

ABSTRACT

Title of Thesis: IMPACT OF SCHOOL-BASED PERCEIVED RACIAL DISCRIMINATION IN MIDDLE SCHOOL ON AFRICAN AMERICAN HIGH SCHOOL GRADUATION AND ACADEMIC ABILITY SELF-CONCEPT

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This study will examine how school-based perceived racial discrimination in middle school impacts long-term academic outcomes for African American adolescents via the mediator of depression. The present study will test this model using data from a sample of African American students within the Maryland Adolescent Development in Context Study (MADICS), a public use data set collected from 1991-2000. Three separate waves will be examined (a) 8th grade ($N = 533$); (b) 11th grade ($N = 399$); (c) one year after high school ($N = 243$). Measures in this study are all self-report and include school-based perceived racial discrimination from teachers and peers (8th grade), depressive symptoms (8th and 11th grade), and the academic outcomes of high school graduation and academic ability self-concept (1 yr. after high school) from youth self-reports.

IMPACT OF SCHOOL-BASED PERCEIVED RACIAL DISCRIMINATION IN
MIDDLE SCHOOL ON AFRICAN AMERICAN HIGH SCHOOL
GRADUATION AND ACADEMIC ABILITY SELF-CONCEPT

by

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Chapter 1: Introduction

Within the United States, African Americans have often been the target of a wide range of racial discrimination, from segregation and physical violence to more subdued acts such as racially insensitive remarks or microaggressions (Banks, Kohn-Wood, & Spencer, 2006; Forman, Williams, Jackson, 1997). Research on exploring structural systems of racial discrimination (e.g., institutional racism) is important for understanding the nature of the obstacles that African Americans experience within the U.S.; however structural racial discrimination is beyond the scope of this study. Instead, this paper examines individual racial discrimination in the form of day-to-day racial discrimination or “daily hassles” (Williams, Neighbors, & Jackson, 2003). Specifically, the focus in this study is on the daily racially discriminatory hassles that African American adolescents perceive in their school environment. These can originate from authority figures within the school, such as teachers, as well as fellow peers who can knowingly or unknowingly perpetuate racist messages (Ferguson, 2003; Noguera, 2003; Wong, Eccles, & Sameroff, 2003).

Racial discrimination is consistently associated with adverse effects for African Americans of all ages, including adolescents. Notably, studies have found associations of racial discrimination with externalizing symptoms (DuBois, Burk-Braxton, Swenson, Tevendale, & Hardesty, 2002; Nyborg & Curry, 2010) and internalizing symptoms (Mereish, N’cho, Green, & Jernigan, 2016; Seaton, Caldwell, Sellers, & Jackson, 2008; Simons et al., 2002; Taylor & Turner, 2002). Specifically, depressive symptoms are common in African American adolescents who have also reported increased perceived racial discrimination (Brown et al., 2000; Klonoff, Landrine, & Ullman, 1999; Kogan, Yu, Allen, Brody, 2015) including school-based perceived racial discrimination (Wong et al., 2003). This correlation has been cited in both cross-sectional

(Wong et al., 2003) and longitudinal studies (Brown et al., 2000; Kogan, 2015), indicating that perceived racial discrimination may lead to increased depressive symptoms among African American adolescents.

In addition to the emotional and psychological toll of racial discrimination, perceiving school-based racial discrimination has been shown to be negatively associated with academic outcomes of African American students, including their academic achievement (e.g., grade point average (GPA)) and domains of academic motivation (Chavous, Rivas-Drake, Smalls, Griffin, & Cogburn, 2008; Eccles, Wong, & Peck, 2006; Wong et al., 2003). Both Eccles et al. (2006) and Wong et al. (2003) examined these relations in correlational studies for 8th grade African American students using data gathered from the MADICS dataset, which is used in the present study. Their results showed that school-based perceived racial discrimination from peers and teachers perceived by African American adolescents in 8th grade is positively correlated with depressive symptoms and negatively correlated with indicators of academic achievement in 8th grade. In a later study by Chavous et al. (2008), which also used a sample of African American students from the MADICS study, 8th grade school-based perceived racial discrimination from teachers and peers was predictive of 11th grade academic outcomes, including GPA and measures of academic engagement. Collectively, these findings are the basis for this paper's examination of a potential pathway that determines how school-based perceived racial discrimination from peers and teachers in middle school longitudinally affects African American students' academic outcomes in the form of high school graduation (HGA) and academic ability self-concept (AASC), and if depression serves as a mediator.

Despite an abundance of studies on the negative effects of perceived racial discrimination, less is known about the effects of school-based perceived racial discrimination

from teachers and peers on academic outcomes for African American students. Studies on school-based racial discrimination have ebbed and flowed in popularity over the years, which may have contributed to the sparse findings on its effects. Further, exploration of potential mediators between school-based perceived racial discrimination and academic outcomes is even more rare. Only one study has identified depression as a mediator in the relation between perceived racial discrimination and teachers' perceptions of their African American students' grades (English, Lambert, & Ialongo, 2016). In their study, racial discrimination (experienced by them or a relative) that was reported in 7th grade predicted increases in 8th grade depressive symptoms, which predicted decreases in 9th grade academic performance. However, no studies have investigated this mediation pathway for school-based perceived racial discrimination.

The current study aims to fill the gap in the literature on school-based racial discrimination since, at this current date, none have endeavored to understand the mechanisms by which school-based racial discrimination affects certain academic outcomes for African American adolescents longitudinally. This study introduces a mediation model with depression as a mediator in the relation between school-based perceived racial discrimination and academic outcomes (high school graduation and academic ability self-concept) in African American adolescents. Figure 1 shows the mediation models that will be tested in this study to answer the following question: Are depressive symptoms a mediator in the relation between school-based perceived racial discrimination and academic outcomes for African American students?

Chapter 2: Literature Review

The current study is the first to examine the effects of school-based perceived racial discrimination on academic outcomes (high school graduation and academic ability self-concept) via the mediator of depression for African American adolescents. Starting with background on academic outcomes for African American adolescents, the literature review will operationalize school-based perceived racial discrimination, review studies on the associations between racial discrimination and academic outcomes for African Americans, and explore the role of depression as a mediator.

Theoretical Framework

The varying effects of racial discrimination for African American individuals has been explored in many theories. In their biopsychosocial model for perceived racism in African Americans, Clark, Anderson, Clark, and Williams (1999) outline pathways whereby perceived racial discrimination negatively affects mental and physical health for African Americans. Their model indicates that an individual's perception of an environmental stimulus as being racist can provoke psychological or physiological stress responses, such as depression, that can affect health outcomes of an individual over time. When applied to African American adolescent functioning, this pathway may lead to negative effects on academic functioning. In a similar vein, Masten's risk and resilience framework (2004) examines how family, school, community, and child factors interact in ways that can intensify or mitigate problems that surface in a child's development (Bryan, 2003). This framework posits that risks can negatively affect children's development over time by disabling key adaptive systems. In addition, Masten (2004) also explores how promotive and protective factors can serve as a buffer for the child and ameliorate

negative environmental effects; however, the resilience component of her framework is beyond the scope of this study.

In this study, I rely on both Clark et al. (1999) and Masten's (2004) frameworks. I am proposing that school-based perceived racial discrimination functions as a risk factor due to its negative effects on academic outcomes. The negative effect of racial discrimination on academic outcomes may be explained by a process in which perceptions of school-based racial discrimination from peers and teachers can trigger strong psychological responses for African Americans which can manifest as depressive symptoms, and, in turn, may have detrimental effects on their academic outcomes. This model is connected to the model by Clark et al. (1999) in its proposal that depression may serve as a mediator in the relation between school-based racial discrimination and academic outcomes for African American students, as Clark et al. (1999) have highlighted depression as a stress response of perceiving racial discrimination. Further, this model is connected to Masten's (2004) framework through examining school-based perceived racial discrimination as a risk factor, which is the result of interactions between African American adolescents, their peers, and their teachers within the school building.

Therefore, next steps are to test the impact of school-based perceived racial discrimination on depression with consequences for African American adolescents' academic functioning. Figure 1 shows the conceptual mediation model that will be tested in this study to answer the following question: Is the relation between school-based perceived racial discrimination reported by African American adolescents and their academic outcomes mediated by depressive symptoms?

Academic Outcomes of African American Adolescents

For decades, researchers have studied variables related to academic performance in an effort to enhance students' achievement. One of the most pressing issues within this research has been the persistence of the academic achievement gap between African American students and their White counterparts. Lower GPA, reading and math achievement, standardized test scores, and high school graduation rates among African American students have prompted more research into potential contributing factors to lower academic performance (Ladson-Billings, 2006; NCES, 2017; Pino & Smith, 2004). Recently, studies on school-based racial discrimination perceived by middle school African American adolescents have shown it is negatively correlated academic outcomes (Eccles et al., 2006; Wong et al., 2003). However, the long-term effects of school-based racial discrimination perceived during middle school on academic outcomes including high school graduation and domains of academic motivation, such as academic ability self-concepts, have yet to be explored. Therefore, the rationale for selecting high school graduation and academic ability self-concepts as academic outcomes are (a) both have been recognized in research as important elements of academic outcomes for youth, as argued below; (b) literature on associations between psychosocial outcomes and GPA typically use self-reported GPA, despite issues with self-reported GPA being overreported (Zimmerman, Caldwell, & Bernat, 2002); (c) academic ability self-concept is an important aspect of academic performance, as argued below.

High School Graduation

High school graduation is viewed as an important indicator of positive life outcomes and academic outcomes and can be especially critical for African American individuals (Davis,

Ajzen, Saunders, & Williams, 2002; Zaff et al., 2017). When examining employment opportunities for high school dropouts, African American high school dropouts between the ages of 20-24 years are more than twice as likely to be unemployed in comparison to their White counterparts who have also dropped out of high school (U.S. Department of Education, 2001). Additionally, individuals who do not graduate high school can face increased barriers to securing federal financial aid towards college (Arenson, 2006), which is an important barrier to attaining higher education in an age where college tuition costs are on the rise (NCES, 2015). Yet, African American high school graduation rates still lag behind their peers of other ethnic/racial backgrounds. According to the National Center for Education Statistics (NCES, 2017), in the 2014-2015 school year African Americans had the second lowest high school graduation rate (75%) when compared to their Asian (90%), White (88%), Hispanic (78%), and American Indian/Alaska Native counterparts (72%) counterparts. Therefore, high school graduation is an important academic outcome of racially-relevant predictors, since race plays a role in high school graduation rates. Despite evidence that racial discrimination perceived by African American students has negative effects on academic functioning (Neblett, Philip, Cogburn, & Sellers, 2006; Smalls, White, Chavous, & Sellers, 2007; Thomas, Caldwell, Faison, & Jackson, 2009) there are currently no longitudinal studies that have investigated the long-term effects of school-based perceived racial discrimination on high school graduation for this population.

Academic Ability Self-Concept

In addition to academic outcomes such as GPA or high school graduation, motivational constructs such as academic ability self-concept have played an important role in capturing academic success. Academic ability self-concept is one dimension of a broader category of motivation, identified as academic motivation, which is concerned with a student's desire to

perform in academic subjects when judged against a standard of performance or excellence (Wigfield & Eccles, 2002). Research on academic motivation has shown it to be correlated with academic achievement (Amria, Motlagh, Zalani, & Parhon, 2010; Butler & Barnes, 2012) and has gained popularity as an important indicator of academic performance. Theories on academic motivation have developed to include a collection of subconstructs that motivate choice, persistence and performance (Wigfield & Eccles, 2000). One of the most prominent theories of academic motivation is Expectancy-Value Theory which posits that the expectancy of success and its perceived value will increase a person's willingness to overcome challenges (Wigfield & Eccles, 2000, 2002). Studies on the three key concepts within Expectancy-Value Theory (ability beliefs, expectancies for success, and subjective task values) have shown them to be predictive of academic outcomes including students' educational plans (Eccles, Adler, & Meece, 1984), GPA (Eccles et al., 2006) and correlated with students' self-reports of academic value (Eccles, Vida, & Barber, 2004). These studies have supported academic motivation as an important indicator of academic achievement.

This proposed study focuses on academic ability self-concept within the framework of Expectancy-Value Theory. Academic ability self-concept is defined as the knowledge and perceptions an individual has of themselves within achievement-related situations (Bong & Skaalvik, 2003; Pesu, Aunola, Viljaranta, & Nurmi, 2016) and has been correlated with academic outcomes (Eccles et al., 1984; Eccles et al., 2006; Fortier, Vallerand, & Guay, 1995; Swinton, Costes, Rowley, Adeyanju, 2011; Wang & Eccles, 2013). Accordingly, academic ability self-concept has been correlated with GPA (Eccles et al., 2006), state standardized test scores (Mboya, 1986), academic value (Eccles et al., 2004), and school engagement (Wang & Eccles, 2013). Additionally, it has significantly predicted academic outcomes in the form of

teacher ratings of academic achievement (Skaalvik & Hagvet, 1990) and course grades in English and math (Eccles et al., 1984).

As research on academic self-concept has progressed, common theories of academic self-concept have acknowledged the presence of domains within the construct related to differing areas of school subject achievement (e.g., math, literacy) (Pesu et al., 2016; Schunk, 1991) and that these differing beliefs about the self are linked with an individual's future development (Bong & Skaalvik, 2003). This finding is evident when applied to African American students. In fact, when determining relations between global self-concept, academic ability self-concept, and academic achievement for African American 10th grade students, academic ability self-concept had a significant correlation to academic achievement, whereas global self-esteem did not (Mboya, 1986). In a study with African American college students attending predominantly White colleges and universities (PWCUs), GPA was found to be the best predictor of academic ability self-concept, when compared to the quality of student-faculty interactions and class status (Cokley, 2000). These studies indicate significant correlations between academic ability self-concept and measures of academic achievement, which support academic ability self-concept as an important academic outcome. Further research on the potential relations among racial discrimination, depression, and academic outcomes, like graduation and academic self-concept will be reviewed below.

Operationalization of Perceived Racial Discrimination

Perceived racial discrimination refers to “a minority group member’s subjective perception of unfair treatment of racial/ethnic groups or members of the groups, based on racial prejudice and ethnocentrism, which may manifest at individual, cultural, or institutional levels” (Noh, Beiser, Kaspar, Hou, & Rummens, 1999, p. 194). It is centered on an individual’s

perception of an occurrence of racial discrimination and has been used to evaluate perceptions of racial discrimination within a specific context or from specific individuals. Following the work of Wong et al. (2003), this paper operationalizes school-based perceived racial discrimination as the frequency with which students from racial groups report day-to-day racially discriminatory actions within the school context, specifically from their teachers or peers.

Generally, racial discrimination is conceptualized as a type of stressor and therefore borrows from the stress literature in its form and measurement (Landrine & Klonoff, 1996). Individual (interpersonal) acts of discrimination, racial or otherwise, typically present in two forms: life events and daily hassles. According to Williams et al. (2003), life events are “discrete, observable stressors” (e.g., physical assault) whereas daily hassles are “chronic or episodic irritations that are minor” (e.g., microaggressions). There is considerable evidence, which is reviewed below, that perceptions of racial discrimination in either form can have significant and lasting negative effects on African Americans’ physical (Krieger, 1990; Williams, Yan Yu, Jackson, & Anderson, 1997) and mental health (Broman et al., 2000; Klonoff et al., 1999; Pascoe & Richman, 2009; Sanders Thompson, 1996).

Following the abolishment of Jim Crow laws, daily hassles have been found to be the most persistent and damaging form of discrimination reported by African Americans (Banks et al., 2006). This type of racial discrimination has been reported in a variety of age groups, from older African American adults to younger adolescents and has been correlated with negative outcomes (Banks et al., 2006; Forman et al., 1997). Daily hassles/day-to-day discrimination from teachers and peers is a common form of racial discrimination identified within schools and can range from harsher disciplines, getting called on less, or not getting picked for teams due to race (Eccles et al., 2006; Wong et al., 2003). Recent research has indicated that school-based racial

discrimination in the form of daily hassles perceived by African American students from teachers and peers can have deleterious effects on their academic achievement (Cogburn, Chavous & Griffin, 2011; Thomas et al., 2009) but further research is necessary to evaluate its long-term effects on other indicators of academic outcomes for African American students, including high school graduation and academic ability self-concept.

African Americans and Perceived Racial Discrimination

Compared to other racial groups, African Americans have consistently reported higher rates of racial discrimination (Banks et al., 2006; Forman et al., 1997). Documented examples of racially discriminatory behaviors toward African Americans in the U.S. include but are not limited to physical avoidance, verbal attacks, physical attacks and threats, and lastly and most prominently, poor service in public areas such as restaurants or department stores (Feagin, 1991). Within a sample of adult participants from counties in Detroit, African American individuals were found to be more likely than White individuals to report lifetime, recent, and everyday discrimination. In fact, African American individuals were considered three times more likely than their White counterparts to report both lifetime and recent experiences of racial discrimination (Forman et al., 1997).

African American adolescents have reported experiencing racial discrimination that is very similar to what is described by African American adults, which indicates the saliency and prevalence of perceived racial discrimination for African American individuals. In a study involving adolescents' self-reports of experiences of racial discrimination, high proportions of ethnic minorities reported experiencing racial discrimination (Fisher et al., 2000). Notably, African American and Hispanic adolescents reported being hassled in stores by employees, having negative encounters with police, and receiving poor service in restaurants as a result of

their race (Fisher et al., 2000). In addition, studies have shown that younger African Americans are more likely to self-report experiencing racial discrimination than older African Americans (Broman, Mavaddat, & Hsu, 2000; Forman et al., 1997). For example, in a study on the prevalence of racial discrimination within different age groups, young adult African Americans (18-34 years) tended to report higher rates of discrimination than the oldest age group (65+ years) (Forman et al., 1997). Similarly, within a sample of 312 African Americans of varying ages (Broman et al. 2000), 60% reported they had been discriminated against within the past three years, with those in the younger age group (18-29 years old) being three times more likely to report it than the oldest age group (60 years and older). They also found that African Americans who perceive racial discrimination have lower levels of mastery (feelings of control over one's life) and higher levels of psychological distress (Broman et al., 2000). Despite the decline in reported experiences of racial discrimination for African Americans in subsequent age groups, increased reports of racial discrimination for African American young adults indicates that African American adolescents are at-risk for experiencing higher levels of racial discrimination.

Perceived Racial Discrimination and the Mental Health of African American Adults

In this section, I describe the effects of racial discrimination on African American adults. It is useful to explore the effects of racial discrimination among adults since studies on racial discrimination among African American adolescents are comparably limited. After this section, I detail research concerning the link between African American child/adolescent racial discrimination and depression. Most of the literature on the effects of racial discrimination has focused on its negative correlation with the physical and mental health of African Americans. To illustrate this, Pascoe and Richman (2009) conducted a meta-analysis to determine the strength

of the link between perceived discrimination and health. From the 134 studies on the relation between perceived discrimination and health outcomes, 66% of them studied perceived racial discrimination, which was the most common type of perceived discrimination measured. From their final results, the authors concluded that perceived discrimination has a significant negative effect on varying types of mental and physical health including depression. Specifically, their results indicated that increased perception of discrimination produces elevated physiological and negative psychological stress responses along with increased participation in unhealthy behaviors (e.g., substance abuse, smoking) and decreased participation in healthful behaviors (e.g., adequate sleep, healthful diet) (Pascoe & Richman, 2009).

Traditionally, empirical studies have used global indicators of mental health such as psychological distress or subjective well-being, with fewer studies examining the correlation between racial discrimination and specific psychiatric disorders such as depression or anxiety (Brown et al., 2000). However, published studies which do examine specific psychiatric outcomes in African Americans have shown that perceived racial discrimination is correlated with negative psychiatric symptoms including depression and anxiety for a wide range of ages, from young adulthood into late adulthood (Klonoff et al., 1999; Kogan et al., 2015). In an earlier study on the role of racial discrimination in the prevalence of psychiatric symptoms (including depression and anxiety) for 520 African American adults, self-reported racial discrimination was the strongest predictor of psychiatric symptoms (including depressive symptoms) alongside the competing predictors of general stress and demographic variables (e.g., gender, age, income, and education) (Klonoff et al., 1999). These findings provide evidence that perceived racial discrimination has been negatively correlated with specific psychiatric symptoms for African

Americans; however, this study was cross-sectional and provided no evidence of a temporal relationship.

Longitudinal studies provide the opportunity to control for the reciprocal effects between self-reports of racial discrimination and depressive symptoms (Brown et al., 2000) yet there are few involving African American participants that use specific measures of racial discrimination as their predictor as opposed to more general measures of discrimination. In a longitudinal study that specified racial discrimination as a predictor, African American adults from two waves of a panel study completed self-reports of perceived racial discrimination, symptoms of psychological distress, and depression. Their results showed that self-reported experiences of racial discrimination were linked with the onset of adverse mental health. When they assessed if the opposite effect was true (lower scores of mental health predicting later experiences of racial discrimination) they determined that racial discrimination was not a consequence of mental health. However, within this study, racial discrimination was measured with only one item (Brown et al., 2000). In a related study that examined the relation between perceived racial discrimination and depressive symptoms collected at five separate waves for African American male youth from ages 16 to 20, self-reported racial discrimination perceived between the ages of 16 to 18 significantly predicted changes in depressive symptoms at age 20 (Kogan et al., 2015). These studies indicate long-term associations between racial discrimination and depressive symptoms for African American individuals. Further research, especially within longitudinal studies, that links perceived racial discrimination and depressive symptoms for African Americans is needed to understand long-term patterns and effects. The present study builds on this gap in the literature by examining the relation between school-based perceived racial

discrimination and depressive symptoms for African Americans adolescents within a longitudinal dataset while controlling for previous depression symptoms.

Perceived Racial Discrimination in School

African American adolescents are at risk for experiencing racial discrimination from larger society but are also at risk for these experiences within school. Facing racial discrimination in the school context can lead to an intensely hostile environment (Eccles et al., 2006) that exacerbates risks for adolescents and can have a negative effect on their academic achievement. The most commonly cited school-based sources of racial discrimination in the literature are peers and teachers (Eccles et al., 2006; Fisher et al., 2000; Rosenbloom & Way, 2004). Investigations into the prevalence of school-based perceived racial discrimination were sparse in the 1990's, as most studies cited these occurrences as more residual effects of larger forces impacting students' achievement (Phelan, Yu, & Davidson, 1994). However, by the early 2000's, the school-based perceived racial discrimination literature experienced a push with many new studies that examined racial discrimination experiences within the school context (Fisher et al., 2000, Greene et al., 2006; Rosenbloom & Way, 2004). In recent years, studies that examine school-based perceived racial discrimination have begun to resurface (Benner & Graham, 2013; Smith & Fincham, 2016) though none have endeavored to examine the mechanisms by which school-based perceived racial discrimination impacts academic outcomes for African American students.

Overall, school-based perceived racial discrimination disproportionately affects minority students, especially African American students. For example, in a study of students in an urban public school, minority students reported high levels of discrimination distress from racially discriminatory experiences within the school (Fisher et al., 2000). From peers, minority students

reported being called a racial slur and being left out of activities in school due to their race. From their teachers, minority students reported being discouraged from joining advanced classes, and African American students in particular reported that racial discrimination had contributed to instances of wrongful discipline within their school (Fisher et al., 2000). In a qualitative study that included a series of interviews with 60 minority students (20 African American, 20 Latino, 20 Asian American) attending an urban, lower-achieving New York public school, Latino and African American students shared experiences of school-based perceived racial discrimination from their public school teachers that manifested in the form of low academic expectations and racial stereotypes around “bad kids” (Rosenbloom & Way, 2004). Comparatively, Asian American students in that sample did not report experiencing similar racial discrimination. In fact, one Asian American student described his experience of hearing racially discriminatory language from a teacher toward African Americans (Rosenbloom & Way, 2004). In a related qualitative study of 55 students from four different urban high schools, 19 minority students (one-third of the total sample) reported instances of discrimination within the school context that included verbal or physical assaults, racist comments, and implicit messages that excluded them from participation in activities, access to resources, or to create distance between groups (Phelan, Yu, and Davidson, 1994). These studies demonstrate that African American students report experiencing racial discrimination from both teachers and peers within their school and can be more likely than other minorities to experience racial discrimination within the school setting (Fisher et al., 2000; Phelan et al., 1994).

Discrimination, Gender, and SES

Control variables in the perceived racial discrimination literature typically include gender and socioeconomic status (SES). Within the literature, results are not unanimous regarding the

influence that gender and SES have on racial discrimination (Banks et al., 2006; English, Lambert, & Ialongo, 2014; Forman et al., 1997; Sellers & Shelton, 2003). A common theme in studies on racial discrimination has been that African American males may experience different types of racial discrimination more frequently than their female counterparts and/or report more frequent experiences of racial discrimination (Banks et al., 2006; Forman et al., 1997; Sellers & Shelton, 2003).

Additionally, studies that have examined the relation between perceived racial discrimination and depressive symptoms have reported correlations between gender and internalizing symptoms including depression and anxiety. In a longitudinal study in early adolescence, African American females were found to be more susceptible to depressive symptoms as a result of experienced racial discrimination than their male counterparts in early adolescence (English et al., 2014). In a similar study on African American adults, gender was found to be a moderator in the relation between everyday discrimination and anxiety symptoms but not for depressive symptoms (Banks et al., 2006).

Similar to gender, correlations between SES and perceived racial discrimination in the literature are not clear, as evidence has been found to support different patterns. For example, studies have shown that SES is positively associated with racial discrimination for African Americans (Forman et al., 1997). However, in Forman et al. (1997) the relation between education and racial discrimination, as well as income and racial discrimination, was curvilinear, with those in the lowest and highest brackets reporting more perceived racial discrimination. Despite lack of unanimity regarding the relation of these variables, there is evidence of trends in correlations between racial discrimination and SES, gender and racial discrimination, as well as gender and depression which has motivated studies involving these variables to control for

gender and SES (Eccles, et al., 2006; Chavous et al., 2008; Wong et al., 2003). Therefore, gender and SES will be controlled as potential covariates within this study.

Perceived Racial Discrimination and Academic Outcomes for African American Adolescents

In addition to the negative emotional effects of perceived racial discrimination on the mental health of African American children and adolescents, there is evidence that experiencing racial discrimination can affect how African American students function academically (Neblett et al., 2006; Smalls, et al., 2007; Thomas, et al., 2009; Wong et al., 2003). The academic outcomes of racial discrimination which are typically examined include GPA (Chavous et al., 2008; Cogburn et al., 2011; Neblett et al., 2006; Wong et al., 2003), self-reported grades (Thomas et al., 2009), academic engagement (Smalls et al., 2007), and teacher's perceptions of student's grades (English et al., 2016). Studies that have specifically examined school-based perceived racial discrimination perceived by African American students has evidenced that higher levels of perceived racial discrimination from teachers and peers is correlated with lower academic outcomes represented by GPA (Chavous et al., 2008; Cogburn et al., 2011; Eccles, et al., 2006; Wong et al., 2003) and self-reported grades (Thomas et al., 2006).

Prominent studies on school-based perceived racial discrimination have provided evidence of its negative correlation with later academic outcomes for African American students, including those related to academic motivation. Both Wong et al. (2003) and Eccles et al. (2006) investigated the association between perceived racial discrimination from teachers and peers and academic achievement for 629 African American students. Their data was collected from Wave 1 (7th grade) and Wave 3 (8th grade) in the MADICS. Both utilized the school-based perceived racial discrimination scale that was created by the MADICS researchers and it is the same one that is used in this present study. Achievement was measured by GPAs sourced from school

records. In addition to negative effects on GPA, their results indicated that day-to-day experiences of school-based perceived racial discrimination is negatively associated with multiple domains of African American adolescents' academic motivation including students' beliefs on the importance of school, utility value of school, and their academic ability self-concepts (Eccles et al., 2006; Wong et al., 2003). Chavous et al. (2008) examined the longitudinal relation between school-based perceived racial discrimination and indicators of academic engagement for African American students using the MADICS study. Their results showed that the effects of school-based perceived racial discrimination on academic engagement outcomes, such as academic ability self-concept, were significant three years later. Similar studies that have examined other types of racial discrimination perceived by younger African Americans, including their relative's experiences with job-related racial discrimination (Taylor et al., 1994) and interpersonal racial discrimination reported by African American and Latinx college students (Reynolds, Sneva, & Beehler, 2010), did not show correlations between those types of racial discrimination and academic ability self-concept.

Building on previous studies conducted by Eccles et al. (2006) and Wong et al. (2003) that have centered on school-based perceived racial discrimination, the present study will examine how school-based racial discrimination perceived by African American students in 8th grade will longitudinally affect high school graduation rates and academic ability self-concept. As noted by Eccles, Midgley, Wigfield, and Buchanan (1993), studies have shown that early adolescents who show declines in positive school-related behaviors and motivation increase their chances for academic underachievement and eventual school dropout. The previous studies (Eccles et al., 2006; Wong et al., 2003) have only accounted for associations of school-based perceived racial discrimination and academic outcomes during middle school, whereas the

current study will examine these effects through the duration of high school and assess its effects on later high school graduation and academic ability self-concept.

Perceived Racial Discrimination and Depression for African American Children and Adolescents

Experiences of racial discrimination reported by African American adolescents include overt and subtle forms that are perpetrated by individuals. These experiences have consistently demonstrated to have negative effects on African American individuals' psychological wellbeing as early their childhood years (Fisher et al., 2000; Rosenbloom & Way, 2004). Studies have shown that these events can contribute to both externalizing symptoms (e.g., behavioral adjustment) (DuBois et al., 2002) and internalizing symptoms (e.g., depression, anxiety) (Rumbaut, 1994; Simons et al., 2002) for children and adolescents. Internalizing symptoms that are commonly displayed in African American children and adolescents who face racial discrimination include higher rates of self-reported depressive symptoms rated from full scales and subscales of prominent self-report depression scales such as the Center for Epidemiological Studies-Depression (CES-D) scale (Radloff, 1977; Rumbaut, 1994; Vega & Rumbaut, 1991), the Symptoms Checklist Revised (SCLR-90-R) (Derogatis, Rickels & Rock, 1976; Wong et al., 2003), the Diagnostic Interview Schedule for Children, Version 4 (DISC-IV) (Simons et al., 2002), and the Children's Depression Inventory (CDI) (Greene, Way, and Pahl, 2006; Kovacs, 1985; Wong et al. 2003).

To date, a number of studies have garnered evidence for the correlation between perceived racial discrimination and depressive symptoms for African American children and adolescents (Brody et al., 2006; Simons et al., 2002). Rumbaut (1994) in their study on the effects of perceived racial discrimination on children of immigrants from Asia, Latin America,

and the Caribbean found that those who perceived racial discrimination (which included majorities from almost every ethnic group) self-reported higher levels of depressive symptoms compared to those with lower perceived racial discrimination. In a cross-sectional study focusing on African American children ($N = 867$) between the ages of 10 and 12, Simons et al. (2002) found that 67% of African American children self-reported experiencing racially-targeted insults. At the time, these findings were an indication that ethnic minority youth, including African American youth, were not only facing racial discrimination but that it could have profound negative effects on their psychological well-being.

At first, studies on perceived discrimination for children and adolescents were primarily cross-sectional, with few longitudinal studies to track their perceptions of discrimination and how its influences on certain outcomes may change over time (Greene et al., 2006). Wong, Eccles, and Sameroff's (2003) study was the first of its kind to determine a positive correlation between school-based perceived racial discrimination and depressive symptoms for African American students in a longitudinal study. Within the past decade, the emergence of longitudinal studies has provided further evidence for effects of perceived racial discrimination on depressive symptoms for African American adolescents (Brody et al., 2006; English et al., 2014; Greene et al., 2006). Following this, perceived racial discrimination has been linked to the development of later depressive symptoms in African American and other minority children and adolescents (Brody et al., 2006; Greene et al., 2006).

Depression and Academic Achievement for African American Adolescents

Researchers are not unanimous regarding the relation between depression and academic achievement, though many studies have indicated that depression is negatively associated with academic achievement (Frojd et al., 2008; Verboom, Sijtsema, Verhulst, Penninx, & Ormel,

2014; Zychinski & Polo, 2011). Specifically, depressive symptoms such as an impaired ability to concentrate, loss of interest, psychomotor retardation, low self-esteem, sense of worthlessness, and social withdrawal may significantly impair cognitive performance (Frojd et al., 2008). Further, depressive symptoms can negatively impact behaviors and attitudes that are necessary for persevering through challenging academic work (Neblett et al., 2006).

A number of studies have suggested an association between depression and academic outcomes such as lower GPA (Frojd et al., 2008) or lower academic success in courses (Economou & Angelopolous, 1989; Kaltiala-Heino, Rimpela, & Rantanen, 1998). Additionally, studies have indicated correlations between depression and academic outcomes related to high school graduation (Fergusson & Woodward, 2002; Fortin, Diallo, Potvin, & Royer, 2012). For example in a 21-year longitudinal study that examined the effects of depression in 14-16 year old adolescents in New Zealand, those who had developed depression during that time were at-risk for educational underachievement (e.g., dropping out of school, enrollment in tertiary education) between the ages of 16-21 in addition to a host of later problems that could negatively influence academic achievement (e.g., later depression, anxiety, suicidal behaviors, drug issues) (Fergusson & Woodward, 2002). In another longitudinal study, youth depression emerged as one of five latent factors (including poor parent-teacher relationships, negative classroom climate, negative school interactions, and poor academic achievement) that contributed to high school dropout measured at age 19 (Fortin et al., 2012). These studies indicate that youth depression can have negative effects on a range of academic outcomes including students' academic performance throughout their high school years (Economou & Angelopolous, 1989; Frojd et al., 2008; Kaltiala-Heino et al., 1998) including their decision to drop out or graduate from high school (Fergusson & Woodward, 2002; Fortin et al. 2012).

For African American youth, the relation between depression and academic outcomes is not well-researched. However, despite a dearth of research on the link between depression and achievement in African American children and adolescents, there is more evidence of this negative correlation in Latino youth. Similar to African American youth, Latinos are a minority population who report significant experiences of racial discrimination and tend to have lower levels of academic achievement. Research examining the relation between depressive symptoms and academic achievement in Latino children and adolescents has indicated negative correlations between GPA and self-reported depressive symptoms (Alva & Reyes, 1999; Zychinski & Polo, 2012). Evidence of this correlation with Latino youth suggests a negative correlation between depressive symptoms and academic achievement for African American youth.

Depressive Symptoms as a Mediator

Research on mediation models involving the effects of perceived racial discrimination on academic achievement for African Americans are rare. Currently, there is only one longitudinal study that examines depression as a mediator in this relationship for 495 African American adolescents from 7th-9th grade (English, Lambert, & Ialongo, 2016). Similar to the present study, English et al. (2016) used data gathered from the Maryland area, however there are significant differences between the populations represented in these datasets. English et al. (2016) used data from students who attended a primarily African American school in an urban area within Baltimore, MD, whereas the current study uses data from the MADICS study, which included data from students within a remarkably diverse county in Maryland with a broad range of ecological settings (e.g., rural, urban) and families from differing levels of socioeconomic status.

In their results, English et al. (2016) determined that a mediational pathway was supported. Specifically, 7th grade racial discrimination predicted increases in 8th grade depressive

symptoms which in turn predicted decreases in 9th grade students' academic performance by teacher report (English et al., 2016). This study is the first of its kind to demonstrate depression as a mediator in the relation between racial discrimination and academic performance for African American adolescents. It provides evidence for its potential as a mediator when examining the effects of school-based perceived racial discrimination on graduation rates and academic motivation for African American students. Investigating the mediational processes between school-based perceived racial discrimination and academic outcomes in African American adolescents will provide more insights into how racial discrimination affects adolescent achievement and bring research closer to creating and implementing more effective intervention strategies.

Hypotheses

The current study will examine depressive symptoms as a mediator in the relation between African American adolescents' school based perceived racial discrimination and their academic outcomes. Using a longitudinal dataset, I hypothesize that (a) school-based perceived racial discrimination is negatively related to academic outcomes; (b) school-based perceived racial discrimination is linked to depressive symptoms; (c) depression is related to academic outcomes; and (d) depressive symptoms explain the relationship between school-based perceived racial discrimination and academic outcomes. For specific measurement mediation models tested, see Figures 1a-d.

Chapter 3: Methods

Design

This study is a quantitative, longitudinal design with data collected from African American adolescent students in Maryland. Data for this study was obtained with permission from the researchers of the MADICS. At the time, it was one of the first studies to include extensive measures on multiple contexts of development for a large sample of African-American adolescents. Data collection was broken into six waves starting in the fall of 1991 (7th grade) and continuing to 2000 (three years after high school). Initially, 1,700 adolescents and their families were contacted to participate in the study and 1,482 families consented.

This paper uses data from Wave 3 ($N = 533$), Wave 4 ($N = 399$), and Wave 5 ($N = 243$) collected by in-home surveys in 1993 (during the youth's 8th grade year), in the fall of 1996 (during the youth's 11th grade year) and in 1998 (one year after high school). Measures include school-based perceived racial discrimination scales administered at Wave 3, a youth depression scale administered at Wave 3 and Wave 4, an academic ability self-concept scale administered at Wave 5. One-item measures of high school graduation (Wave 5), gender (Wave 3), and socioeconomic status (Wave 3) are also included.

Participants

The present study uses the third, fourth, and fifth waves of the MADICS dataset. A total of 533 African American youth were present in the third wave, 399 in the fourth wave, and 243 African American youth in the fifth wave. There were 312 African American youth who completed data for all of this proposed study's variables in all three waves.

Procedures

Informed consent was obtained from both the parent and youth participants after participants were recruited via letters sent home to 8th graders in select schools within Prince George's County, MD. During both the adolescent's 8th grade year (Wave 3) and 11th grade year (Wave 4), the target adolescents were individually interviewed for 1 hour each and each filled out a 45-minute self-administered questionnaire. When possible, the race of the interviewer was matched with the race of the primary caregiver. Following one year after high school, in Wave 5, the adolescents completed a self-administered questionnaire or were surveyed by phone.

Measures

Demographics

This study will include the demographics of age, gender, and socioeconomic status (SES). SES will be assessed based on family income at the time of Wave 3 using one item on a 21-pt. scale in increments of \$5,000 (see Table 2).

School-based perceived racial discrimination

School-based perceived racial discrimination will be assessed using the School Discrimination scale that was created by the MADICS researchers. The School Discrimination scale is comprised of two subscales (a) the Peer Discrimination scale; and (b) the Classroom/Teacher Discrimination scale which will be used as separate subscales of school-based perceived racial discrimination from peers and teachers for African American adolescents, similar to other studies that have utilized these scales (Eccles et al., 2006; Chavous et al., 2008; Wong et al., 2003). The Classroom/Teacher Discrimination scale measures youth-reported

experiences of racial discrimination from teachers in five items (e.g., “At school how often do you feel that teachers grade you harder than they grade other kids because of your race?”) using a 5-point frequency scale (1 = Never, 2 = A Couple of Times Each Year, 3 = A Couple of Times Each Month, 4 = Once or Twice a Week, 5 = Every Day) (see Appendix B). The Peer Discrimination scale measures youth reports of perceiving racial discrimination from their peers in school in three items (e.g., “How often do you feel like you are not picked for certain teams or other school activities because of your race?”) that also uses a 5-point frequency scale (1 = Never, 2 = A Couple of Times Each Year, 3 = A Couple of Times Each Month, 4 = Once or Twice a Week, 5 = Every Day) (see Appendix B). Total scores for both the Classroom/Teacher Discrimination Scale and the Peer Discrimination Scales were calculated using the average of all of the items within the scale. Internal reliability for the Classroom/Teacher Discrimination ($\alpha = .88$) and Peer Discrimination ($\alpha = .81$) scales used in this study at Wave 3 were considered adequate.

Depressive symptoms

Symptoms of depression in African American adolescents will be assessed using 14 of the 15 items in the Youth Depression scale created by the MADICS researchers. The Youth Depression scale is a truncated version of the Child Depressive Inventory (CDI) (Kovas, 1992) that was used in the Wong et al. (2003) paper using the MADICS data. The Youth Depression Scale is comprised of a total of 15 items from the following dimensions within the CDI: Anhedonia, Ineffectiveness, Negative Self-esteem, and Negative Mood. In addition, the Youth Depression scale contains one question on worthlessness and one question about thoughts of suicide. The question on thoughts of suicide has been omitted in this present analysis, for a total of 14 items used. Sample items are “I am sad”; “I am worthless”; “I feel like crying” measured

on a 3-pt. rating scale. Reverse-scoring on 9 out of the 14 items within the scale was conducted based on negative wording in the rating scale. Internal reliability for depression at Wave 3 ($\alpha = 0.88$) and Wave 4 ($\alpha = 0.84$) was adequately reliable. For the purpose of the present analysis, a mean score was calculated as a measure of depressive symptoms for each participant at Waves 3 and 4.

High school graduation

For the purposes of this study, high school graduation is assessed with an item in Wave 5 (one year after high school) that asks for the “highest grade/degree” completed by the student. Participants had the option of choosing between one of 10 options on a 10-pt. scale: (a) 1 = 10th grade; (b) 2 = 11th grade; (c) 3 = 12th grade; (d) 4 = GED; (e) 5 = 1 year of post-high school vocational training; (f) 6 = 2 years of post-high school vocational training; (g) 7 = 1 year of college; 8 = 2 years of college; (h) 9 = 2 years of college graduation (for example, Associate Degree); (i) 10 = Other (please specify). For the purposes of this paper, an abbreviated scale already present within the MADICS data was used in this study. This scale condensed 10 options into five options: (a) 1 = less than 12th grade; (b) 2 = High school diploma/GED; (c) 3 = one to two years post high school vocational training; (d) 4 = up to one year of college (e) 5 = two years or more of college.

Academic ability self-concept

Within Wave 5, a four-item scale assessed student’s academic self-concept regarding their academic skills related to math and other academic subjects in general (two items), and in comparison, to other students their age (two items). The two items that assessed the student’s perception of their academic ability self-concept in general is measured on a seven-point Likert

scale with extreme ratings at 1 and 7 (1 = not at all good to 7 = very good) for two items that assessed the student's perception of their academic ability self-concept and used the range of 1 = much worse than other kids to 7 = much better than other kids for the other two items that assessed the student's perception of their abilities in comparison to other students their age. Internal reliability for the academic ability self-concept at Wave 5 ($\alpha = 0.71$) was adequately reliable.

Mediation Analyses

Bootstrapped mediation analyses were performed to test all four hypothesized models. Mediation was tested using the Mplus (Muthén & Muthén, 1998-2017) INDIRECT command with bootstrapping testing significance with 10,000 sample replicates (Preacher, 2015). I tested indirect, direct, and total effects among the variables of the hypothesized mediation model. Studies on longitudinal mediation analyses indicate that a direct relation between the independent and dependent variable are not required for mediation to occur (e.g., Shrout & Bolger, 2002), especially given that bootstrapping can detect indirect effects that result from mediation occurring over time. Repeated bootstrapping of a sample can create a normal distribution for significance testing and reduce Type I error (MacKinnon, 2002; Preacher & Hayes, 2008). An indirect effect occurs when the relation between the independent and dependent variables is mediated/explained by the third variable. Mediation analyses conducted with longitudinal data with a temporal sequence of three or more waves allows for examination of change over time in addition to the mediation results holding causal implications (Fairchild & McQuillin, 2010). To manage missing data, a restricted maximum likelihood robust standard error estimation approach (i.e., ML) was used in Mplus, which can manage both non-normal and missing data (Muthén & Muthén, 1998-2017).

Chapter 4: Results

Descriptives

Means, ranges, and standard deviations of all studied variables can be found in Table 3.

Intercorrelations

Bivariate correlations were computed for all variables in the mediation models (see Table 4). Correlations of both Wave 3 predictors, peer racial discrimination ($r = .15$) and teacher racial discrimination ($r = .24$), with the mediator, Wave 4 Depression, were statistically significant. Additionally, Wave 4 Depression had a significant negative correlation with Wave 5 academic ability self-concept (AASC) ($r = -.19$). There was not a significant correlation between the two predictors and the two academic outcomes.

Peer Racial Discrimination Models

Results of the peer racial discrimination mediation models tested in this paper can be found in Tables 5 and 6. Two separate mediation models were tested to examine the indirect effect of school-based perceived racial discrimination from peers on two indicators of achievement: academic ability self-concept (AASC) and high school graduation (HGA). The first model examined depression tested at Wave 4 as a mediator between Wave 3 peer discrimination and Wave 5 AASC. The direct effect of peer discrimination on AASC was not significant. Within the full bootstrapped mediation model, there was a non-significant indirect effect of Wave 3 peer discrimination on Wave 4 AASC via the mediator of Wave 4 depression.

The second mediation model tested Wave 4 depression as a mediator of the relation between Wave 3 peer racial discrimination and Wave 5 high school graduation. The direct effect

of peer racial discrimination on high school graduation was not significant. Within the full bootstrapped mediation model there was a non-significant indirect effect of Wave 3 peer discrimination on Wave 5 high school graduation via the mediator of Wave 4 depression. When analyzing separate mediation models for females and males within this sample using grouping syntax, no significant gender effects were found.

Teacher Racial Discrimination Models

Two separate mediation models were tested to examine the direct, indirect, and total effects of school-based perceived racial discrimination from teachers on two separate academic outcomes: academic ability self-concept and high school graduation (See Tables 5 and 6). The first model examined Wave 4 depression as a mediator between Wave 3 teacher racial discrimination and Wave 5 AASC. The direct effect of teacher racial discrimination on AASC was not significant. Within the full bootstrapped mediation model there was a non-significant indirect effect of Wave 3 teacher discrimination on Wave 5 AASC via the mediator of Wave 4 depression.

The second mediation model tested Wave 4 depression as a mediator of the relation between Wave 3 teacher racial discrimination on Wave 5 HGA. The direct effect of teacher discrimination on high school graduation was not significant. Within the full bootstrapped mediation model there was a non-significant indirect effect of Wave 3 peer discrimination on Wave 5 HGA via the mediator of Wave 4 depression. When analyzing separate mediation models for females and males within this sample using grouping syntax, no significant gender effects were found.

In consultation with Dr. Greg Hancock, I combined both teacher and peer racial discrimination items into one latent racial discrimination predictor, but the confirmatory factor

model fit was poor. Therefore, latent racial discrimination was not used as a predictor. To enhance power through latent modeling, a preliminary latent analysis was conducted with teacher racial and peer racial discrimination, depression, and AASC variables as latent rather than observed variables. However, non-convergence indicated that latent variable modeling was not successful.

Chapter 5: Discussion

Overall, school-based perceived racial discrimination, depression, and academic outcomes hold important implications for African American students. First, there is a dearth of research on how experiencing racial discrimination from teachers and peers affects African American students. Second, the gaps in the literature on how school-based perceived racial discrimination affects students can limit how school-based perceived racial discrimination is conceptualized and treated in the school context. This study holds implications for future researchers examining how school-based perceived racial discrimination negatively affects academic outcomes for African American adolescents.

In sum, the results suggest that many significant bivariate relations between the observed variables in this study were in line with what has been found in the literature. Both the predictors peer and teacher racial discrimination were significantly correlated with Wave 3 depression and the mediator of Wave 4 depression. This was an expected finding, based on the literature that evidences positive correlations between racial discrimination and depression for African Americans (Brown et al., 2000; Klonoff et al., 1999; Kogan et al., 2015). Further, Wave 3 depression and the mediator of Wave 4 depression were negatively correlated with both academic outcomes, HGA and AASC. These findings are also in line with other studies that have found evidence of negative correlations between depression and other academic outcomes within longitudinal studies (Fergusson & Woodward, 2002; Fortin et al., 2012; Wong et al., 2003).

However, bivariate relations between school-based perceived racial discrimination and both academic outcomes used in this study (HGA and AASC) were non-significant. These results stand in contrast to previous studies that found significant negative associations between racial discrimination (Neblett et al., 2006, Smalls et al., 2007) and school-based perceived racial

discrimination on academic outcomes for African American students (Chavous et al., 2008; Eccles et al., 2006; Wong et a., 2003). In addition, each of the four proposed models in this paper found depression was not a significant mediator of the relation of perceived racial discrimination from teachers and peers with the selected academic outcomes (AASC and HGA). In contrast, English et al. (2016) found depression to be a mediator in the relation between general racial discrimination and academic achievement for African American adolescents. Previous findings that both general forms of racial discrimination (Neblett et al., 2006, Smalls et al., 2007) and school-based perceived racial discrimination (Chavous et al., 2008; Eccles et al., 2006; Wong et a., 2003) are associated with academic outcomes in African American adolescents supported the investigation into potential mediators between school-based perceived racial discrimination and academic outcomes. Based on the proposed theoretical frameworks in this paper, pioneered by Clark et al. (1999) and Masten's risk and resilience framework (2004), school-based perceived racial discrimination was theorized to be a risk factor that would elicit depressive symptoms in African American students. In turn, this would explain how perceiving school-based racial discrimination from teachers and peers has detrimental effects on academic outcomes. However, the results of the proposed mediation models were not significant. Further discussion of potential reasons for these non-significant findings and comparisons between English et al. (2016) and the present study is explored in more depth below.

Teacher and Peer Racial Discrimination as Predictors

An unexpected finding was the non-significant negative correlation of both the predictors, teacher racial discrimination and peer racial discrimination, with both academic outcomes, AASC and HGA. The lower means and lower variability within this study for school-based perceived racial discrimination are especially surprising given the prevalence of reported

experiences of racial discrimination from teachers and peers in qualitative studies (e.g., Rosenbloom & Way, 2004) and other quantitative studies (e.g., Fisher et al., 2000). Perhaps the combination of lower means and low variability in the teacher and peer racial discrimination predictors may help explain the lack of relation between school-based perceived racial discrimination and academic outcomes in this sample. This is not an uncommon occurrence, as other studies have cited low to moderate means and variability in self-reports of general measures of racial discrimination for African American adolescents (Lanier, Sommers, Fletcher, Sutton, & Roberts, 2017; Smith-Bynum, Lambert, English, & Ialongo, 2014; English et al., 2016). Similarly, the symptoms reported on the racial discrimination scale utilized by English et al. (2016), measured on a 6-pt. Likert scale, was noticeably skewed toward the lower end ($M = 1.73$, $SD = 0.87$). Despite similarities in lower averages of racial discrimination scores between the current study and English et al. (2016), the Likert scale within the measure of racial discrimination used in English et al. (2016) assigned less weight to their reference points (e.g., 1 = Never, 2 = Less than once a year, 3 = a few times a year) in comparison to the Likert scale used in the current peer and teacher racial discrimination measures (e.g., 1 = Never, 2 = A couple of times a year, 3 = a couple of times each month). By assigning less weight to their scale, this lowers the differentiation in frequency of racial discrimination that can be elicited from respondents. In addition, the racial discrimination scale used by English et al. (2016) included a number of additional features that may have widened the breadth of potential experiences that their participants were inclined to report. First, their measure examined general facets of racial discrimination that happened to the participant or someone they knew and was not specific to school-based perceived racial discrimination. Second, the racial discrimination items used by English et al. (2016) were not specific to the experiences of adolescents whereas the items within

the school-based perceived racial discrimination were more applicable to this age group. These differences in racial discrimination measures between the current study and English et al. (2016) may have contributed to different representations within racial discrimination scores, ultimately influencing the final mediation results.

There are a number of possible explanations for lower means and lower variability in self-reports of racial discrimination among African Americans in this, and some other samples. Particularly with younger cohorts, evidence suggests that African American children and adolescents' self-reports of experiencing racial discrimination increase as they age (Brody et al., 2006; Greene et al., 2006; Smith-Bynum et al., 2014). In a three-year longitudinal study conducted by Greene and Pahl (2006) on the effects of perceived racial discrimination for various ethnic groups, results indicated that Black adolescents reported increasingly more racial discrimination over time, with the first time point beginning at 9th or 10th grade. To explain this phenomenon, Brown and Bigler (2005) pioneered a developmental model that suggests age-related changes in cognition and individual differences in experiences contribute to increased awareness of racial discrimination over time. Therefore, African American children who have not acquired the necessary foundational cultural and social-cognitive skills may be less likely to recognize racial discrimination when it happens and, in turn, would be less likely to report it when it does occur (Brown & Bigler, 2005; Smith-Bynum et al., 2014). Given these considerations, it is possible that the lower means and lower variability in reports of school-based perceived racial discrimination for 8th graders in this sample is reflective of the younger age of the students.

Another potential contributor to non-significance between the predictors and the outcomes in this study could be the limited scope of the items within the peer and teacher racial

discrimination scales. Despite being described as “daily hassles” (Eccles et al., 2006; Wong et al., 2003), these items appear limited by not capturing more nuanced displays of racial discrimination that African American students may experience from teachers and peers, such as microaggressions. Sue et al. (2007) describes microaggressions as “brief and commonplace daily verbal, behavioral, and environmental indignities, whether intentional or unintentional, that communicate hostile, derogatory or negative racial slights and insults to the target person or group” (p. 273). Examples of racial microaggressions include assumptions of low intelligence or criminality based on race, teasing, avoidant behaviors, or dubious compliments. The racial discrimination measures used in this study may not have accounted for these other gradations of racial discrimination that may have been experienced by the participants, potentially leading to lower teacher and peer racial discrimination scores. Altogether, these factors could have contributed to the non-significant negative correlation between the school-based perceived racial discrimination scales used in this sample with both academic outcomes, academic ability self-concept and high school graduation.

Depression as a Mediator

In all four mediation models, depression was not a significant mediator. Potential reasons for this non-significant finding across all mediation models includes the lower mean scores for self-reported depression found within this sample in addition to the presence of alternative mediators. When compared to another study that examined the CDI with African American youth, this sample demonstrated noticeably lower mean scores. Steele et al. (2006) in their sample of 523 African American youth (M age = 12.76) cited an average sum score of 7.64 (SD = 6.61) for 26 items of the CDI with 7.3% of their sample scoring above the clinical cutoff. Comparatively, when placing the current sample’s scores on a similar metric as Steele et al.

(2006) in terms of average sum scores, the average sum score would have been 6.24 ($SD = 7.28$) which is slightly lower on average but with more variability. However, 7.6% of the current sample reached the clinical cutoff, which is very close to the clinical cutoff cited by Steele et al., (2006).

Despite slightly more variability in self-reported depression symptoms within this sample of African American adolescents, mean scores were slightly lower than expected which could be a result of underreporting. Given the sensitive nature of self-reporting depressive symptoms, a number of reasons exist to explain issues of lower scores in self-reports of depression. One potential reason for this could be due to social desirability bias. Social desirability bias is the tendency for individuals to respond to questionnaires in a way that portrays themselves in a favorable manner in line with social norms and is most likely to occur in response to socially sensitive questions (King & Bruner, 2000). In a study examining the prevalence of social desirability scales used in health-related studies, van de Mortel (2008) found that only 31 (0.2%) out of 14,275 studies used a social desirability scale and of those, 13 (43%) found that social desirability bias affected their results. Van de Mortel (2008) concluded that the likelihood of the occurrence of socially desirable responding is dependent on the social value placed on the scale items. Despite depression being one of the most common mental illnesses in the U.S., studies show that it is highly stigmatized (Parcesepe & Cabassa, 2013; Ward, Wiltshire, Detry, & Brown 2013). In a meta-analytic review of U.S. studies on public stigma regarding mental health, children with depression were cited as one of the most publicly stigmatized groups investigated (Parcesepe & Cabassa, 2013). This finding is compounded by the fact that anti-stigma mental health campaigns were not systematically implemented in the U.S. until 1999, with efforts to reduce mental health stigma dramatically increasing after the fact (Corrigan et al., 2012). Given

these circumstances, it is possible that student's self-reported depressive symptoms at the time of data collection in 1996 would have been affected by public stigma against mental health, including depression.

In addition to the public stigma of mental health that exists in the U.S. it is imperative to acknowledge the stigma around mental health that has existed and continues to exist in the African American community. In a study on African American men and women's attitudes toward mental illness and stigma, Ward, Wiltshire, Detry, and Brown (2013) found that participants' self-reports of attitudes on stigma suggested low psychological openness and low indifference to stigma (Ward et al., 2013). In other words, African American men and women in the sample were less likely to be open to acknowledging mental health problems and were more likely to be concerned about the opinions of significant people in their lives if they discovered the participant was seeking mental health services. Aside from mental health stigma, studies have indicated ethnicity and culture could affect the recognition of a mental health problem including conceptualization and perceived severity though this is an area that lacks empirical investigation (Cauce et al., 2002; Liang, Matheson & Douglas, 2016). Consequently, there are a number of considerations for lower means in self-reported depressive symptoms for African American adolescents in empirical studies that should be addressed in future studies that utilize self-report methods. Despite the prevalence of studies that show African American adolescents report higher rates of depression than their White counterparts (Kistner et al., 2007; Steele et al., 2006) it is possible that underreporting of these symptoms for this population is still a prevalent issue.

Given depression's ineffectiveness as a mediator in this model, it is important to explore other potential mediators that explain the relation between school-based perceived racial

discrimination and academic outcomes for African American adolescents. In Wong, Eccles, and Sameroff's (2003) study with the MADICS sample, school-based perceived racial discrimination was linked with not only depression but other indicators of socioemotional adjustment such as selection of friends and engagement in problem behaviors. Therefore, such indicators of socioemotional adjustments could be alternative mediators of school-based perceived racial discrimination's impact on academic outcomes.

Another potential mediator is stereotype threat, which is the notion that individuals who belong to stereotyped groups may feel threatened by stereotypes in an evaluative situation, thus leading to worse performance (Johns, Inzlicht & Schmander, 2008). Many studies on stereotype threat have demonstrated its effects on academic performance, especially for minority groups (Cohen & Sherman, 2014). In a study with African American elementary school students, students who had been told a reading task was a test and were asked to fill in their race performed worse than students who were told the reading task was not a test and just to write their names (Wasserberg, 2014). These findings suggest that the awareness of negative stereotypes may have a significant negative effect on academic achievement for African American students. Consequently, it is possible that for African American students who report school-based perceived racial discrimination, stereotype threat may be a mechanism through which racial discrimination negatively impacts academic outcomes. For example, test anxiety could be a mediator, since test anxiety would result from racial discrimination's effects on stereotype threat which impacts test anxiety, which, in turn, would impact academic outcomes. Further study of these and other variables as potential mediators between school-based perceived racial discrimination and academic outcomes for African American adolescents is warranted.

Academic Outcomes

Based on the previous literature, racial discrimination, including school-based perceived racial discrimination, has been shown to have negative associations with academic outcomes for African American students (Wong et al., 2003). After reviewing this finding in their study, Wong, Eccles, and Sameroff (2003) pointed out the need for more longitudinal studies to assess this connection. To assist in filling this gap in the research, the present study examined the effects of school-based perceived racial discrimination reported in 8th grade on two academic outcomes (high school graduation and academic ability self-concept) reported in one year after high school were evaluated. However, the relation between school-based perceived racial discrimination and later academic outcomes for African American students within this sample was non-significant for all four mediation models proposed. Further exploration of these findings related to each of the academic outcomes used in this study are discussed below.

Academic ability self-concept was examined in this study as an academic outcome for African American adolescents. Given the positive associations between academic ability self-concept and other widely used academic outcomes evidenced in the literature (Eccles et al., 1984; Eccles et al., 2006; Fortier, Vallerand, & Guay, 1995; Swinton, Costes, Rowley, Adeyanju, 2011; Wang & Eccles, 2013), negative correlations between academic ability self-concept, teacher and peer racial discrimination, and depression were expected. According to bivariate correlations, teacher and peer racial discrimination were both negatively associated with academic ability self-concept, though these analyses failed to yield significance in both instances. This finding was surprising, given the prevalence of studies that show significant negative relations between depression and other academic outcomes (Frojd et al., 2008; Verboom et al., 2014; Zychinski & Polo, 2011). In addition to the presence of low means and

low variability in self-reports of school-based perceived racial discrimination for this sample, another consideration is the long temporal relation that occurred between these predictors and AASC, which covered a span of five years. No other studies, to my understanding, that have illustrated longitudinal associations between school-based perceived racial discrimination for African American adolescents and related academic outcomes have tested the relation between these variables at this length of time. Therefore, in combination with marked attrition in the sample between these time points, it is possible that the opportunity for discerning effects between school-based perceived racial discrimination and AASC in this sample were greatly reduced.

The current study was the first to assess the longitudinal effects of earlier school-based perceived racial discrimination on high school graduation for African American students. Based on the positive association of high school graduation with a variety of life outcomes including academic outcomes, especially for African American individuals (Davis et al., 2002; Zaff et al., 2017), a negative correlation between school-based perceived racial discrimination and high school graduation was expected. According to bivariate correlations, teacher and peer racial discrimination were both negatively associated with high school graduation, though these analyses failed to yield significance. This finding is in tandem with the relation between school-based perceived racial discrimination and academic ability self-concept for this sample, suggesting that the consideration of temporal relations between the variables as well as the lack of variability within the school-based perceived racial discrimination self-reports may be one of the causes of non-significant mediation effects.

Limitations

There are a few limitations that could have impacted the results of this study. First, is the prevalence of missing data throughout each wave of the dataset, which is a common issue in this field of study and especially in longitudinal studies (Ibrahim & Molenberghs, 2009). It is important to acknowledge that for this study, attrition occurred over the course of three waves and five years, which is an unusually lengthy span of time than has been previously investigated in other studies on the impact of school-based perceived racial discrimination for African American children and adolescents. This can affect the statistical power of the study and result in biased estimation of parameters, both of which can pose a threat to validity (Kang, 2013). To address this effectively, maximum likelihood estimation in MPlus Version 8 was utilized, which was the same statistical technique to manage missing data that was used for a study that incorporated variables from all six waves of the MADICS dataset (Witherspoon et al., 2016).

Second, all variables included within the models were measured via self-report from the participants, including their high school graduation. The use of multiple methods is considered the gold standard and relying solely on self-report measures can increase the risk of social desirability bias. Future studies that examine the processes by which school-based perceived racial discrimination affect academic outcomes for African American adolescents should incorporate measures from outside sources such as parent-report, teacher-report, or school-reported academic outcomes (e.g., GPA, final grades) to lower the potential negative effects of social desirability bias.

Third, as reviewed earlier, the sample used in this study evidenced low mean scores and low variability for the predictors of school-based perceived racial discrimination as well as lower

mean scores for the mediator of depression. This affected the proposed mediation models at every path and may have contributed to the lack of significance for each of the models.

Fourth, the MADICS dataset was collected with African American adolescents between 1991- 2000, which can affect generalizability to African American adolescents today for a number of reasons. For example, data from U.S. surveys evidence that issues of race and race-related bias are receiving increased attention over the past few years. According to a survey conducted in 2017, the number of Black individuals who consider racism to be a “big” problem has nearly doubled between 2009 and 2017, from 44% of Blacks to 81% (Pew Research Center, 2017). Increased focus and concern for these issues may be a result of the high percentage of racial motivation in hate crimes reported across the United States. According to the FBI’s Hate Crime Statistics 2016, of the 6,063 reported single-bias incidents, 58.9% were related to “race, ethnicity, or ancestry bias” (Federal Bureau of Investigation, 2017). These statistics have implications not only for African American adults but also for African American children and adolescents in schools. According to data provided by the U.S. Department of Education’s Office of Civil Rights to the Huffington Post, there were over 675 complaints of racial harassment across U.S. schools in 2017, in comparison to 600 in 2016, and a range of 362 – 577 in preceding years (Klein, 2018). (However, it is important to note that there were no available original reports from the Department of Education confirming this.) Future studies on school-based perceived racial discrimination for African American students should be implemented to support further understanding of how these instances of racial bias and discrimination affect academic outcomes for this population, especially in the context of longitudinal studies. As mentioned earlier, there is evidence from a previous study conducted by English et al. (2016) that shows depression does in fact mediate the relation between racial discrimination and later academic

achievement for African Americans, yet the present study's results did not support this mediation effect with school-based racial perceived discrimination as a predictor.

Conclusions and Implications

The results of this study contribute to understanding how racial discrimination affects academic outcomes for African American students. These results stand in contrast to a previous study by English et al. (2016), which was the first to position depression as a mediator in the relation between racial discrimination and academic achievement for African American adolescents. Consequently, this study sheds a new perspective, with evidence that depression does not mediate this relation in the case of school-based perceived racial discrimination. These results warrant further investigation into other potential mediators of these processes.

These findings draw more attention to the dearth of research in the literature regarding the processes by which perceived racial discrimination, especially school-based, affects academic outcomes for African American adolescents. Despite a number of studies, both cross-sectional and longitudinal, that have examined relations of school-based perceived racial discrimination as a predictor of outcomes such as depression or academic-related variables for African Americans, no studies have examined how these effects occur. Mediational analyses provide a window into causal inferences regarding how school-based perceived racial discrimination affects African American adolescents. As suggested above, future studies should investigate such mediation models through longitudinal studies and should build on the current study by incorporating a mixed methods approach. In particular, the application of qualitative studies will provide more insight into how school-based perceived racial discrimination affects African American adolescents through capturing nuances in experiences, such as the study completed by Rosenbloom and Way (2004).

Regarding school-based practice, these findings hold important implications for school psychologists who function as mental health specialists working with ethnic and racial minority students in the school context. Increased understanding of how school-based perceived racial discrimination affects these populations, especially African American adolescents, is an important first step in engaging in culturally competent counseling in cases of racial harassment within schools. In addition, further investigation of the processes whereby school-based perceived racial discrimination can affect academic outcomes for African American students may inform preventative measures to reducing racial bias and promoting mental health among students and teachers alike, including anti-bullying and anti-discrimination professional development programs.

In conclusion, the present study contributes to the existing literature on the effects of school-based racial discrimination on academic outcomes for African American adolescents. Given this study's non-significant findings for depression as a mediator, additional studies should replicate this study and investigate other mediators that could explain how school-based perceived racial discrimination affects academic outcomes for African American adolescents. Further understanding of these mechanisms could lead to more informed preventative measures to combat these negative effects.

Appendices

Table 1

Year, Grade, Measures and Number of Participants for Each Wave

	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6
Year	1991	1992	1993	1996	1998	2000
Grade	7	7 (Summer)	8	11	1 yr. post-grad	3 yrs. post-grad
Total <i>N</i>	1,482	1,188	1,060	1,057	912	899
AA N	863		533	399	243	
AA SBPRD			531	520		
AA Depression			492	361		
AA AASC			528		211	
AA HGA					210	

Note: The current study uses waves 3-5.

Table 2

Sample Demographics at Wave 3

Demographic Variables	%	N
Adolescent Gender		
Female	49.3	263
Male	49.9	266
Missing	.8	4
Ethnicity		
African-American	100	533
Social Economic Status		
< \$5,000	1.5	8
\$5,000 - \$9,999	.9	5
\$10,000 - \$14,999	1.7	9
\$15,000 - \$19,999	2.8	15
\$20,000 - \$24,999	4.1	22
\$25,000 - \$29,999	6.6	35
\$30,000 - \$34,999	6.2	33
\$35,000 - \$39,999	5.6	30
\$40,000 - \$44,999	5.6	30
\$45,000 - \$49,999	6.4	34
\$50,000 - \$54,999	5.8	31
\$55,000 - \$59,999	6.2	33
\$60,000 - \$64,999	5.1	27
\$65,000 - \$69,999	3.0	16
\$70,000 - \$74,999	4.1	22
\$75,000 - \$79,999	4.7	25
\$80,000 - \$84,999	3.0	16
\$85,000 - \$89,999	3.2	17
\$90,000 - \$94,999	4.7	25
\$95,000 - \$99,999	2.4	13
> \$100,000	3.8	20
Missing	12.6	67

Table 3

Means, Minimums, Maximums, Standard Deviations, and Cronbach's Alphas of all Variables in Mediation Model

Variables	Sample				Cronbach's Alpha
	Mean	SD	Minimum	Maximum	
Peer Discrimination (Wave 3)	1.39	0.71	1.00	4.67	0.81
Teacher Discrimination (Wave 3)	1.63	0.84	1.00	5.00	0.88
Depression (Wave 4)	1.24	0.28	1.00	2.29	0.84
Academic Ability Self-Concept (Wave 5)	4.86	1.05	1.75	7.00	0.71
High School Graduation (Wave 5)	3.40	0.99	1.00	5.00	-
Gender	1.50	0.500	1.00	2.00	-
Depression (Wave 3)	1.27	0.33	1.00	3.00	0.88
SES	11.33	5.12	1.00	21.00	-

Table 4

Intercorrelations among Mediation Model Variables

Variable and Time Point	1.	2.	3.	4.	5.	6.	7.	8.
1. PD (Wave 3)	-	-	-	-	-	-	-	-
2. TD (Wave 3)	0.64**	-	-	-	-	-	-	-
3. Depression (Wave 4)	0.15**	0.24**	-	-	-	-	-	-
4. AASC (Wave 5)	-0.04	-0.07	-0.19*	-	-	-	-	-
5. HGA (Wave 5)	-0.12	-0.07	-0.13	0.09	-	-	-	-
6. Gender	-0.13**	-0.11*	0.05	0.02	-0.06	-	-	-
7. Depression (Wave 3)	0.32**	0.36**	0.43**	-0.22**	-0.24**	0.07	-	-
8. SES	-0.11*	-0.08	-0.07	0.02	0.27**	-0.04	-0.03	-

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

Note: Gender was coded with “1” for male and “2” for female.

Table 5

Mediation Models for High School Graduation (HGA)

Paths	Standardized Estimates (Standard Error), Confidence Intervals (CI)
	Prediction of Mediators
Predictor W3 Teacher Discrimination → Mediator W4 Depression	0.08(0.06), CI(-0.04, 0.20)
Control W3 Gender → Mediator W4 Depression	0.00(0.05), CI(-0.09, 0.09)
Control W3 SES → Mediator W4 Depression	-0.01(0.05), CI(-0.14, 0.06)
Control W3 Depression → Mediator W4 Depression	0.42***(0.06), CI(0.29, 0.53)
Predictor W3 Peer Discrimination → Mediator W4 Depression	0.01(0.07), CI(-0.12, 0.15)
Control W3 Gender → Mediator W4 Depression	-0.01(0.05), CI(-0.10, 0.08)
Control W3 SES → Mediator W4 Depression	-0.05(0.05), CI(-0.14, 0.06)
Control W3 Depression → Mediator W4 Depression	0.45***(0.06), CI(0.33, 0.56)
Prediction of Outcome	
Predictor W3 Teacher Discrimination → Outcome W5 HGA	-0.02(0.08), CI(-0.17, 0.14)
Mediator W4 Depression → Outcome W5 HGA	0.00(0.09), CI(-0.18, 0.18)
Control W3 Gender → Outcome W5 HGA	-0.02(0.07), CI(-0.15, 0.12)
Control W3 SES → Outcome W5 HGA	0.25***(0.07), CI(0.11, 0.38)
Control W3 Depression → Outcome W5 HGA	-0.24(0.10), CI(-0.44, -0.04)
Predictor W3 Peer Discrimination → Outcome W5 HGA	-0.08(0.09), CI(-0.26, 0.11)
Mediator W4 Depression → Outcome W5 HGA	0.01(0.09), CI(-0.18, 0.18)
Control W3 Gender → Outcome W5 HGA	-0.03(0.07), CI(-0.16, 0.11)
Control W3 SES → Outcome W5 HGA	0.25***(0.07), CI(0.11, 0.37)
Control W3 Depression → Outcome W5 HGA	-0.23*(0.10), CI(-0.43, -0.03)
Direct, Indirect, and Total Mediation Effects	
Predictor W3 Teacher Discrimination → Outcome W5 HGA	
Indirect effect with W4 Depression as mediator	0.00(0.01), CI(-0.02, 0.02)
Direct effect	-0.02(0.08), CI(-0.17, 0.14)
Total effect	-0.02(0.08), CI(-0.17, 0.14)
Predictor W3 Peer Discrimination → Outcome W5 HGA	
Indirect effect with W4 Depression as mediator	0.00(0.01), CI(-0.01, 0.02)
Direct effect	-0.08(0.09), CI(-0.26, 0.11)
Total effect	-0.08(0.09), CI(-0.25, 0.11)

* $p < 0.05$; *** $p < 0.001$

Table 6

Mediation Models for Academic Ability Self-Concept (AASC)

Paths	Standardized Estimates (Standard Error), Confidence Intervals (CI)
Prediction of Mediators	
Predictor W3 Teacher Discrimination → Mediator W4 Depression	0.08(0.06), CI(-0.04, 0.20)
Control W3 Gender → Mediator W4 Depression	0.00(0.05), CI(-0.09, 0.09)
Control W3 SES → Mediator W4 Depression	-0.05(0.05), CI(-0.14, 0.05)
Control W3 Depression → Mediator W4 Depression	0.42***(0.06), CI(0.29, 0.53)
Predictor W3 Peer Discrimination → Mediator W4 Depression	0.01(0.07), CI(-0.12, 0.14)
Control W3 Gender → Mediator W4 Depression	-0.01(0.05), CI(-0.10, 0.08)
Control W3 SES → Mediator W4 Depression	-0.05(0.05), CI(-0.15, 0.06)
Control W3 Depression → Mediator W4 Depression	0.45***(0.06), CI(0.33, 0.56)
Prediction of Outcome	
Predictor W3 Teacher Discrimination → Outcome W5 AASC	-0.02(0.07), CI(-0.15, 0.12)
Mediator W4 Depression → Outcome W5 AASC	-0.08(0.09), CI(-0.26, 0.11)
Control W3 Gender → Outcome W5 AASC	0.03(0.07), CI(-0.11, 0.17)
Control W3 SES → Outcome W5 AASC	0.01(0.09), CI(-0.17, 0.18)
Control W3 Depression → Outcome W5 AASC	-0.20*(0.09), CI(-0.38, -0.02)
Predictor W3 Peer Discrimination → Outcome W5 AASC	0.01(0.09), CI(-0.17, 0.17)
Mediator W4 Depression → Outcome W5 AASC	-0.08(0.09), CI(-0.26, 0.11)
Control W3 Gender → Outcome W5 ASSC	-0.03(0.07), CI(-0.11, 0.17)
Control W3 SES → Outcome W5 AASC	0.01(0.09), CI(-0.17, 0.18)
Control W3 Depression → Outcome W5 AASC	-0.20(0.09), CI(-0.38, -0.02)
Direct, Indirect, and Total Mediation Effects	
Predictor W3 Teacher Discrimination → Outcome W5 AASC	
Indirect effect with W4 Depression as mediator	-0.01(0.01), CI(-0.04, 0.01)
Direct effect	-0.02(0.07), CI(-0.15, 0.12)
Total effect	-0.02(0.07), CI(-0.15, 0.11)
Predictor W3 Peer Discrimination → Outcome W5 AASC	
Indirect effect with W4 Depression as mediator	-0.00(0.01), CI(-0.03, 0.02)
Direct effect	0.01(0.09), CI(-0.26, 0.25)
Total effect	0.01(0.09), CI(-0.25, 0.25)

* $p < 0.05$; *** $p < 0.001$

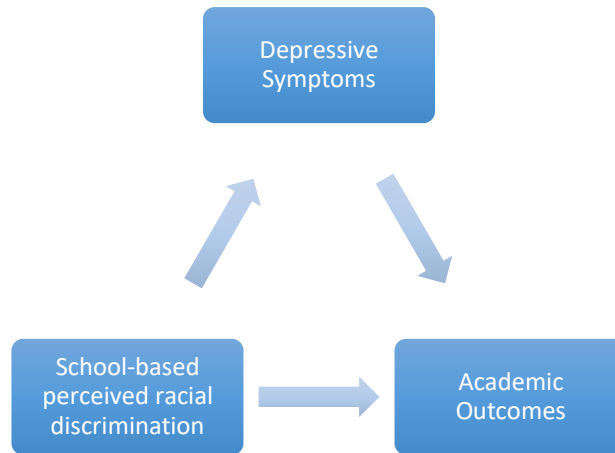


Figure 1. Hypothesized conceptual mediation model in which the effect of school-based perceived racial discrimination on academic outcomes is mediated by depressive symptoms.

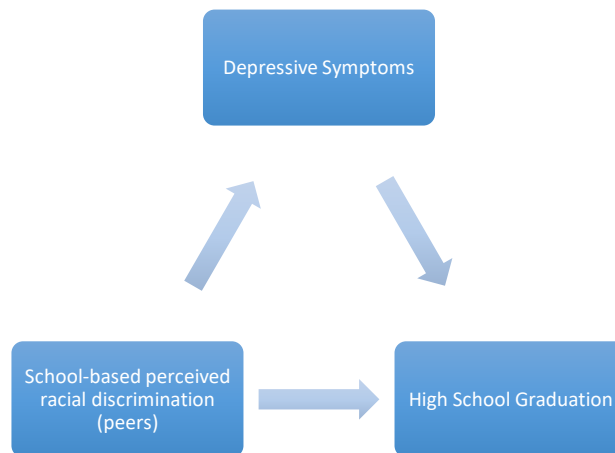


Figure 1a. Hypothesized measurement mediation model where the effect of school-based perceived racial discrimination from peers on high school graduation is mediated by depressive symptoms.

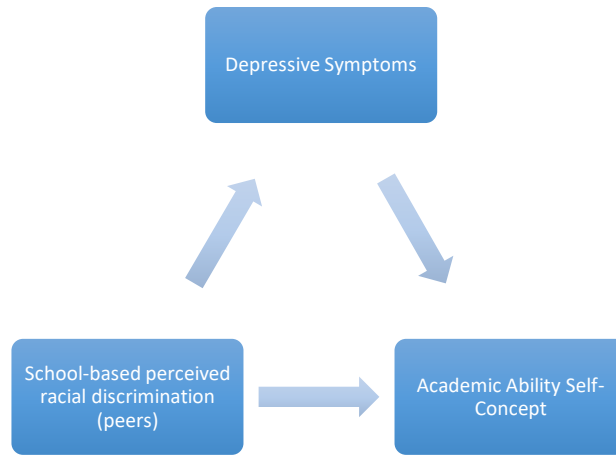


Figure 1b. Hypothesized measurement mediation model in which the effect of perceived racial discrimination from peers on academic ability self-concept is mediated by depressive symptoms.

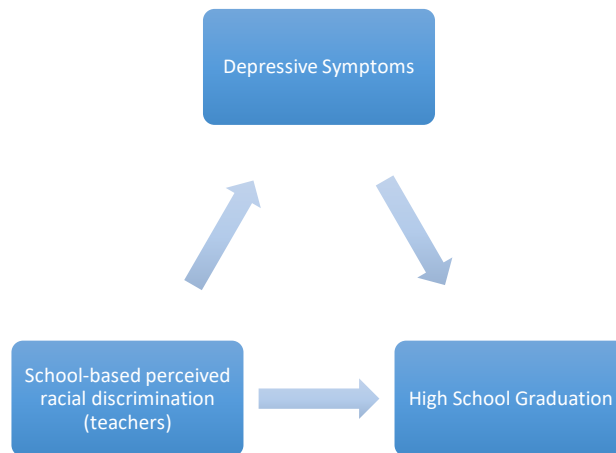


Figure 1c. Hypothesized measurement mediation model in which the effect of school-based perceived racial discrimination from teachers on high school graduation is mediated by depressive symptoms.

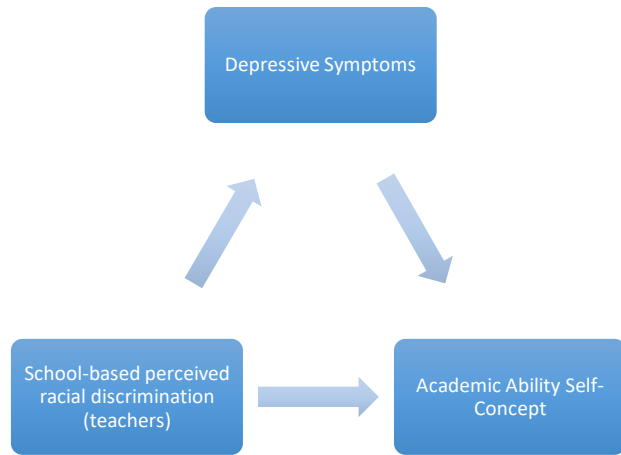


Figure 1d. Hypothesized measurement model where the effect of perceived racial discrimination from teachers on academic ability self-concept is mediated by depressive symptoms.

Appendix B

Perceived racial discrimination

Teacher Discrimination

At school, how often do you feel...

1. That teachers call on you less often than they call on other kids because of your race?

Never 1	A Couple of Times Each Year 2	A Couple of Times Each Month 3	Once or Twice Each Week 4	Every Day 5
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2. That teachers grade you harder than they grade other kids because of your race?

Never 1	A Couple of Times Each Year 2	A Couple of Times Each Month 3	Once or Twice Each Week 4	Every Day 5
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3. That you get disciplined more harshly by teachers than other kids because of your race?

Never 1	A Couple of Times Each Year 2	A Couple of Times Each Month 3	Once or Twice Each Week 4	Every Day 5
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4. That teachers think you are less smart than you really are because of your race?

Never 1	A Couple of Times Each Year 2	A Couple of Times Each Month 3	Once or Twice Each Week 4	Every Day 5
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How often have you felt...

5. That teachers/counselors discourage you from taking certain classes because of your race?

Never 1	Once or Twice 2	Three or Four Times 3	Five or Six Times 4	More Than Six Times 5
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Perceived racial discrimination (continued)

Peer Discrimination

How often do you feel...

1. Like you are not picked for certain teams or other school activities because of

Never	A Couple of Times Each Year	A Couple of Times Each Month	Once or Twice Each Week	Every Day
1	2	3	4	5

your race?

2. That you get into fights with someone because of your race?

Never	A Couple of Times Each Year	A Couple of Times Each Month	Once or Twice Each Week	Every Day
1	2	3	4	5

3. That kids do not want to hang out with you because of your race

Never	A Couple of Times Each Year	A Couple of Times Each Month	Once or Twice Each Week	Every Day
1	2	3	4	5

Academic ability self-concept scale

1 = much worse than other kids

7 = much better than other kids

1. Compared to other kids your age, how well do you do in math?
2. Compared to other kids your age, how well do you do in other school subjects?

1 = not at all

7 = very good

3. How good are you in math?
4. How good are you in other school subjects?

High School Graduation (HGA)

1. What is the highest grade of school you have completed? (CIRCLE ONE ONLY)
 1. 10th
 2. 11th
 3. 12th
 4. GED
 5. 1 year of post-high school vocational training
 6. 2 years of post-high school vocational training

7. 1 year of college
8. 2 years of college
9. 2 Year College Graduation (for example, Associate Degree)
10. Other (please specify) _____

Depressive Symptoms

Youth's Depression Scale

Reversed Items: 2, 4, 5, 6, 7, 8, 10, 13, 14

Please pick out the sentences that describe feelings and ideas you have had in the past two weeks. Please circle one answer for each question.

1. I am sad...
 - a. once in awhile.
 - b. many times.
 - c. all the time.
2. I feel like...
 - a. nothing will ever work out for me.
 - b. I am not sure if things will work out for me.
 - c. things will work out for me O.K.
3. I do...
 - a. most things O.K.
 - b. many things wrong.
 - c. everything wrong.
4. I am worthless...
 - a. all the time.
 - b. many times.
 - c. once in awhile.
5. I feel like...
 - a. I hate myself.
 - b. I do not like myself.
 - c. I like myself.
6. I think that...
 - a. all bad things are my fault.
 - b. many bad things are my fault.
 - c. bad things are usually not my fault.
7. I feel like crying...
 - a. every day.
 - b. many days.
 - c. once in awhile.
8. Things bother me...
 - a. all the time.
 - b. many times.
 - c. once in a while.
9. I think...
 - a. I look O.K.

- b. there are some bad things about my looks.
 - c. I look ugly.
10. I have trouble sleeping...
- a. every night.
 - b. many nights.
 - c. almost never.
11. I feel alone...
- a. almost never.
 - b. many times.
 - c. all the time.
12. I feel...
- a. I have plenty of friends.
 - b. I have some friends but I wish I had more.
 - c. I do not have any friends.
13. I think...
- a. I can never be as good as other kids.
 - b. I can be as good as other kids if I want to.
 - c. I am just as good as other kids.
14. I feel like...
- a. nobody really loves me.
 - b. I am not sure if anybody loves me.
 - c. I am sure that somebody loves me.

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