. Prior research has identified racial socialization (e.g., Scott, 2003) and racial and ethnic identity (e.g., Sellers, Copeland-Linder, Martin, & Lewis, 2006; Wong, Eccles, & Sameroff, 2003) as factors that increase youths' ability to manage racism and race-related stress, and protect them from vulnerability to depressive symptoms and other maladjustment. Along similar lines, future research should examine adolescents' strategies for coping with racism experiences as this will reveal strategies that foster resiliency among youth exposed to racism. Lastly, these findings suggest perceived academic control may be an important mechanism to consider in understanding the effects of stereotype threat. Future research should consider this possibility.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Figure 1.

Standardized coefficients for indirect pathway from perceived racism to depressive symptoms for females. Coefficients in parentheses are unstandardized coefficients. All coefficients are significant at $p < .05$. Dashed lines indicate non-significant paths.

Table 1
Means, Standard Deviations, and Intercorrelations among Study Variables

	1.	2.	3.	4.	5.	6.	7.
1. T1 Perceived Racism	--	-.18**	-.18**	.19**	-.23**	-.14*	.23**
2. T1 Perceived Academic Control	-.04	--	.36***	-.38***	.48***	.36***	-.29***
3. T1 Perceived Social Control	.04	.41***	--	-.37***	.24**	.48***	-.16*
4. T1 Depressive Symptoms	.23***	-.32***	-.28***	--	-.28***	-.30***	.50***
5. T2 Perceived Academic Control	-.04	.49***	.22***	-.22**	--	.39***	-.23**
6. T2 Perceived Social Control	.07	.25***	.48***	-.32***	.39***	--	-.27***
7. T3 Depressive Symptoms	.22**	-.22**	-.13 ⁺	.49***	-.24***	-.17*	--
Females' Mean (SD)	1.77 (.86)	2.66 (.43)	2.33 (.55)	.66 (.45)	2.60 (.47)	2.42 (.48)	.61 (.42)
Males' Mean (SD)	1.79 (.81)	2.67 (.40)	2.41 (.52)	.54 (.34)	2.63 (.43)	2.43 (.49)	.49 (.40)

Note. Correlations for females are above the diagonal; correlations for males are below the diagonal.

T1 = 8th grade. T2 = 9th grade. T3 = 10th grade.

⁺ $p < .10$.

* $p < .05$.

** $p < .01$.

*** $p < .001$.