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Racial Discrimination Stress, School Belonging, and School Racial Composition on Academic Attitudes and Beliefs among Black Youth

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Abstract: It is important to consider racialized experiences and proximal indicators of academic success for Black youth when understanding the achievement gap. Acknowledging that racial discrimination is detrimental for the academic success of Black youth, this study extended previous research by examining the influence of racial discrimination stress. Using hierarchical regression analysis and a moderated moderation model, this study examined racial discrimination stress and school belonging as predictors of academic attitudes and beliefs among 344 Black youth (M age = 15.6). Additionally, we examined the interactive effects of school belonging as a buffer for racial discrimination stress, with particular focus on majority White schools. Analyses revealed that school belonging was linked with academic competence, academic efficacy, and academic skepticism. Furthermore, school belonging buffered the impact of racial discrimination stress on academic efficacy among Black youth in majority White schools. These findings highlight the co-occurrence of risk and protective factors among Black youth and demonstrate the additive influence of school racial composition on academic attitudes and beliefs. The practical and theoretical implications of these findings demonstrate the crucial role of school context in understanding risk and protective factors for the academic attitudes and beliefs of Black youth.

There is evidence of an achievement gap, with Black[1] students consistently falling behind their White peers (National Center for Education Statistics 2019b, 2019c). The reasons for the gap seen among Black students include racial disparities in educational practices (Rosenbloom and Way 2004), access to quality educational experiences (Bowman et al. 2018; Crabtree et al. 2019; Ford et al. 2008), and unequal treatment of Black students (e.g., disproportionality, Gregory et al. 2010). High school is a period of heightened risk of Black students dropping out of school (Lee et al. 2011). Discouraging events taking place within the school context, such as harsh discipline and lower academic performance, may put Black students at significant risk of dropping out (Doll et al. 2013). The reason for the achievement gap ranges from racial disparities in educational practices (Rosenbloom and Way 2004), access to quality educational experiences (Bowman et al. 2018; Crabtree et al. 2019; Ford et al. 2008), to unequal treatment of Black students (e.g., disproportionality, Gregory et al. 2010). Recognizing the history of racism in addition to the potentially harmful learning environments of Black youth, it is critical to

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[1] Black is an inclusive term that refers to individuals that self-identify as Black, in addition to individuals from the Caribbean and African diaspora and their descendants who have immigrated to the United States (Agyemang 2005).

examine the risk and protective factors that influence the development of positive academic attitudes and beliefs.

Black students' attitudes surrounding their achievements are influenced by experiences that take place within and outside the school context. The unique experiences of Black students, which are shaped by their environments, are often ignored when understanding the achievement gap (Gray et al. 2018). Guided by the Phenomenological Variant of Ecological Systems Theory (PVEST), this study seeks to examine how racial discrimination stress and school belonging influence academic attitudes and beliefs. Racial discrimination negatively influences academic achievement (Chavous et al. 2008; Neblett et al. 2006); however, school belonging promotes positive academic outcomes (Booker 2006; Honora 2003). The bulk of empirical research has focused on racial discrimination experiences; therefore, the present study uses this literature to inform our investigation of how racial discrimination stress, emotional reactions to racial discrimination, is detrimental for Black youth. Following exposure to a discriminatory incident, Black youth may report feelings of bother, negative emotions, or stress (Lanier et al. 2017; Seaton et al. 2011). The expression of feelings of bother as stress and the subsequent conceptualization of racial discrimination stress is reflective of the integration of literature on racism, discrimination, stress, and trauma to understand the emotional toll and disruption racially discriminatory events can inflict (Carter 2007; Wei et al. 2010). Racial discrimination stress encapsulates emotional responses to perceptions of unjust treatment as a result of one's race (Harrell 2000; Respress et al. 2013; Seaton et al. 2008). School belonging encompasses students' feelings and perceptions of attachment to components of the school, such as peers, teachers, and the school climate (Booker 2006; Gray et al. 2018). The present study will also examine how school belonging acts as a moderator, buffering the harmful effect of racial discrimination stress on academic attitudes and beliefs among Black youth. Finally, this study will investigate how the buffering effect of school belonging may vary based on school racial composition, with an emphasis on majority White schools.

1. Theoretical Framework

The Phenomenological Variant of Ecological Systems Theory (PVEST) (Spencer et al. 1997) provided the theoretical foundation for the current examination of academic attitudes and beliefs among Black youth. According to the PVEST framework, context and perception work together in the process of development through net vulnerability, net stress engagement, reactive coping strategies, stable coping responses, and coping outcomes (Spencer et al. 2004). At the level of net vulnerability, there is the presence of both risk and protective factors (Spencer et al. 2004). Black youth engage with these vulnerabilities through challenges and supports within their lives, which are coined as stress engagement (Spencer et al. 1997; Swanson et al. 2009). The interaction between vulnerabilities and stress shapes the coping strategies Black youth employ, which may be maladaptive or adaptive (Spencer et al. 2004). Once these coping strategies stabilize, identities emerge, resulting in positive or negative identities for Black youth (Spencer et al. 2004). Finally, PVEST models how coping outcomes are influenced by the stabilized coping responses exhibited among Black youth (Spencer et al. 2004). As modeled by the PVEST, the present study examines how racial discrimination stress engages with school belonging and school racial composition, resulting in academic attitudes and beliefs among Black youth.

2. Racial Discrimination Stress as a Risk Factor

Examination of the inequities in addition to the quality of the institutions serving Black students shifts the issue from not only an achievement gap, but also a gap in opportunities (Johnson-Ahorlu 2013; Carter et al. 2013). Seaton (2010) argued that, when considering the achievement gap between Black and White students, research must also acknowledge Black students' perceptions of racial discrimination. Moreover, Seaton et al. (2011) noted that empirical research often examines perceptions of racial discrimination, rather than stress due to the experience. The current study examines racial discrimination stress among Black youth as a result of perceiving racial discrimination. While research

has thoroughly investigated the harmful effects of the frequency of racial discrimination, a gap remains within the body of literature examining the specific effects of racial discrimination stress (Carter and Reynolds 2011), particularly in relation to academic outcomes.

Previous research has examined emotional responses to racial discrimination in relation to a variety of outcomes (e.g., Seaton and Yip 2009; Scott 2004; Stevens-Watkins et al. 2011). However, research examining racial discrimination stress is still developing among adolescent samples. Much of the work examining racial discrimination stress in educational settings focuses on college-aged samples. Aligning with racial discrimination stress, Swim et al. (2003) examined emotional responses to racism among African American college students attending a predominantly White university. Participants reported feeling uncomfortable, angry, and upset as a result of experiencing racial discrimination (Swim et al. 2003). Thus, results from the study substantiate the emotional stress responses that ensue when Black students perceive racial discrimination. Solórzano et al. (2000) examined African American college students' experiences of racial discrimination stress as a result of racial microaggressions, which are subtle remarks of racial bias or discrimination toward a member of a marginalized group. Participants discussed feeling invisible, ignored, and stereotyped within academic spaces due to the actions of peers and professors, which resulted in feelings of discouragement, doubt, and isolation in their community (Solórzano et al. 2000). Finally, the stress from racial discrimination negatively impacted how students viewed the racial climate on campus (Solórzano et al. 2000). Moreover, Reynolds et al. (2010) examined the influence of racial discrimination stress on the academic motivation of Black and Latino college students. Results indicated that racial discrimination stress was negatively correlated with extrinsic motivation, which is behavior for a reward or outcome (Reynolds et al. 2010). Conversely, racial discrimination stress was positively correlated with intrinsic motivation, which is one's internal drive to succeed (Reynolds et al. 2010). This suggests that there are complexities within how racial discrimination stress influences various academic outcomes. Therefore, it remains unclear whether this type of stress is detrimental or beneficial for students of color. Accumulating empirical evidence indicates that Black college students experience stress in the forms of emotional responses to racial discrimination, which have negative consequences on various outcomes (Danoff-Burg et al. 2004; McClain et al. 2016; Reynolds et al. 2010; Solórzano et al. 2000; Swim et al. 2003). However, a dearth remains in the literature examining this relation among Black adolescents. Research exploring racial discrimination stress in relation to academic attitudes and beliefs among Black youth is crucially needed due to their increased vulnerability both developmentally (Chavous et al. 2008) and because of their heightened risk for academic pushout (Doll et al. 2013). This provides a rationale to further explore this relation among Black youth.

3. School Belonging as a Protective Factor

School is widely known as a vital system in child development (Masten et al. 2008). Furthermore, school has the potential to be both a source of adversity in a child's life or an agent in fostering resilience (Masten et al. 2008). School belonging refers to students' feelings of being included, accepted, and supported in their school community (Gray et al. 2018). Extensive research has been conducted to substantiate the argument that measuring constructs such as school bonding, school connectedness, and school belonging are conceptually similar (see, Libbey 2004; Slaten et al. 2016). However, it is important to acknowledge the variability regarding the foci of these constructs and the outcomes with which they are most commonly associated. For example, school bonding is often examined in relation to delinquent behaviors (Cernkovich and Giordano 1992; Sabatine et al. 2017), while school connectedness has been frequently examined in relation to mental health (Dang 2014; Joyce and Early 2014). The construct "school belonging" in the present work was used to understand Black students' relationships to school and to align with the identity focus of PVEST. It is important to note that empirical reviews examining relations to school among Black youth commonly identify this relation as school belonging (Booker 2006; Gray et al. 2018). Further, school belonging specifically examines the

formation of identity within school that may result from experiences related to being members of a school community (Osterman 2000).

Booker's (2006) review demonstrates how school belonging has been well documented in the literature as promoting academic achievement among Black youth, particularly when measuring grade point average (GPA). Although much is known about school belonging and GPAs, less research has explored school belonging as a link to proximal indicators of Black youths' academic success that might serve as explanatory mechanisms, specifically in relation to academic competence, academic efficacy, and academic skepticism. Academic competence captures students' perceptions surrounding their abilities to complete work and earn good grades, and their intelligence (Harter 1982). Academic efficacy refers to students' beliefs about completing the necessary actions to achieve a goal (Doménech-Betoret et al. 2017), and academic skepticism refers to students' beliefs surrounding the benefits of education in their lives (Briley et al. 2014; Midgley et al. 2000). Despite much of the research on school belonging among Black youth focusing on standardized measures of academic success, there is growing research examining the influence of school belonging on academic attitudes and beliefs. Dotterer and Wehrspann (2016) asserted the relevance of school bonding as a way to measure emotional engagement to school and found that school bonding was positively linked to academic competence. Additionally, Uwah et al. (2008) demonstrate that certain behaviors indicative of school belonging (e.g., feeling encouraged to participate) may be especially salient for increased academic efficacy, particularly among Black male students. Newton and Sandoval (2015) found that, as students became more involved in extracurricular activities, their value of education increased. Thus, the current investigation seeks to add to current knowledge on school belonging and academic attitudes and beliefs, in addition to examining it as a protective factor for racial discrimination stress.

Traditionally, school belonging has been linked with increased positive academic outcomes and decreased negative academic outcomes among Black youth (Booker 2004, 2006). However, emerging research is expanding these findings through critical investigation of factors related to school (Gutman and Midgley 2000), such as the protective nature of school belonging, which might help Black youth cope with racial discrimination experiences (Bryan et al. 2018). Bryan et al. (2018) examined perceived teacher racial discrimination and its' influence on the academic achievement of Black youth. School bonding was proposed to buffer the relation between perceived teacher racial discrimination and academic achievement (e.g., students' self-reported grades), and the results indicated that school bonding was a protective factor for teacher racial discrimination (Bryan et al. 2018). The protective components of school belonging, such as social relationships and participation in activities, may buffer the impact of perceptions of racial discrimination among Black students and foster resilience in academic outcomes.

4. Racial Discrimination, School Belonging, and School Racial Composition

There is considerable research regarding Black youth that has examined the relation between perceived racial discrimination, school racial composition, and student outcomes, which has resulted in somewhat mixed findings. Seaton and Yip (2009) examined school and neighborhood contexts in relation to Black adolescents' perceptions of racial discrimination and psychological well-being. Results indicated that adolescents in more diverse schools (e.g., representation of many racial/ethnic groups) perceived more cultural discrimination (Seaton and Yip 2009). Using daily surveys, Seaton and Douglass (2014) found that perceptions of racial discrimination were associated with increased depressive symptoms the following day among Black youth attending predominantly Black high schools, in addition to those attending predominantly White high schools. The aforementioned studies examined racial discrimination and school racial composition in relation to mental health outcomes. However, more research is needed to understand how school racial composition influences racial discrimination on academic attitudes and beliefs. Our investigation of the influence of school racial composition on the relation between racial discrimination stress and academic attitudes and beliefs is informed by the substantial research on the harmful effects of racial discrimination for Black youth.

Further, there is even less research that has examined school belonging and school racial composition. Empirical research conducted among Black and White high school students indicated that school diversity was positively linked to Black students' feelings of school belonging, such that students in more racially diverse schools had stronger feelings of school belonging (Bottiani et al. 2017). Despite the limited research, it is important to understand how factors such as school and neighborhood diversity relate to school belonging (Gillen-O'Neel and Fuligni 2013). The present study seeks to examine school belonging as a protective factor against racial discrimination stress, and whether the buffering effect of school belonging on racial discrimination stress varies based on the racial composition of a school.

5. The Current Study

The current study examined how the presence of risk and protective factors among Black youth influence academic attitudes and beliefs (i.e., academic competence, academic efficacy, academic skepticism), based on suggestions from Parker et al. (2004). Parker et al. (2004) urged the field to use subjective measures that capture Black students' perceptions of their abilities and intentions regarding education. The first research question examined the impact of racial discrimination stress on academic attitudes and beliefs. Prior research suggests that racial discrimination stress is associated with decreased positive academic outcomes and increased negative academic outcomes (Harris-Britt et al. 2007; Reynolds et al. 2010). Therefore, it is hypothesized that racial discrimination stress will be linked to decreased academic competence and academic efficacy, and increased academic skepticism. Given that prior research has demonstrated that school belonging is associated with increased positive academic outcomes (Bondy et al. 2017; Jose et al. 2012; McMahon et al. 2009), the second question examined the impact of school belonging on academic attitudes and beliefs. It was hypothesized that school belonging would be associated with increased academic competence and academic efficacy, while being linked to decreased academic skepticism (Dotterer and Wehrspann 2016; Gillen-O'Neel and Fuligni 2013; McMahon et al. 2009). Furthermore, research suggests that not only is school belonging associated with positive academic outcomes, but it can also mitigate the impact of various negative experiences (Napoli et al. 2003; Rose et al. 2015). Thus, the study assessed whether school belonging moderated the relation between racial discrimination stress on academic attitudes and beliefs. It was hypothesized that school belonging would act as a protective factor against racial discrimination stress based on Bryan et al. (2018). Finally, we examined whether school racial composition would moderate the moderating effect of school belonging on racial discrimination stress and academic attitudes and beliefs, specifically examining majority White schools. Given the lack of prior empirical research, no hypothesis is offered for this question. A conceptual model is presented in Figure 1.
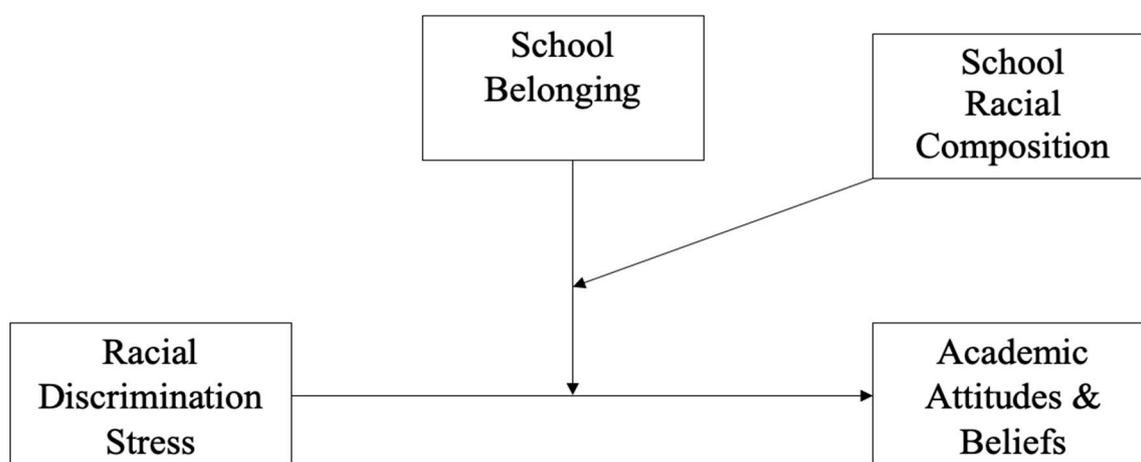

Figure 1. Conceptual Model for the Association between Racial Discrimination Stress and Academic Attitudes and Beliefs.

6. Method

6.1. Participants

The Daily Experiences of Race for Black Youth (DERBY) dataset was used for analyses, and it provides extensive survey information completed by Black youth (see Seaton et al. 2014). The sample (N = 344) consisted of a majority of female participants (66.6%). Youths' ages ranged from 13–19 (M = 15.6; *SD* = 1.28). Youth self-identified their race-ethnicity as the following: (1) 75% African American, (2) 12% Biracial/Multiracial, (3) 5% Caribbean Black, (4) 4% Afro-Latino, (5) 3% African, and (6) 1% missing. Information was obtained on school racial-ethnic composition, and participants attended the following types of schools: (1) 40% of the sample went to high schools where there was no clear racial-ethnic majority, (2) 39% went to high schools that were majority Black, and (3) 21% went to high schools that were majority White. Youth reported the following parent-guardian education levels: (1) less than a high school diploma (6%), (2) high school diploma (23%), (3) one year of college or an associate's degree (31%), (4) a bachelor's degree (27%), (5) a graduate degree (10%), and (6) missing (3%).

6.2. Procedure

The participants in this sample were recruited using an in-person and online strategy. Youth recruited in person were from eight high schools in a southeastern city in the United States (N = 164; 48%). Participants were invited to voluntarily participate in the study after the completion of parental consent forms. The questionnaires were administered in small groups, with completion time ranging between 30 to 60 min. After completion of the survey, participants were compensated with $20 cash. The second strategy used a Facebook advertisement targeting Black youth living in the continental United States that were between the ages of 13 and 18 (N = 180; 52%). Interested youth were directed to a survey page where they indicated if they were of African descent. Eligible youth then provided their residential address to receive the necessary forms (e.g., parental consent, adolescent assent) to participate in the study. After the forms were returned, youth were emailed a link to complete the survey. Following the completion of the survey, youth were compensated with $20 gift cards or cash. The full procedure for this dataset has been described elsewhere (Seaton and Douglass 2014; Seaton and Iida 2019; Seaton and Tyson 2019). The Institutional Review Board approved all procedures throughout the research project.

6.3. Measures

6.3.1. Demographic Information

All youth completed questions regarding information about their gender, racial-ethnic self-identification, grade level, household composition, and parental education level.

6.3.2. Racial Discrimination Stress

Racial discrimination stress was assessed with the Daily Life Experiences of Racism (DLE) (Harrell 1994, 1997). This scale measured youths' daily experiences of racism within the past year. Participants were presented with 18 discriminatory experiences they may have experienced. Sample items include "How often because of your race or ethnicity did you experience being ignored, overlooked, or not given service" and "How often because of your race or ethnicity did you experience being treated as if you were 'stupid' and 'talked down to.'" Participants were asked to indicate how frequently this experience had occurred within the past year on a Likert-type scale ranging from 0 (*Never*) to 5 (*Once a week or more*). For each racially discriminatory experience, a follow up question was asked regarding how bothered they were by the experience, and the scale ranged from 0 (*Has never happened to me*) to 5 (*Bothers me extremely*). In the present study, only the racial discrimination stress subscale was used. Internal consistency for this scale in this sample was high ($\alpha = 0.94$). A mean score was calculated for the racial discrimination stress subscale, where higher scores indicated greater feelings of being stressed about racial discrimination experiences.

6.3.3. School Belonging

School belongingness was assessed using a six item self-report measure that assessed aspects of peers, teachers, and overall school environment (Stroud et al. 2009). Sample items included "I feel like I belong at this school" and "This is definitely my school." Participants rated agreement or disagreement on a Likert scale with responses ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). Internal consistency for this measure in this sample was high ($\alpha = 0.95$), and higher scores indicated greater feelings of attachment or connectedness to one's school.

6.3.4. School Racial Composition

Participants provided their respective school and archival data, which was obtained from the National Center for Education Statistics and used to assess the racial composition of the high schools. Schools were categorized as majority White if at least 60% of the students were White (Bower et al. 2014). School racial composition was coded dichotomously 0 (*Non majority White*) and 1 (*Majority White*).

6.3.5. Academic Competence

Academic competence was assessed using a self-report measure with five items from the Academic Competence Scale (Harter 1982). These items asked participants about their perceptions of themselves as students and their performance in school. Sample items included "I am just as smart as other people my age" and "I am pretty intelligent". Participants rated agreement or disagreement on a Likert scale with responses ranging from 1 (*Strongly Disagree*) to 4 (*Strongly Agree*). Internal consistency was adequate in this sample ($\alpha = 0.73$). Items were reverse coded and a mean score was calculated such that higher scores indicated greater feelings of academic competence.

6.3.6. Academic Efficacy

Academic efficacy was assessed using a subscale from the Patterns of Adaptive Learning Scale (PALS) (Midgley et al. 2000). This self-report measure assessed students' feelings of ability to succeed in doing their work. Sample items included "I'm certain I can master the skills taught in school this school year" and "I can do even the hardest work in school if I try." Participants rated agreement or disagreement on a Likert scale with responses ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). Internal consistency was high ($\alpha = 0.90$), and a mean score was calculated from adolescent reports. Higher scores indicated stronger feelings of academic efficacy among students.

6.3.7. Academic Skepticism

Academic skepticism was assessed using a self-report measure that captured skepticism about the rewards of school in the future. The academic skepticism is a subscale from PALS that measured student's skepticism surrounding the relevance of school for their success in the future (Midgley et al. 2000). Sample items included "Even if I do well in school, it will not help me have the kind of life I want when I am older" and "My chances of succeeding later in life don't depend on doing well in school." Participants rated agreement or disagreement on a Likert scale with responses ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). Internal consistency was high ($\alpha = 0.89$) for this scale in this sample. Items were reverse coded and higher scores indicated lower academic skepticism.

6.3.8. Covariates

Age, gender, and parental education were controlled in all analyses given that prior work has indicated that perceptions of racial discrimination, school belonging, and academic outcomes differ based on these factors (see Chavous et al. 2008; Davis-Kean 2005; Pittman and Richmond 2007; Sánchez et al. 2005; Seaton and Douglass 2014; Sikkink and Emerson 2008).

6.4. Analytic Approach

Hierarchical regression analyses were conducted to examine the research questions. All data exploration and analyses were done using the statistical software SPSS Version 23. To explore the data, bivariate scatterplots were used to examine the data and confirm the presence of linear relations between the predictors and the outcome variables.

A total of three models were tested to address the research questions. All analyses controlled for study covariates (i.e., age, gender, parent education). The first step examined the main effects and was centered on their respective means (i.e., racial discrimination stress, school belonging, school racial composition). Next, the three two-way interactions were examined (i.e., racial discrimination stress × school belonging, racial discrimination stress x school racial composition, school belonging × school racial composition). The final step examined the three-way interaction (i.e., racial discrimination stress × school belonging × school racial composition). Probability values were corrected due to testing of multiple academic attitudes and beliefs. The raw significance levels were reported in addition to the False Discovery Rate (FDR), which corrects for multiple tests (Keselman et al. 2011). Significance levels were deemed to be statistically significant at the FDR = 0.05 level.

7. Results

7.1. Descriptives and Correlations

Preliminary analyses were conducted on the study variables (see Table 1). There was a significant and negative correlation between racial discrimination stress and academic competence. Racial discrimination stress was not significantly correlated with any of the other academic attitudes and beliefs. School belonging was positively related to academic competence and academic efficacy, and negatively associated with academic skepticism. School racial composition was not significantly correlated with any of the academic attitudes and beliefs. All of the academic attitudes and beliefs were significantly correlated with each other and were in the expected directions.

Table 1. Correlations, Means, and Standard Deviations.

Variable	1	2	3	4	5	6
1. Racial Discrimination Stress	-					
2. School Belonging	0.04	-				
3. Majority White School	0.01	−0.09	-			
4. Academic Competence	−0.15 *	0.23 **	−0.05	-		
5. Academic Efficacy	0.07	0.26 **	−0.04	0.57 **	-	
6. Academic Skepticism	0.11	−0.23 **	−0.04	−0.34 **	−0.33 **	-
M	1.20	3.55	0.21	3.27	4.27	1.78
SD	0.74	1.10	0.41	0.57	0.82	0.94

Note. * $p < 0.05$, ** $p < 0.01$.

7.2. Academic Competence

Table 2 presents the main effects of racial discrimination stress, school belonging, and school racial composition, in addition to the interactive effects. Examination of the covariates revealed that parent education marginally predicted youths' academic competence, whereby greater parental education attainment was associated with increased academic competence. The inclusion of the predictors resulted in a statistically significant incremental effect. The results indicated that, at mean levels of school belonging, there was an increase in academic competence. No other significant associations were found between racial discrimination stress and school racial composition, or their related interactive effects.

Table 2. Hierarchical Regression for Academic Competence.

	Model 1					Model 2					Model 3				
Variable	**B**	**SE**	**β**	***p***	*FDR*	**B**	**SE**	**β**	***p***	*FDR*	**B**	**SE**	**β**	***p***	*FDR*
Age	−0.00	0.03	−0.01	0.89	0.89	−0.00	0.02	−0.00	0.96	0.96	−0.00	0.03	−0.01	0.92	0.92
Gender	0.07	0.07	0.12	0.33	0.49	0.06	0.07	0.10	0.43	0.64	0.06	0.07	0.11	0.39	0.64
Parent Education	0.05	0.02	0.09	0.03	0.09	0.05	0.02	0.09	0.02	0.09	0.05	0.02	0.09	0.02	0.10
RDS	−0.07	0.05	−0.09	0.12	0.24	−0.10	0.05	−0.13	0.05	0.15	−0.10	0.05	−0.12	0.06	0.20
SB	0.14	0.03	0.26	<0.01	<0.01	0.12	0.03	0.23	<0.01	<0.01	0.12	0.03	0.23	<0.01	<0.01
MWS	−0.03	0.08	−0.06	0.70	0.84	−0.02	0.09	−0.03	0.82	0.92	−0.03	0.09	−0.05	0.76	0.84
RDS × SB						0.08	0.05	0.11	0.12	0.27	0.06	0.05	0.09	0.26	0.52
RDS × MWS						0.07	0.12	0.09	0.55	0.70	0.07	0.12	0.09	0.58	0.72
SB × MWS						0.10	0.09	−0.46	0.22	0.39	0.11	0.09	0.19	0.21	0.52
RDS × SB × MWS											0.10	0.14	0.15	0.45	0.64
R^2	0.10 **					0.11					0.12				
F for change in R^2	4.51 **					3.51 **					3.21 **				

Note. ** $p < 0.01$; *p* = conventional probability cutoff value; *FDR* = False Discovery Rate; RDS = Racial Discrimination Stress; SB = School Belonging; MWS = Majority White School.

7.3. Academic Efficacy

The main effects of racial discrimination stress, school belonging, and school racial composition, in addition to the interactive effects, are presented in Table 3. After controlling for the covariates, the incremental effect of the main effects was statistically significant. Results indicated that, at mean levels of school belonging, there was an increase in academic efficacy. No two−way interactions significantly added incremental variance in predicating academic efficacy. However, the incremental effect of the three-way interaction was statistically significant. As illustrated in Figure 2, the lowest reports of academic efficacy were demonstrated by students with high racial discrimination stress levels and low school belonging levels in non-majority White schools. Conversely, the highest reports of academic efficacy were evident among students with low racial discrimination stress levels and high levels of school belonging in non-majority White schools.
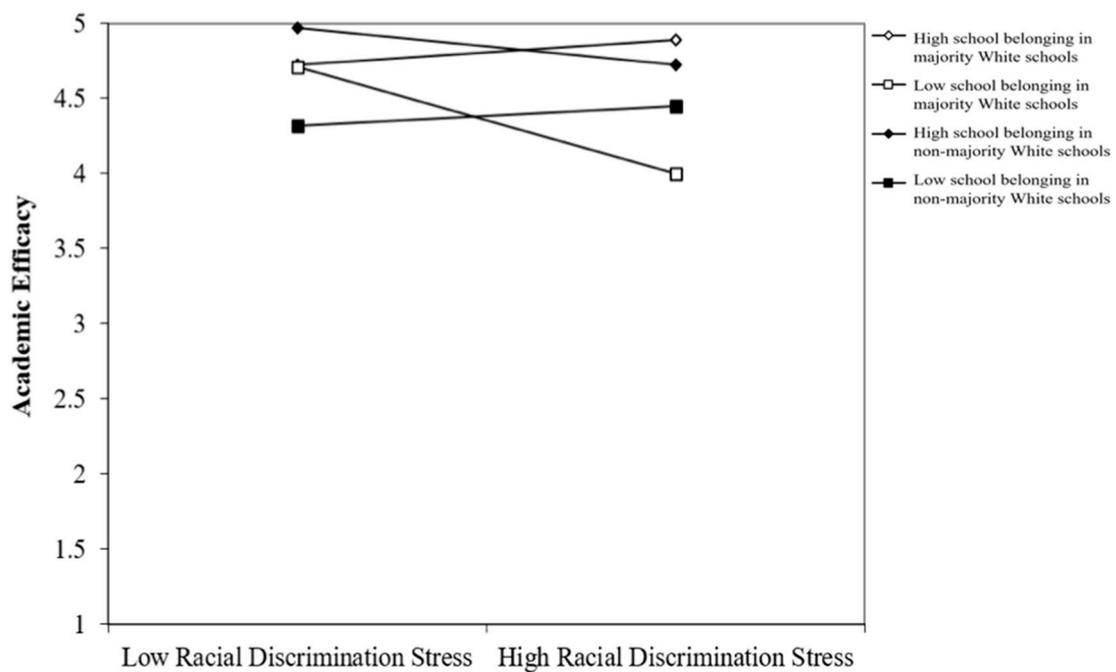

Figure 2. Racial Discrimination Stress on Academic Efficacy Moderated by School Belonging and Majority White Schools.

7.4. Academic Skepticism

Results for the main effects of racial discrimination stress, school belonging, and school racial composition, in addition to the interactive effects, are presented in Table 4. The model including the covariates and main effects added statistically significant incremental variance. Findings demonstrated that, at mean levels of school belonging, there was decrease in academic skepticism. No other significant associations were found between racial discrimination stress and school racial composition, or their related interactive effects.

Table 3. Hierarchical Regression for Academic Efficacy.

Variable	Model 1					Model 2					Model 3				
	B	**SE**	**β**	*p*	*FDR*	**B**	**SE**	**β**	*p*	*FDR*	**B**	**SE**	**β**	*p*	*FDR*
Age	−0.04	0.034	−0.04	0.35	0.50	−0.04	0.04	−0.04	0.34	0.64	−0.04	0.04	−0.05	0.26	0.48
Gender	0.08	0.10	0.10	0.42	0.50	0.07	0.10	0.08	0.49	0.65	0.09	0.10	0.11	0.35	0.50
Parent Education	0.05	0.03	0.06	0.09	0.20	0.05	0.03	0.06	0.10	0.45	0.06	0.03	0.07	0.07	0.23
RDS	−0.10	0.06	−0.09	0.10	0.20	−0.08	0.07	−0.08	0.22	0.64	−0.07	0.07	−0.07	0.29	0.48
SB	0.21	0.04	0.28	<0.01	<0.01	0.21	0.05	0.29	<0.01	<0.01	0.21	0.05	0.28	<0.01	<0.01
MWS	−0.02	0.12	−0.02	0.87	0.87	−0.01	0.12	−0.02	0.90	0.90	−0.04	0.12	−0.05	0.72	0.81
RDS × SB						0.04	0.07	0.04	0.51	0.65	−0.02	0.07	−0.03	0.73	0.81
RDS × MWS						−0.15	0.17	−0.14	0.36	0.64	−0.18	0.17	−0.16	0.28	0.48
SB × MWS						−0.02	0.12	−0.03	0.86	0.90	−0.01	0.12	−0.01	0.96	0.96
RDS × SB × MWS											0.46	0.19	0.46	0.01	0.05
R^2	0.11 **					0.11					0.13 *				
F for change in R^2	5.03 **					3.49 **					3.81 **				

Note. * *p* < 0.05, ** *p* < 0.01; *p* = conventional probability cutoff value; *FDR* = False Discovery Rate; RDS = Racial Discrimination Stress; SB = School Belonging; MWS = Majority White School.

Table 4. Hierarchical Regression for Academic Skepticism.

Variable	Model 1					Model 2					Model 3				
	B	**SE**	**β**	*p*	*FDR*	**B**	**SE**	**β**	*p*	*FDR*	**B**	**SE**	**β**	*p*	*FDR*
Age	−0.06	0.05	−0.06	0.21	0.42	−0.06	0.05	−0.06	0.21	0.63	−0.06	0.05	−0.06	0.24	0.71
Gender	−0.11	0.12	−0.12	0.36	0.44	−0.13	0.13	−0.13	0.32	0.69	−0.13	0.13	−0.14	0.29	0.71
Parent Education	−0.06	0.04	−0.07	0.11	0.33	−0.06	0.04	−0.07	0.11	0.49	−0.06	0.04	−0.07	0.11	0.55
RDS	0.06	0.08	0.05	0.43	0.44	0.05	0.09	0.04	0.54	0.69	0.05	0.09	0.04	0.57	0.71
SB	−0.21	0.05	−0.25	<0.01	<0.01	−0.21	0.06	−0.24	<0.01	<0.01	−0.21	0.06	−0.24	<0.01	<0.01
MWS	−0.11	0.14	−0.12	0.44	0.44	−0.11	0.145	−0.12	0.45	0.69	−0.10	0.15	−0.11	0.49	0.71
RDS × SB						0.05	0.08	0.04	0.54	0.69	0.08	0.09	0.07	0.41	0.71
RDS × MWS						−0.01	0.21	−0.01	0.97	0.99	0.00	0.21	0.00	0.99	0.99
SB × MWS						0.00	0.15	−0.00	0.99	0.99	−0.01	0.15	−0.01	0.97	0.99
RDS × SB × MWS											−0.16	0.24	−0.14	0.57	0.71
R^2	0.08 **					0.08					0.08				
F for change in R^2	3.42 **					2.30 *					2.11				

Note. * *p* < 0.05, ** *p* < 0.01; *p* = conventional probability cutoff value; *FDR* = False Discovery Rate; RDS = Racial Discrimination Stress; SB = School Belonging; MWS = Majority White School.

8. Discussion

The current study examined the influence of racial discrimination stress, school belonging, and school racial composition on academic attitudes and beliefs among Black youth using a moderated moderation model. Examinations such as this are critical to understanding the simultaneous influence of normative risk factors, such as racial discrimination stress, and school related protective factors on Black youths' development of academic identities. As of this writing, this is one of a few studies that examine racial discrimination stress among Black youth, given that previous work largely focused on Black college students (Solórzano et al. 2000; Swim et al. 2003). Further, this study is among emerging research examining school belonging as a moderator for racial discrimination stress. We extend previous research by exploring how school racial composition also moderates these relations. Guided by the PVEST, these findings have theoretical implications for understanding risk and protective factors in relation to Black youth and academic outcomes. Findings from the study demonstrated that school belonging positively predicts academic competence and academic efficacy, and negatively predicts academic skepticism. Additionally, within majority White schools, Black youth with high levels of racial discrimination stress and low levels of school belonging reported the lowest academic efficacy. Each of these major findings will be discussed below.

8.1. Racial Discrimination Stress on Academic Attitudes and Beliefs

Racial discrimination is a common and pervasive stressor in the lives of Black youth (Thompson and Gregory 2011; Tynes et al. 2015). Yet, less is known about the stress that results directly from perceiving racial discrimination, especially among Black youth. Much of the research examining racial discrimination stress on academic attitudes and beliefs is derived from research on college students (see Reynolds et al. 2010; Solórzano et al. 2000; Swim et al. 2003). Unexpectedly, racial discrimination stress did not significantly predict any of the academic attitudes and beliefs. This seems to counter previous research suggesting that racial discrimination stress is a significant risk factor to the detriment of Black youths' academic attitudes and beliefs (Neblett et al. 2006; Thomas et al. 2009; Wang and Huguley 2012; Wittrup et al. 2019). The current study does not seek to negate the substantial research that has repeatedly linked racial discrimination to poor academic outcomes; however, it highlights the complexities of racial discrimination stress. Reynolds et al. (2010) reported that racial discrimination stress was linked to decreased extrinsic motivation and increased intrinsic motivation, which further complicates the understanding of stress on academic attitudes and beliefs. Additionally, the lack of significance in this work may be due to the contexts and perpetrators associated with youths' racial discrimination stress. The measurement of racial discrimination stress in this study captures stress resulting from experiences with unspecified perpetrators. Potentially, racial discrimination stress from experiences specific to the school context may be more salient in understanding its influence on academic outcomes among Black youth (Banerjee et al. 2018).

8.2. School Belonging Promotes Positive Academic Attitudes and Beliefs

The second research question examined the influence of school belonging on academic attitudes and beliefs. As Black students matriculate through school, they are more likely to drop out, disengage, and identify less as students (Doll et al. 2013). Black students are vulnerable to harmful factors that put their educational success at risk (Bowman et al. 2018); therefore, establishment of school belonging is imperative for their success. Most of the research on school belonging has substantiated its relation to increased positive academic outcomes (Booker 2006, 2004; Goodenow and Grady, 1993; Singh et al. 2010), while less is known about its relation to negative academic outcomes. Findings from this study demonstrated that school belonging was positively associated with academic competence and academic efficacy, while it was negatively associated with academic skepticism. These associations were significant at both the conventional and corrected FDR significance levels.

Despite the ongoing discussion surrounding the achievement gap and lower academic motivation among Black students, this work suggests that not only do Black students report feelings of school belonging, but that it also positively influences their academic attitudes and beliefs. Gray et al. (2018) discuss salient components for the development of school belonging among Black students, such as receiving positive messages, instructional strategies, and the historical context. Research has documented that, although Black students are more likely to receive negative messages about their academic success, there is still a process by which they develop school belonging, which positively impacts their academic success (Booker 2006). Possible explanations for this process among Black youth must address demographic and contextual risk and protective factors that contribute to formation of school belonging. Findings from Dotterer and Wehrspann (2016), Uwah et al. (2008), and Butler-Barnes et al. (2015) link school belonging to academic competence, academic efficacy, and academic skepticism, which is further supported in the present investigation. Expanding on previous findings, this work illustrates Black youths' ability to develop school belonging despite their feelings of racial discrimination stress. Whereas previous studies focused on the link between school belonging and academic attitudes and beliefs, our work broadens these findings by additionally highlighting the co-occurrence of racial discrimination stress, thereby potentially extending understanding of the importance of school belonging for Black youth.

8.3. School Belonging as a Buffer in Majority White Schools

The third research question assessed whether school belonging moderates the relation between racial discrimination stress and academic attitudes and beliefs, while additionally examining the influence of school racial composition. Concerning Black students, prior research has examined school bonding as a protective factor against teacher racial discrimination experiences (Bryan et al. 2018). Results from the present study suggest that, within majority White schools, school belonging moderated the relation between racial discrimination stress and academic efficacy. High levels of school belonging demonstrated a buffering effect for high levels of racial discrimination stress in majority White schools. Conversely, school racial composition exacerbated the effect of high levels of racial discrimination stress and low levels of school belonging on academic efficacy.

There have been few studies examining racial discrimination, school belonging, and school racial composition, and the results have been mixed. Of particular interest were the circumstances for youth with the lowest reports of academic efficacy, where attending a majority White school seemed to exacerbate the cumulative effect of high levels of racial discrimination stress and low levels of school belonging. Ueno (2009) established that, among Black students, attending schools with same race peers is linked to decreased racial discrimination and increased belonging and satisfaction towards school. Thus, findings from the current study may be explained by the heightened presence of White peers, who may be the perpetrators of racial discrimination in their school community (Allen 2013; Conway-Turner et al. 2020; Uwah et al. 2008). However, for those who are able to develop high levels of school belonging in contexts such as these, the importance may not be attending a school with people of the same ethnic-racial group, but feeling like you belong in the school regardless of the racial composition. Gray et al. (2018) detailed the interpersonal, instructional, and institutional opportunities that support the development of school belonging among ethnic-racial minority youth. Conway-Turner et al. (2020) and Matthews (2020) focus on the role of teachers and instruction in promoting academic success and feelings of belonging among students. While Conway-Turner et al. (2020) argue a possible race match between teachers and students for more favorable outcomes, Matthews (2020) found that teacher reports of emotional and instructional support were associated with students' sense of belonging. Taking together previous research and findings from the present study, we note that it is imperative to consider the racial context of Black youths' schools when seeking to understand the effects of racial discrimination stress and school belonging on academic attitudes and beliefs, particularly when identifying protective factors.

8.4. Limitations and Future Directions

This study provides insights into the role of racial discrimination stress, school belonging, and school racial composition on the academic attitudes and beliefs among Black students; however, it is not without limitations. First, the present study was cross-sectional such that these associations were not examined longitudinally to determine the influence of racial discrimination stress, school belonging, and school racial composition on academic attitudes over time. Due to the cross-sectional nature of this study, no causal inferences could be made from the findings. Future work should examine longitudinal data to explore the long-term benefits of school belonging against racial discrimination stress in promoting academic attitudes and beliefs. Another limitation concerns the sample, given that a convenience sample was used. The experiences of these particular youth may not be applicable to Black youth in other settings. An additional limitation concerns the fact that a portion of the sample was recruited online. The use of an online recruiting tool makes it impossible to verify participants' African heritage such that some participants could have pretended to be Black. However, prior research has supported the effectiveness of online recruiting tools such as Facebook and Amazon Turk (Bartneck et al. 2015). Finally, there is a limitation surrounding the lack of males in the study given that the sample is predominantly female. Research has shown that there are gender differences in perceptions of racial discrimination (Assari et al. 2018; Chavous et al. 2008; Stevens-Watkins et al. 2011), and these differences in perceiving racial discrimination may not accurately capture the youths' experiences of racial discrimination that are reported in this study.

These findings encourage future exploration to better understand the influence of racial discrimination stress, school belonging, and school racial composition on academic attitudes and beliefs among Black youth. Future work should consider culturally relevant factors in the lives of Black youth and how these factors may contribute to academic attitudes and beliefs. Racial identity and racial socialization are well documented in the literature as salient factors in the lives of Black youth and are linked with positive academic outcomes (Brown et al. 2009; Chavous et al. 2003; Chavous et al. 2008; Neblett et al. 2006). Future research incorporating these constructs may account for differences among Black youth and explain the complex relation between racial discrimination stress, school belonging, and school racial composition. Understanding the racial and academic experiences of Black youth calls for examination of the contexts that shape their lived experiences. While this work focused on school racial composition, future work may consider neighborhood racial composition, or factors specifically related to school, which strengthen the effect of school belonging on racial discrimination stress. These research questions allow for a nuanced understanding of how to promote school belonging among students who may be the most vulnerable to receiving negative messages about where they fit in academic spaces and their academic success.

8.5. Theoretical Implications

PVEST has a strong focus on the development of identity among minority adolescents (Spencer et al. 1997; Swanson et al. 2009). According to PVEST, youths' development of academic attitudes and beliefs occurs through simultaneous navigation of risk and protective factors. This study examined racial discrimination stress as a risk factor among Black youth, thus, examining how youth engage with stress. Additionally, school belonging is associated with students' identity as members of a school community, while academic attitudes and beliefs are associated with students' academic identity, which aligns with the identity focus of PVEST. In this study, we acknowledge the widespread influence of racial discrimination stress and seek to understand its compound effect on school belonging. As modeled by the PVEST, we also examined a factor related to the school (i.e., school racial composition) to investigate how the protective nature of school belonging on youths' academic attitudes and beliefs may vary in majority White schools. Our results highlight that, within majority White schools, having high levels of school belonging is protective against high levels of racial discrimination stress. Conversely, for youth with low levels of school belonging, the racial composition of the school exacerbates the harmful effects of racial discrimination stress, potentially acting as an

additional risk factor. Guided by the PVEST, this work illustrates how environmental contexts for Black youth influence their risk and protective factors.

8.6. Conclusions

There was a time in the United States when Black students were purposefully and systematically kept out of academic spaces (Coleman 1966; Fine 1986). While some may argue that these practices persist, there is no denying the strides that Black students have made, which are demonstrated by decreased retention rates in kindergarten through 12th grade and increased postsecondary degree conferrals (National Center for Education Statistics 2019a, 2019d). Although most discourse centers around the ways in which Black students lag behind, the current study seeks to highlight the mechanisms by which they identify with their schools and cultivate academic identities. The success of Black students cannot be understood without acknowledging their experiences with racism, the historical context surrounding Blacks in America, or that racial discrimination stress is a continued experience for Black students. Yet, Black youths' ability to find ways of belonging in their schools and developing positive academic attitudes and beliefs are indicative of resilience. Black students are at risk of harmful racial experiences, and attending a majority White school may exacerbate those effects. However, protective factors such as school belonging allow Black excellence to prevail.

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