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ETHNIC-RACIAL IDENTITY AND ACADEMIC ACHIEVEMENT: EXAMINING MENTAL
HEALTH AND RACIAL DISCRIMINATION AS MODERATORS AMONG BLACK
COLLEGE STUDENTS

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Science
at Virginia Commonwealth University.

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Abstract

ETHNIC-RACIAL IDENTITY AND ACADEMIC ACHIEVEMENT: EXAMINING MENTAL HEALTH AND RACIAL DISCRIMINATION AS MODERATORS AMONG BLACK COLLEGE STUDENTS

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A thesis submitted in partial fulfillment of the requirements for the degree of Master of Science at Virginia Commonwealth University.

Virginia Commonwealth University
2018

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This study tested the role that dimensions of ethnic-racial identity play on academic achievement, and examined mental health, racial discrimination, and gender as moderators of this association among Black college students. A total of 321 college students who identified as a Black/African American female or male (M age= 18.4; SD = .34) completed measures of ethnic-racial identity, perceived racial discrimination, and mental health. Hypotheses were tested using path analyses to assess the associations between ethnic-racial identity (i.e., affirmation, exploration, and resolution) and GPA, and whether anxiety, depression, and racial discrimination moderated these relations similarly or differently for males and females. Results from this study indicated that ERI exploration was marginally associated with GPA for females, but not for males. Further, ERI exploration was related to GPA among males with high levels of depression, but not among males with low levels of depression. Similarly, ERI resolution was associated with GPA among males with high levels of anxiety, but not males with low levels of anxiety.

Findings have implications for intervention by clarifying the nuanced ways that ethnic-racial identity, mental health, and gender impact Black college students' academic success.

Introduction

The number of Black students enrolled in higher education has increased substantially in recent decades (Census Bureau, 2016). Additionally, there has been an increase in the number of Black students graduating with bachelor's degrees (McFarland et al., 2018). However, Black college students often face difficulties within the higher education system. For example, Black students report lacking a sense of belonging, support, and resources. Reports also highlight Black students experiencing racial discrimination, especially at Predominately White colleges and universities. These types of barriers pose concerns for Black college students' academic achievement and college retention (Carey, 2008; Harper & Hurtado, 2007; Hausmann, Schofield, & Woods, 2007). Given this increased risk for impacts on academic achievement, it is important to focus on normative developmental processes, such as ethnic-racial identity, that promote positive academic achievement for Black college students. As noted by scholars (Spencer & Swanson, 2013; Swanson et al., 2003), previous work that has explored Black college students' academic achievement has tended to take a deficit approach; thus, it is imperative to use a strengths-based culturally informed approach to understand the positive, normative processes that inform academic achievement.

One positive normative process that is theorized to impact academic outcomes for Black college students is ethnic-racial identity (ERI), which consists of multiple dimensions: content (e.g., affirmation) and process (e.g., exploration and resolution) (Umaña-Taylor et al., 2014). Findings from existing research have suggested that the association between ERI and academic achievement has been inconclusive when it comes to Black students (Jaret & Reitzes, 2009; Lockett & Harrell, 2003; Parker & Flowers, 2012). However, recent meta-analyses and systematic reviews (Miller-Cotto & Byrnes, 2016; Rivas-Drake et al., 2014) have highlighted

that many studies have tended to focus on one type of ERI within each study, and the majority have focused on content dimensions of ERI, rather than process dimensions of ERI. Given these disparate findings, the current study simultaneously examined how three different dimensions of ERI (including both process and content dimensions) relate to academic achievement.

Further, although prior findings indicate that the association between ERI and academic outcomes is multifaceted and nuanced, an area that has received less attention is the factors that may influence the relationship between these two variables. Miller-Cotto and Byrnes (2016) suggested that there might be other constructs, such as individual and contextual factors, that influence the association between ERI and academic achievement. Thus, the current study also explored the influence of both individual and contextual factors as moderators of the relation between dimensions of ERI and academic achievement.

Guided by Phenomenological Variant of Ecological Systems Theory (PVEST; Spencer, 2006), which suggests that emergent identities (e.g., ERI) affect life-specific coping outcomes (e.g., school performance), the current study examined the effects of three different dimensions of ERI (e.g., ERI exploration, resolution, and affirmation) on academic achievement (e.g., GPA) among Black college students. Generally, it was hypothesized that greater ERI exploration, resolution, and affirmation will positively predict higher GPA among the sample. Additionally, consistent with the notions posited by PVEST (Spencer, 2006) regarding the important role of individual and contextual factors in development, the current study also tested whether mental health (i.e., individual factor) and racial discrimination experiences (i.e., contextual factor) moderate the relation between ERI and academic achievement (see Figure 1 for conceptual model). It was hypothesized that the relation between dimensions of ERI and academic achievement will be stronger among individuals with less anxiety and depression, while the

relation between dimensions of ERI and academic achievement will be weaker among individuals with higher racial discrimination.

In the sections that follow, the conceptual rationalization and related empirical support for the hypothesized associations will be reviewed. First, the conceptualizations and corresponding measurement of ERI, as well as its relevance in emerging adulthood will be presented. Second, a description of PVEST (Spencer, 2006) will be provided to help clarify how ERI is expected to impact academic achievement, and empirical research that has tested this relation will be reviewed. Additionally, PVEST will be presented with a discussion of how tenets from this theoretical framework are applicable for the inclusion of moderators (i.e., racial discrimination and mental health) in the hypothesized model. Next, the limited empirical research that has examined racial discrimination and mental health as moderators in different associations will be reviewed, followed by an explanation of how these factors serve as moderators between ERI dimensions and academic achievement among Black college students. Finally, a discussion on why the current study tests gender differences in how ERI predicts academic achievement moderated by mental health and discrimination will be presented.

ERI Development

ERI is an important cultural and psychological variable when studying college success for Black college students. ERI is broadly defined as a complex, multifaceted construct that takes into account individuals' attitudes about being a member of a particular racial or ethnic group, as well as the processes that occur when exploring, forming, and maintaining their ERI (Umaña-Taylor et al., 2014). Scholars focused on ERI have used either the term *ethnic identity* or *racial identity* (Casey-Cannon, Coleman, Knudtson, & Velazquez, 2011; Umaña-Taylor et al., 2014). However, scholars have also noted that individuals typically do not disentangle their ethnic

identity from their racial identity, but instead the two constructs seem to overlap one another (Rodgers & Summers, 2008; Umaña-Taylor et al., 2014). Therefore, given these perspectives, this study used the term ethnic-racial identity (ERI) to capture both racialized experiences that individuals go through due their membership of a particular racial group, and the connection that individuals have based on their culture (Umaña-Taylor et al., 2014). Throughout the literature review, the specific terms offered by the original authors will be used when discussing particular studies.

Various conceptualizations and measurements of ERI have been proposed and utilized in recent decades. Some of the earliest research on racial identity among individuals drew from Cross' (1978) model of psychological nigrescence, which focused on defining healthy Black identity development. Cross hypothesized the following stages of racial identity development among Black individuals: (1) *Pre-encounter* stage (acceptance of belief that Blacks are inferior to Whites and internalization of Eurocentric values, definitions, and concepts), (2) *Encounter* stage (a profound experience that challenges the Eurocentric perspective), (3) *Immersion-Emersion* stage (the movement towards an engagement in the Black experience and a heightened awareness of racism), (4) *Internalization* stage (an achievement of a positive and personal pride in one's Black Identity and acceptance and tolerance of others, as well as an engagement in social justice activities). This conceptualization of racial identity suggested that racial identity is an important aspect of development among Black individuals, and advancement in each stage involves emotional and behavioral processes (Cross, 1978). Cross' (1978) model allows researchers to examine race and context and its varying impacts on outcomes (Miller-Cotto & Byrnes, 2016).

Another conceptualization of Black individuals' racial identity is the Multidimensional Model of Racial Identity (MMRI; Sellers, Smith, Shelton, Rowley, & Chavous, 1998). This model focuses on the importance an individual places on their race when it comes to defining himself or herself. The MMRI primarily emphasizes the status of individuals' racial identity as opposed to its development (Sellers et al., 1998). Sellers and colleagues (1998) proposed four dimensions of racial identity, racial salience, racial centrality, racial regard, and racial ideology. Racial *salience* refers to the extent to which one's race is a relevant aspect of one's self-concept, while racial *centrality* is the extent of importance an individual places on race as a part of his or her identity. Racial *regard* and racial *ideology* refer to individuals' perceptions of what it means to be Black. Furthermore, this model suggested that the dynamic properties of racial identity for Black individuals can be influenced by contextual influences (i.e., social support).

Both Cross' (1978) model of psychological nigrescence and the MMRI (Sellers et al., 1998) were created to focus on Black individuals. Researchers have also developed conceptualizations of ERI that focus more broadly across individuals from various ethnic-racial backgrounds. One such example is the Multigroup Ethnic Identity Measure (MEIM; Phinney, 1992). This conceptualization of ERI was conceptualized based on existing models of ego identity (Erickson, 1968) later applied to identity statuses (Marcia, 1980), and focuses on the processes of ethnic identity formation. Consistent with ego identity theory (Erickson, 1968), which examined identity more broadly, Phinney applied these notions to identity development with respect to ethnicity specifically, and proposed two dimensions of ethnic identity: (1) *Exploration*, which involves exploring and actively seeking to understand the meaning of one's ethnicity, and (2) *Commitment*, which refers to the extent to which one considers their ethnicity an aspect of his or her identity. The two dimensions are often combined to create an *Achieved*

ethnic identity, which occurs when one has a clear and confident sense of his or her ethnicity. Moreover, it is suggested that individuals undergo dynamic processes through their development of their ethnicity. This conceptualization of ERI has drastically moved this area of research forward, and is one of the most commonly used conceptualizations and measures of ERI (Hudley & Irving, 2012; Miller-Cotto & Byrnes, 2016). However, a limitation of this conceptualization and measure is that although it captures the processes involved in ERI formation, it does not capture the affect that individuals have toward being a member of their ethnic-racial group (Umaña-Taylor et al., 2014).

Thus, the Ethnic Identity Scale (EIS; Umaña-Taylor, Yazedjian, & Bamaca-Gomez, 2004) was created, which posits that ERI contains three dimensions. Specifically, grounded in Erickson's ego identity theory (1968) that posits that identity involves exploration and commitment, Umaña-Taylor and colleagues' (2004) conceptualization includes *exploration* (e.g., attending events that have helped them learn more about their ethnicity) and *resolution* (e.g., the degree to which individuals have resolved what their ethnic identity means to them). Further, consistent with Tajfel's (1982) social identity theory, and the notion that ERI involves the affect that individuals have toward being a member of their ethnic-racial group, Umaña-Taylor and colleagues' (2004) conceptualization of ERI also includes *affirmation* (i.e., the positive and negative feelings individuals have about their ethnicity). Furthermore, the dimensions of ERI are posited to be shaped by various social-environmental contexts within which individuals' identities are developing (Umaña-Taylor et al., 2004). Although the EIS has been found to be a valid and reliable measure to assess ERI in adolescence and emerging adulthood, Douglass and Umaña-Taylor (2015) created a brief version titled the Ethnic Identity Scale-Brief (EIS-B) to capture the multifaceted nature of ERI with as few items as possible. Although work using this

measure is still emerging, the EIS-B has been supported by recent studies to be a viable alternative to using the longer EIS to measure ERI among diverse individuals (Sanchez, Whittaker, Hamilton, & Arango, 2017; Umaña-Taylor, Kornienko, Douglass-Bayless, & Updegraff, 2018).

The field's understanding of ERI has grown tremendously in recent years, however, a challenging aspect of research in this area is that the measures and terminology that have been used has varied by the conceptualization and theoretical underpinnings of ERI. Acknowledging these challenges and complexities, a working group was formed, the Ethnic and Racial Identity in the 21st Century Study Group, to integrate the various theoretical frameworks and measurement of ERI. As a result, ERI attends to both *process* components and *content* components. Process dimensions involve the mechanisms that occur within ERI development, and include ERI exploration and resolution (Umaña-Taylor et al., 2014). Content dimensions involve one's attitudes and beliefs about his or her group and its relation to other groups, and include ERI affirmation (Umaña-Taylor et al., 2014). In line with these advancements in the field, this study will use the terms *process* and *content* to refer broadly to aspects of ERI.

ERI in Emerging Adulthood. ERI is posited to begin to form in adolescence and continue to unfold through emerging adulthood and into adulthood (Umaña-Taylor et al., 2014). Although not focused on identity development in terms of ethnicity and race specifically, Arnett (2000) theorized that identity may be more likely to occur when individuals experience significant changes in their social contexts, such as those occur during the transition out of high school and into college or the workplace. Arnett (2000) proposed that emerging adulthood, which is the period between adolescence and adulthood, is an important time for identity formation when individuals are exploring who they are and how they fit in the world. Congruent

with Arnett, ERI scholars also propose that during emerging adulthood and into adulthood, individuals engage in deeper exploration, greater reflection, and increased flexibility, which enable process components (e.g., exploration) and content components (e.g., affirmation) of ERI that began to develop in adolescence to continue to unfold (Umaña-Taylor et al., 2014). As such, examining how process and content components of ERI affect positive development during emerging adulthood is important. One such aspect of development that may be impacted is academic achievement.

Ethnic-Racial Identity as a Predictor of Academic Achievement

Phenomenological Variant of Ecological Systems Theory (PVEST; Spencer, 2006) is a useful theoretical orientation to understand the relation between ERI and academic achievement among Black students. Broadly, Spencer (2006) proposed that ethnic-racial minority youths' development is influenced by the interplay of an individual's perspective, his or her experiences, and the social, cultural, and historical context in which the individual resides. Relevant to the current study, an aspect of PVEST proposes that emergent identities (e.g., ERI) affects life-specific coping outcomes. Life-specific coping outcomes are defined as future behaviors and outcomes, such as school performance (e.g., GPA). More specifically, this model posits that because of the unique experiences that ethnic-racial minority youth face, they may develop an adaptive ERI that allows them to overcome obstacles and perform well in school. Individuals may also develop a maladaptive ERI, which may cause individuals to perform worse in school. Thus, it is possible that having a more positive ERI (e.g., greater exploration, resolution, and affirmation) may increase one's academic performance (e.g., higher GPA), while having a negative ERI (e.g., less exploration, resolution, and affirmation) may decrease academic performance (e.g., lower GPA).

Although PVEST (Spencer, 2006) proposed that ERI would be expected to be positively associated with academic performance, the body of work on this association is inconclusive among Black individuals. Some studies found that ERI was associated with greater academic achievement (Lockett & Harrell, 2003; Sellers, Chavous, & Cooke, 1998), other studies found that ERI was associated with less academic achievement (Cokley, McClain, Jones, & Johnson, 2012; Harper and Tuckman, 2006). There are also studies that found the association between ERI and academic achievement was not significant (Cokley & Chapman, 2008; Parker & Flowers, 2003). Although the majority of research in this area has focused on Black adolescents (Adelabu, 2008; Byrd & Chavous, 2009; Cokley et al., 2012), some studies have focused on Black college students (Awad, 2007; Cokley & Chapman, 2008; Parker & Flowers, 2003; Sellers et al., 1998). Research with individuals in both developmental periods has been inconclusive. Given the limited research on the relation between ERI and academic achievement of Black college students, the present literature review will also include prior work on Black adolescents.

Positive relation. As noted, several studies have found a positive relation between ERI and academic achievement. For example, Sandoval, Gutkin, and Naumann (1997) demonstrated that having a more positive view of one's ethnic group was positively related with GPA among Black adolescents. Similarly, Adelabu (2008) found that ERI (exploration and affirmation) was positively associated with academic achievement among Black adolescents in middle and high school. In addition, Byrd and Chavous (2009) examined the relation of racial identity to academic outcomes, while accounting for neighborhood factors. The results indicated that racial identity was positively related to GPA among Black eighth graders. Rust, Jackson, Ponterotto, and Blumberg (2011) also found that cultural identity (the degree to which an individual

identifies with, participates in, and feels positively about one's cultural/ethnic group) was positively correlated with academic achievement among Black high school students.

Research with Black college students has also suggested that there is a positive relation between ERI and academic achievement. For example, Sellers and colleagues (1998) found that among Black college students, racial centrality (i.e., the extent to which race is a core part of one's identity) was positively related to academic achievement (e.g., GPA). Similarly, among Black students at a Historically Black College & University (HBCU), Lockett and Harrell (2003) examined the relationship between racial identity and academic achievement. Findings indicated that only internalization attitudes (e.g., acceptance of one's identity) were positively related to GPA, while discrepancy and pre-encounter miseducation (e.g., negative stereotypical views about the Black community) were negatively related to GPA. This finding suggests that having a positive view about one's racial identity is positively associated with academic achievement.

Negative relation. Other research has shown a negative relation between ERI and academic achievement. For example, Cokley et al. (2012) demonstrated that among African American students in high school, racial centrality (the degree to which race is a key component of an individual's ethnic identity) negatively predicted GPA. Harper and Tuckman (2006) examined the association of racial centrality, public regard, and private regard beliefs on GPA among Black high school students. They found that Black students who scored low on racial identity (racial centrality, public regard, and private regard) had higher GPAs compared to students who scored high on those aspects of racial identity. Regarding college students, Jaret and Reitzes (2009) investigated how student identities and ERI were related to self-esteem, efficacy, and academic performance among diverse college students, including Black individuals. The findings indicated that students who felt more distant from their ethnic group

(e.g., I don't feel connected to others in my ethnic group) had higher GPAs compared to those who felt less distant.

No significant relation. Other studies have found no significant relation between ERI and academic achievement among Black adolescents and college students. For example, Chavous and colleagues (2003) conducted a longitudinal study to examine the role of racial identity (e.g., centrality, public regard, and private regard) on academic attainment among Black high school students. The findings demonstrated that the three components of racial identity were not associated with GPA in 12th grade. Gushue and Whitson (2006) investigated the association between teacher/parent support and ethnic identity (affirmation and belonging) on academic outcomes (career decision self-efficacy and outcome expectations) among Black ninth-graders. They found that ethnic identity was not significantly associated with either type of academic outcome.

Parker and Flowers (2012) conducted a study among college students to explore the influence of racial identity statuses (e.g., pre-encounter, encounter, immersion-emersion, and internalization) on academic achievement and perceptions of campus connectedness among Black college students at a Predominately White Institution (PWI). The findings indicated that none of the subscales for racial identity was related to academic achievement. Similarly, Cokley and Chapman (2008) found no significant relation between ERI (e.g., exploration and commitment) and GPA among a sample of African American undergraduate students.

Overall, previous research on the relation between ERI and academic achievement has varied by the specific dimension of ERI being examined, with much of the focus on content dimensions (centrality, affirmation) than process dimensions (e.g., exploration). Systematic reviews conducted by Miller-Cotto and Byrnes (2016) and Rivas-Drake and colleagues (2014)

also found differences in findings based on the dimension of ERI that was examined. Rivas-Drake and colleagues (2014) reviewed empirical studies that tested how ERI was associated with psychosocial, academic, and health risk outcomes among ethnic-racial minority youth. They concluded that among African American adolescents, specifically, there is little consistency across findings. This is due because numerous studies assessing ERI used only one or a few specific dimensions of ERI (e.g., only affirmation). Similarly, Miller-Cotto and Byrnes (2016) conducted a meta-analysis of empirical studies that examined how aspects of ERI (e.g., affect, centrality, public regard, exploration, and resolution) were associated with academic achievement among ethnic-racial minority youth and college students. Findings indicated that among African American individuals, ERI affect, ERI exploration, and the MEIM composite (i.e., the total score of the MEIM's four subscales: affirmation and belonging, achievement, behaviors and practices, and other group orientation) were positively related to academic achievement; however, ERI public regard, resolution, and centrality were not significantly associated with academic achievement.

Given that findings have varied by dimension of ERI, and the majority of studies have tended to focus more on content dimensions of ERI (centrality, affirmation) than process dimensions (exploration, resolution), more work is needed that tests how numerous process and content dimensions of ERI predict academic achievement when examined simultaneously in the same study. Further, the studies in Rivas-Drake and colleagues' (2014) systematic review, the majority of studies in Miller-Cotto and Byrnes' (2016) meta-analysis, as well as previous studies (e.g., Cokley et al., 2012) to date have focused more on adolescents than individuals in other developmental periods. Although this is an important developmental period to examine ERI because adolescent years are critical for identity formation (Umaña-Taylor et al., 2014), it is also

critical to test how ERI impacts academic achievement in emerging adulthood as a continuation of ERI processes and content occur during this period (Umaña-Taylor et al., 2014).

In the past three decades, research that has examined the relation between ERI and academic achievement among Black adolescents and college students has produced mixed results (e.g., Awad, 2007; Chavous et al., 2003; Cokley & Chapman, 2008; Cokley et al., 2012; Parker & Flowers, 2003; Rust et al., 2011). This research demonstrates that the relations between ERI and academic outcomes are complex and nuanced. Miller-Cotto and Byrnes (2016) suggested that there might be other constructs that influence the relation between ERI and academic achievement, such as individual and contextual factors. They recommended that future studies should identify moderators that might influence the direction and significance of the relation between ERI and academic achievement among Black individuals.

Individual Characteristics and Context as Modifiers

PVEST (Spencer, 2006) provides a useful framework for understanding how individual characteristics and context may influence the association between ERI and academic achievement. In particular, Spencer proposes that emergent identities (e.g., ERI) affects life-specific coping outcomes (e.g., GPA). Specially, she suggests that associative relations need to consider how structural factors, cultural influences, individual factors, social interactions, and contextual factors, influences individual development. Therefore, the relation between emergent identities (e.g., ERI) and life-specific coping outcomes (e.g., GPA) can be influenced by individual and contextual factors. Following this notion, one individual factor that can influence how ERI informs academic achievement is an individual's mental health, and a contextual factor that can impact this relation is racial discrimination from others in one's environment. In context of the current study, and given that academic achievement is a component of life-specific coping

outcomes, it is possible that when Black college students experience psychological distress or racial discrimination, these factors will interact with ERI to influence academic achievement.

Mental Health. As noted, PVEST (Spencer, 2006) proposes that the environment and individuals' characteristics can influence the relation between emergent identities (e.g., ERI) and life-specific coping outcomes (e.g., GPA) and an individual characteristic that may play a role in the relation between ERI and academic achievement is mental health. Research has demonstrated that poorer mental health (e.g., anxiety and depression) inhibits academic achievement in college students and youth (Eisenberg, Golberstein, & Hunt, 2009; Hishinuma, Chang, McArdle, & Hamagami, 2012; Weidman, Augustine, Murayama, & Elliot, 2015). For example, Eisenberg and colleagues (2009) examined the influence of mental health on academic success among college students, and found that greater anxiety and depression were associated with a lower GPA. Similarly, in a longitudinal study with high school students in Hawaii, Hishinuma and colleagues (2012) examined the relation between depressive symptoms and GPA. They found that depressive symptoms were related to lower GPAs. Additionally, Weidman et al. (2015) conducted a study to examine the association between internalizing symptomatology (i.e., depression and anxiety) and GPA among adolescents. The findings indicated that depression and anxiety were associated with lower GPA.

Although prior work has suggested that mental health can *directly* inhibit academic performance, no work to our knowledge has tested whether mental health *moderates* the association between ERI and academic achievement. Therefore, based on previous work that found that poorer mental health (e.g., anxiety and depression) directly inhibits academic achievement (e.g., Eisenberg et al., 2009; Hishinuma, Chang, McArdle, & Hamagami, 2012), the present study tested whether greater depression and anxiety also served as moderators by

inhibiting the relation between ERI and academic achievement. It was hypothesized that the relation between dimensions of ERI (i.e., exploration, resolution, and affirmation) and academic achievement (i.e., GPA) will be weaker among individuals with greater depression and anxiety, compared to individuals with less depression and anxiety.

Racial Discrimination. Additionally, PVEST (Spencer, 2006) proposes that the relation between emergent identities (e.g., ERI) and life-specific coping outcomes (e.g., GPA) can be influenced by individual factors and contextual factors. One of those contextual factors can be racial discrimination, which refers to unfair, differential treatment on the basis of race from others within an individual's environment (e.g., school, neighborhood, etc.) (Coker et al., 2009). Studies have suggested that Black individuals' experiences of stress related to racism and discrimination influence their development, particularly when it comes to psychological and physical outcomes (Sellers et al., 2001; Williams, Neighbors, & Jackson, 2003). Harrell (2000) suggested that future studies need to assess the impact of *stress* related to racism and discriminatory experiences for people of color, rather than solely the frequency of discrimination experiences. Therefore, this study assessed racial discrimination as individuals' reports of the stress associated with racial discrimination, instead of the frequency of racial discrimination experiences (for ease of discussion, I use the term *racial discrimination* throughout).

Although PVEST (Spencer, 2006) highlights the importance of contextual factors, the theory does not posit *how* contextual factors operate more specifically. In other words, although racial discrimination, a contextual factor, would be expected to play a role in how ERI informs academic achievement, PVEST (Spencer, 2006) does not suggest whether racial discrimination strengthens or weakens this link. Support for the expectations for how racial discrimination may moderate this relation can be drawn from the rejection-identification model (Branscombe,

Schmitt, & Harvey, 1999) and social identity theory (Tajfel & Turner, 1986). The rejection-identification model (Branscombe et al., 1999) posits that racial discrimination causes individuals to draw closer to their ethnic group; therefore, experiencing racial discrimination may strengthen their engagement in ERI formation and subsequent links with their academic achievement. Based on the rejection-identification model (Branscombe et al., 1999), the relation between ERI and academic achievement would be expected to be stronger among individuals who experience greater racial discrimination, and weaker among individuals who experience less racial discrimination. However, on the other hand, social identity theory (Tajfel & Turner, 1986) posits that individuals who experience racial discrimination attempt to distance themselves from their racial group. Therefore, experiencing racial discrimination may weaken engagement in ERI processes that would inform academic achievement. The association between ERI and academic achievement would, therefore, be expected to be weaker among Black college students who experience higher racial discrimination, and stronger among Black college students who experience less racial discrimination.

Research has showed that ERI acts as a moderator between discrimination and academic performance for Black youth (Chavous, Rivas-Drake, Smalls, Griffin, & Cogburn, 2008; Eccles, Wong, & Peck, 2006); however, there has been little attention to racial discrimination as a moderator of the association between ERI and academic achievement. Although no study has tested this specific link, related work provides support for the moderating role of racial discrimination more generally. This work has tended to provide support for the strengthening role of racial discrimination posited by the rejection-identification model (Branscombe et al., 1999). For example, Coutinho and Blustein (2014) examined whether perceived racial discrimination moderated the association between vocational identity and school engagement

among high school students who identified as Cape Verdean immigrants. The findings indicated that the relation between positive vocational identity and school engagement was stronger for students who perceived higher levels of racial discrimination when compared to students who reported lower levels of perceived racial discrimination. Additionally, they found that the association between vocational identity and school engagement was not significant for the students who perceived low levels of perceived racial discrimination.

Although not focused on racial discrimination as a moderator, other work also follows notions proposed in the rejection-identification model (Branscombe et al., 1999), regarding how negative contextual experiences may strengthen the way in which ERI influences outcomes. For example, Bryd and Chavous (2009) examined whether contextual influences (e.g., type of neighborhood) moderated the association between racial identity (e.g., racial connection, racial importance, and racial pride) and academic achievement (e.g., GPA) among Black youth. They found that the association between positive racial identity and academic achievement was stronger for individuals who lived in a neighborhood with low economic opportunities than for individuals who lived in a neighborhood with high economic opportunities. Again, while this study did not specifically examine discrimination as a moderator, it provides evidence that negative contextual influences may influence the relation between racial identity and academic achievement.

Overall, research tends to support notions posited in the rejection-identification model (Branscombe et al., 1999), however, given that no studies have tested racial discrimination as a moderator in the relations between dimensions of ERI and academic achievement specifically, this study recognize that either theoretical framework may be supported. Thus, it's hypothesized

that racial discrimination may either (a) strengthen or (b) weaken the association between ERI and academic achievement.

Gender Differences in Predictors of Academic Achievement

Although the number of Black students enrolled in college has increased over the years, Black females are outperforming males in most areas (e.g., enrollment, graduation rates and degree attainment) within higher education (Census Bureau, 2016). As a result, studies have examined factors that may influence academic achievement differently for Black males and females. One of those factors that has influenced academic achievement is ERI. Research has shown that there are gender differences in the relationship between ERI and academic outcomes among Black college students (Cokley & Moore, 2007). For example, Cokley and Moore found that ethnic identity and racial centrality were negatively related to academic achievement among Black males, but positively related to academic achievement and academic self-concepts for Black females.

Additionally, previous studies have indicated that Black males and females vary in the extent to which they experience racial discrimination in school settings (Chavous et al., 2008; Swanson, Cunningham & Spencer, 2003). For example, Chavous and colleagues found gender differences in discrimination among Black adolescents, such that Black males reported experiencing more discrimination than females. Furthermore, given that gender differences have emerged in how ERI predicts academic outcomes, as well as in experiences of discrimination, this current study tested gender as a moderator of how ERI predicted academic achievement moderated by mental health and discrimination by using multigroup models to test whether relations varied across Black males and females.

The Current Study and Hypotheses

The literature is inconclusive about whether ERI is directly associated with academic achievement among Black individuals, as findings from studies have varied by dimension of ERI, with the majority of this prior work focusing on content dimensions. Therefore, the first goal of the present study was to test multiple dimensions of ERI, including process (i.e., exploration and resolution) and content (i.e., affirmation) dimensions to determine which dimensions inform academic achievement when they are tested simultaneously. Based on theoretical notions posited by PVEST (Spencer, 2006), it was hypothesized that greater ERI exploration, resolution, and affirmation will be positively associated with greater academic achievement (i.e., GPA).

Second, based on recommendations from Miller-Cotto and Byrnes (2016) and Rivas-Drake and colleagues (2014), this study also tested moderators of the relation between ERI and academic achievement. Consistent with notions posited by PVEST (Spencer, 2006) regarding the role of individual and contextual factors, the current study tested whether mental health (i.e., an individual factor) and racial discrimination experiences (i.e., a contextual factor) moderate the relation between ERI and academic achievement. Based on prior work that found that poorer mental health impedes academic achievement (Eisenberg et al., 2009; Hishinuma et al., 2012; Weidman et al., 2015), it was hypothesized that the relations between ERI (i.e., exploration, resolution, and affirmation) and academic achievement (i.e., GPA) will be weaker among individuals with greater depression and anxiety, compared to individuals with less depression and anxiety. Theoretically, given that racial discrimination could strengthen or weaken the association between ERI and academic achievement, we tested the competing hypotheses. Specifically, we examined whether (a) grounded in the rejection identification model

(Branscombe et al., 1999), racial discrimination *strengthens* the association between ERI and academic achievement, or (b) grounded in social identity theory (Tajfel & Turner, 1986), racial discrimination *weakens* the association between ERI and academic achievement.

Finally, given that research has shown differences in how ERI informs academic achievement based on gender (Cokley & Moore, 2007), as well as gender differences in discrimination (Chavous et al., 2008), the study tested whether there were significant gender differences in how ERI informs academic achievement moderated by mental health and discrimination.

Methods

Participants

The sample for the current study is a subset of the Spit for Science (S4S) project, which is an on-going, university-wide longitudinal study that includes five cohorts of college students at Virginia Commonwealth University (2011-2014; 2017). The goal of the larger, longitudinal S4S study is to examine genetic, environmental, and developmental influences on substance use and emotional health outcomes among college students from diverse ethnic-racial backgrounds (Dick et al., 2014). The current study focused on students who identified as a Black/African American male or female, and reported feeling stress related to discrimination experiences, and completed a follow-up survey in Spring 2017 ($n=321$). This study only used data from Spring 2017 because this wave was the first and only wave to include ERI questions. Further, data were derived from four cohorts, instead of five because the 5th cohort was not added until the following semester in Fall 2018, and students did not complete ERI questions. The 321 Black students from cohorts 1-4 who were included in the present study were 18-20 years old ($M = 18.4$, $SD = .32$), and a majority female (i.e., 83%).

Procedure

The larger S4S study was approved by the Institutional Review Board at Virginia Commonwealth University. In the S4S study, each cohort of freshman starting in 2011 and continuing through 2014 who were aged 18 and older were invited to participate in the study by completing an online survey. Then, they were invited to complete a follow-up survey every subsequent Spring semester while they were enrolled in college. Thus, participants in the present study are students from one of these four cohorts who indicated feeling stress from racist events and completed a follow-up survey. During each survey, participants were provided an explanation of the study, and students who chose to participate provided informed consent online. Then, participants completed the online survey, which took approximately 15-30 minutes. Once the survey was completed, participants received \$10 compensation. Approximately 70% of incoming freshmen have participated in the S4S study each year since it began (Spindle et al., 2017). Study data were collected and managed using REDCap (Research Electronic Data Capture) electronic data capture tools. REDCap is a web-based application designed to assist data capture for research studies (Harris et al. 2009).

Measures

Academic Achievement. Term grade point average (GPA) for the Spring 2017 semester for all classes students completed that term is used to examine students' academic achievement. Term GPA is provided by the Office of Planning and Decision Support for students who consented to have this data included as part of the study. Term GPA ranges from 0.0 to 4.0, with a 0.0 indicating that students received all F grades, and a 4.0 indicating that students received all A grades for that semester.

Ethnic-Racial Identity. The Ethnic Identity Scale-Brief Form (EIS-B; Douglass & Umaña-Taylor, 2015) is a nine-item self-report questionnaire that was used to assess participants' ERI. The EIS-B is composed of three subscales assessing three different components of ERI: *Exploration* (3 items; e.g., "I have attended events that have helped me learn more about my ethnicity."), *Resolution* (3 items; e.g., "I am clear about what my ethnicity means to me."), and *Affirmation* (3 items; e.g., "I feel negatively about my ethnicity." [Reverse coded]). Participants responded regarding their agreement with each item on a four-point rating scale from 1 = *does not describe me at all* to 4 = *describes me very well*, such that higher scores indicated higher levels of ERI exploration, resolution, and affirmation. The scores were calculated using the mean of items of each subscale. The measure has demonstrated good reliability, with Cronbach's alphas ranging from .76 to .88, and good validity with diverse emerging adults (Douglass & Umaña-Taylor, 2015).

Mental Health. Anxiety and depression are each measured using a subset of four items from the Symptoms Checklist (SCL-90; Derogatis, Lipman, & Covi, 1973). The SCL-90 measures symptoms of anxiety (four items: e.g., "spells of terror or panic") and depression (four items: e.g., "feeling hopelessness about the future") within the last 30 days. Participants responded regarding how much each symptom caused them discomfort on a five-point rating scale ranging from 1 = *not at all* to 5 = *extremely*. This measure is widely used in both clinical and research settings with $\alpha = .85$ for anxiety, and $\alpha = .89$ for depression (Dick et al., 2014). Previous work has shown support for the validity and reliability of SCL-90 with a diverse college population that included Black/African American undergraduates (Spindle, Hiler, Cooke, Eissenberg, Kendler, & Dick, 2017).

Racial Discrimination. One item adapted from the Schedule of Racist Events measure (SRE; Landrine & Klonoff, 1996) was used to assess participants' appraisals of racist events. The SRE consists of three subscales of racist events: *lifetime* (SRE-L), *recent* (SRE-R), and *stressful* (SRE-S). The item in this study was adapted from the SRES-S subscale (e.g., "How stressful was this for you?"). The participants responded regarding how stressful the racist events were on a six-point rating scale from 1 = *not at all* to 6 = *extremely*. Higher scores on this item indicated higher stress levels of the racist events. Although no previous studies have shown validity and reliability for this item, prior research that has used provided support for good reliability ($\alpha = .95$) and validity for SRES-S (Landrine & Klonoff, 1996a, 1996b).

Controls. Given that ethnic-racial identity varies by age (Umaña-Taylor et al., 2014), we controlled for cohort of participants in all analyses.

Results

Preliminary Analyses

Prior to running the main analyses, descriptive statistics, including correlations, means, and standard deviations, were calculated for all study variables separately for males and females (see Table 1). Missing data were handled using the multiple imputation method in SPSS, which is a recommended approach (Enders, 2010). Additionally, skewness and kurtosis were examined, which indicated that all measures were normally distributed (i.e., skewness less than two and kurtosis less than seven; Tabachnick & Fidell, 2006), except for participants' ERI affirmation, which had skewness of -3.40 ($SE = .13$) and kurtosis of 12.79 ($SE = .26$). To adjust for the robust skewed and kurtotic distribution of ERI affirmation, an inverse square root transformation was performed using Tabachnick and Fidell's (2007) guidelines for data transformation. After the transformation, ERI affirmation still did not have a normal distribution, such that skewness was -

3.76 (SE = .13) and kurtosis was 15.84 (SE = .26). Therefore, to adequately adjust for the non-normality of the data, we ran all subsequent analyses in *Mplus* version 7.2 (Muthén & Muthén, 1998–2014) with the robust maximum likelihood estimation (i.e., MLR), which provides estimates that are robust to (i.e., accounts for) non-normal data (Enders, 2013).

Analytic Approach

In order to test research questions in the current study, the analytic strategy included running a series of regression models within a path analysis framework, while simultaneously testing for gender differences in hypothesized relations. Research question one, “Do different dimensions of ERI predict GPA?” and research question two, “Do anxiety, depression, and discrimination moderate the relations between dimensions of ERI and GPA?” were tested within nine separate models to address multicollinearity concerns. In particular, some of the ERI dimensions were highly correlated (e.g., $r = .58$ for males and $r = .58$ for females for the correlation between exploration and resolution). Therefore, in order to have enough power to detect findings in our models for our smallest group (i.e., males), we specified nine models that each tested relations between a dimension of ERI predicting GPA with either an individual or contextual factor (i.e., discrimination, anxiety, and depression) included as a moderator (i.e., a model with ERI exploration and discrimination; ERI resolution and discrimination; ERI affirmation and discrimination; ERI exploration and anxiety; ERI resolution and anxiety; ERI affirmation and anxiety; ERI exploration and depression; ERI resolution and depression; and ERI affirmation and depression. Any significant moderators were probed at one standard deviation above the mean and below the mean (Preacher et al., 2006). Further, given that prior work has controlled for cohort when examining GPA (Walsh, Fielder, Carey, & Carey, 2013), cohort was included as a control in all associations. Given that all models included interactions, all predictor

variables were mean-centered, and the centered variables were used to compute the product of two variables (i.e., each ERI dimension and each moderator) to create each interaction term to test the moderation hypotheses.

To test whether hypothesized associations varied across males and females, multigroup models were used that included gender as the grouping variable. We tested whether there were gender differences in paths in multigroup models by using Wald chi-square tests, which adds equality constraints to make a path equal across males and females, and tests whether the constrained path indicates that there are significant gender differences or not (Muthén & Muthén 1998-2014). A significant Wald chi-square test indicates that there are significant differences in the path among males and females, and a non-significant Wald chi-square test indicates that there are not significant differences in the path among males and females. Specifically, in the first model, an equality constraint was added between males and females for the control path (i.e., cohort to GPA). This path was tested for significant gender differences with the Wald chi-square test. In the second model, an equality constraint was added to the main effect of ERI path (e.g., affirmation). This path was tested for significant gender differences with the Wald chi-square test. In the third model, an equality constraint was added to the main effect of the moderator path (e.g., depression). This path was tested for significant gender differences with the Wald chi-square test. In the fourth model, an equality constraint was added to the interaction term path (e.g., ERI affirmation x depression). This path was tested for significant gender differences with the Wald chi-square test.

After these four models were tested, a final model was created based on the results. If the Wald chi-square test was not significant, it suggested that there were no significant gender differences in the path, and the path could be constrained to be equal across groups. If the Wald

chi-square test was significant, it suggested that there were significant gender differences in the path, and the path could not be constrained to be equal across groups. If the control path showed no significant differences by gender based on the Wald chi-square test, then it was constrained to be equal across males and females in this final model. If the control path did demonstrate significant gender differences, then it was left unconstrained (i.e., freely estimated across males and females). The two main effect paths and interaction paths were constrained together or left unconstrained based on the collective results of these three paths. Specifically, if the two main effect paths and the interaction path showed no significant differences by gender, they were all constrained to be equal across gender in the final model. However, if *any* of the main effect or interaction paths were significantly different by gender, then *all* main effect and interaction paths (i.e., three paths) were left unconstrained (i.e., freely estimated across males and females). This approach was necessary instead of constraining based on the results of the Wald chi-square test of each individual path because it was not possible to probe an interaction that had no gender differences (i.e., path was constrained across males and females) if the main effect *did* have gender differences (i.e., path was freely estimated across boys and girls). This process was repeated for all paths in all nine models (each including a different dimension of ERI and a moderator).

Test of Hypothesized Research Questions

To achieve the final nine models, I began by testing each of the four paths in all nine models for significant gender differences using the Wald chi-square test (see Table 2). Results indicated that there were significant gender differences in two models, and no significant gender differences in seven models. Based on these results, I created nine final models, seven of which included all paths constrained across males and females given that there were no significant

gender differences, and two final partially constrained models, in which the control path in each model was constrained to be equal across males and females, but the other three paths (i.e., two main effect paths and one interaction path) were left unconstrained (i.e., allowed to freely vary) across males and females.

Based on these final nine models, several findings emerged (see Table 3 for unstandardized regression coefficients and text below for standardized coefficients). First, regarding the three ERI models that included discrimination as the moderator, findings indicated that none of the ERI dimensions or discrimination directly predicted GPA, and discrimination was not a significant moderator of the relation between any of the ERI dimensions and GPA.

Second, regarding the three ERI models that included anxiety as a moderator, ERI exploration was positive and marginally associated with greater GPA for females ($b = .11, p = .06$), but this relation was not significant for males ($p = .27$). Further, ERI affirmation and ERI resolution were not significant predictors of GPA for males and females. However, although the main effects were not significant, the interaction path was significant *for males*, such that anxiety moderated the association between ERI exploration and GPA ($b = -0.28, p = 0.03$). Simple slopes analysis revealed that ERI exploration was associated with lower GPA ($b = -0.60, p = 0.04$) among males with high levels of anxiety (i.e., one SD above), but the relation between ERI exploration and GPA was not significant ($b = 0.29, p = 0.16$) among males with low levels of anxiety (see Figure 6).

Third, regarding the three ERI models that included depression as a moderator, none of the ERI dimensions were directly associated with GPA for males or females. The direct path for the association between depression and GPA varied across the 3 models, but consistently, such that in the models that included ERI exploration and affirmation, depression was associated with

lower GPA for males ($b = -.16, p = .00; b = -.12, p = .00$) and females ($b = -.24, p = .00; b = -.24, p = .00$) respectfully. However, in the model with ERI resolution, depression predicted lower GPA for females ($b = -.25, p = .00$), but not for males ($p = .08$). Thus, depending on which dimension of ERI is also accounted for, the association between depression and GPA varied slightly, but broadly indicated that depression is linked with lower GPA. Regarding the interaction paths, one emerged as significant *for males*, such that the interaction between ERI resolution and depression predicting males' GPA was significant ($b = -0.24; p = 0.05$). Simple slope analysis indicated that ERI resolution was associated with lower GPA ($b = -0.60, p = 0.05$) among males with high levels of depression, but the relation between ERI resolution and GPA was not significant ($b = 0.18, p = 0.39$) among males with low levels of depression (see Figure 7).

Discussion

Dimensions of ERI that begin to develop in adolescence continue to unfold during emerging adulthood, and are expected to be linked with academic achievement (Umaña-Taylor et al., 2014). However, findings from previous research that has examined the associations between ERI and academic outcomes among Black youth has been inconclusive and has varied by dimensions of ERI (Cokley et al., 2012; Cokley & Chapman, 2008; Lockett & Harrell, 2003). Additionally, results from a recent meta-analysis and systematic review (i.e., Miller-Cotto & Byrnes, 2016; Rivas-Drake et al., 2014) suggested that there might be other moderating constructs, such as individual and contextual factors, that influence the relation between ERI and achievement that need to be included and tested. Thus, the current study addressed these gaps.

First, based on theoretical notions posited by PVEST (Spencer, 2006), it was hypothesized that greater ERI exploration, resolution, and affirmation would be positively

associated with greater GPA. Second, consistent with notions posited by PVEST regarding the role of individual and contextual factors, the current study tested whether anxiety and depression, individual mental health factors, and racial discrimination experiences, a contextual factor moderated the relations between dimensions of ERI and GPA. Based on PVEST theory (Spencer, 2006) and prior work that found that poorer mental health impedes academic achievement (Eisenberg et al., 2009; Hishinuma et al., 2012; Weidman et al., 2015), it was hypothesized that the relations between ERI exploration, resolution, and affirmation and GPA would be weaker among individuals with greater depression and anxiety, compared to individuals with less depression and anxiety. For racial discrimination, we used competing hypotheses to examine whether (a) grounded in the rejection identification model (Branscombe et al., 1999), racial discrimination would *strengthen* the association between ERI and GPA, or (b) grounded in social identity theory (Tajfel & Turner, 1986), racial discrimination would *weaken* the association between ERI and GPA. Furthermore, given that gender differences have emerged in the relation between ERI and academic achievement (Cokley & Moore, 2007), as well as experiences of discrimination in school settings (Chavous et al., 2008), we tested gender as a moderator of all associations using multigroup models to test whether relations varied across Black males and females. Overall, some of our expectations were supported, and others were not. Below we discuss (a) findings for the relations between ERI dimensions and GPA, (b) results for moderation findings, and (c) limitations and future directions.

Black College Students' Ethnic-Racial Identity and Academic Achievement

Based on PVEST (Spencer, 2006), the dimensions of ERI were expected to influence GPA. Specifically, greater ERI exploration, resolution, and affirmation were hypothesized to be positively associated with greater academic achievement for both males and females; however,

findings were only consistent with expectations for females regarding ERI exploration, but not males. Consistent with tenets of PVEST (Spencer, 2006), among females, ERI exploration was marginally, positively associated with GPA. This finding was consistent with previous work with Black adolescents (e.g., Adedabu, 2008; Miller-Cotto & Byrnes, 2014). For example, Adedabu found that as ERI (e.g., exploration and affirmation) increased, Black females were more oriented toward their future and achieved higher academically. Consistent with scholars' notions about the importance of emerging adulthood, and especially the college context, for exploration processes (e.g., Arnett 2000; Umaña-Taylor et al., 2014), the current study builds on our knowledge in this area by demonstrating that ERI exploration continues to be a critical mechanism for identity development in emerging adulthood for Black females. Given that some media outlets are promoting positive messages of Black women, such as the "Black Girls Rock" campaign (Bond, 2018), it is possible that when Black emerging adults explore what it means to be a Black female, they will explore these positive aspects of themselves. This finding supports this notion; however, the finding was marginal, which suggests that additional work with larger samples that examines these relations longitudinally is needed. It will be important for future research to explore the types of messages that Black women internalize about their racial group as they engage in processes when they are exploring their ethnicity-race and how those messages influence the relation between ERI exploration and academic achievement.

However, contrary to expectations, ERI exploration did not predict GPA for males (though this relation emerged for males with high levels of depression, which will be discussed below). Prior research has suggested that Black males receive more parental messages about racism, discrimination, and autonomy (Chavous et al., 2008; Oyserman et al., 2003) compared to females as a way for preparation for these hostile types of experiences, which is a form of racial

socialization called preparation for bias (Cokley et al., 2012; Hughes, 2006). Furthermore, previous work indicates that Black males are more likely to receive negative treatment in school settings, such as harsher disciplinary classroom practices and more criticism from teachers than females (Cokley et al., 2012; Swanson, Cunningham, & Spencer, 2003). Thus, it is possible that these racial socialization messages focused on bias, paired with experiences of bias that may occur in the classroom build over time. As a result, Black males who engage in processes of ERI exploration may be predominantly focusing on these negative messages they may have received from their environment; therefore, exploring their ERI may not facilitate higher GPA as it did for females. It is possible that ERI exploration may promote higher GPA, but only when males have received positive messages about their race (e.g., high levels of cultural socialization) over time, and/or are processing positive messages as they explore what it means to them to be a Black male. An important future research direction will be to conduct mixed-methods research that interviews Black males to better understand in a nuanced way what they are processing when engaging in ERI exploration. Further, it will be important to examine how the messages they have received in the past, as well as those that they are currently receiving about their racial group (e.g., via cultural socialization and preparation for bias processes with their caregivers and peers) may be influencing their ERI exploration process. It is also important to note that given the relatively small number of Black males (i.e., $n = 76$) in the present study, this finding might not have emerged because it is possible that there was not enough power to detect this path. Therefore, as future work tests Black males' ERI processes in a more nuanced way, it will also be important to do so with larger groups of Black males.

Additionally, ERI resolution did not predict GPA for females in any models, and for males, this relation only emerged among males with high levels of anxiety, which will be

discussed in the next section. The finding that ERI resolution did not directly predict GPA is consistent with prior work with Black adolescents that also did not find a significant relation (e.g., Miller-Cotto & Byrnes, 2016). The present study adds to our knowledge in this area by demonstrating that gaining a sense of clarity about what one's ethnicity means to them may not also be associated with GPA into emerging adulthood. One important consideration, however, is that our measure of academic achievement was GPA. Prior work with a diverse sample of adolescents, which included Black individuals, demonstrated that ERI resolution was positively associated with an interest in learning (Borrero & Yeh, 2011). Thus, it is possible that ERI resolution is important to academic outcomes, but only when academic achievement is assessed in ways beyond GPA, such as learning or motivation. Given that studies on the influence of ERI resolution on academic achievement among Black individuals are limited, additional research is needed that continues to test these relations in nuanced ways by including multiple assessments of academic outcomes (e.g., GPA, interest in learning, motivation, academic self-efficacy), and tests these relations over time.

Additionally, the hypothesized expectation of ERI affirmation on GPA based on PVEST (Spencer, 2006) was not supported for males or for females. Findings from previous work that has examined ERI affirmation on academic outcomes are mixed among Black individuals (Adelabu, 2008; Gushue & Whitson, 2006). For example, Adelabu found that ERI (e.g., exploration and affirmation) was positively associated with GPA, while Gushue and Whitson demonstrated that ethnic identity (e.g., affirmation and belonging) was not associated with academic outcomes (i.e., career decision self-efficacy and outcome expectations). Thus, it is possible that Black college students will experience different mechanisms when engaging in processes related to having pride in their ethnicity than Black adolescents. These mixed findings

show that the relation between ERI affirmation and academic outcomes are complex and nuanced among Black adolescents and limited among Black emerging adults. Therefore, it is important for additional work to examine this relation among Black college students.

Furthermore, prior studies have suggested that ERI affirmation is positively associated with different types academic outcomes (e.g., engagement and motivation) among Latinx students (Fulgini, Witkow, & Garcia, 2005; Gonzalez, 2009). Given, that studies on the association of ERI affirmation and academic achievement is limited, additional research is needed to continue to test these relations in nuanced ways by including multiple indicators of academic outcomes (e.g., GPA, motivation, and engagement), and tests these relations over time.

Individual Characteristics and Context as Moderators

Racial Discrimination as a moderator. Given that racial discrimination could strengthen or weaken the association between ERI and academic achievement, we tested competing hypotheses by examining whether (a) grounded in the rejection identification model (Branscombe et al., 1999), racial discrimination would strength the association between ERI and academic achievement, or (b) grounded in social identity theory (Tajfel & Turner, 1986), racial discrimination would weaken the association between ERI and academic achievement. Results from the present study did not provide support for either theory, as findings indicated that racial discrimination did not moderate any of the relations between dimensions of ERI and academic achievement. It is possible that this finding emerged because previous studies have demonstrated that ERI acts as a moderator in the relation between racial discrimination and academic achievement for Black youth (Chavous et al., 2008; Eccles et al., 2006). This finding builds on previous work in this area by demonstrating that the process that might be going on is that racial discrimination influences GPA and ERI moderates that relation, instead of ERI predicting GPA

and racial discrimination moderating that association. Instead of continuing to test whether ERI acts as a moderator between racial discrimination and academic performance among Black college student, this current study examined whether racial discrimination influenced the significance and direction of the relation between ERI components and GPA, which is quite different from previous work. Since this finding demonstrated that racial discrimination was not a significant moderator between these associations, it will be important for future studies to examine different types of contextual factors, such as social support, that might influence the relation between ERI and academic achievement to better understand Black college students' academic and social development. Furthermore, given that previous work has focused on Black adolescents, additional studies are needed that focus on Black college students.

Anxiety and depression as moderators. Although findings were not supported for discrimination stress as a moderator, results partially supported expectations regarding anxiety and depression as moderators of the association between ERI dimensions and GPA, but only among males. Specifically, results indicated that ERI exploration did not significantly influence GPA for males with average and low levels of anxiety, but among males with high levels of anxiety, ERI exploration led to worse GPA. Similarly, ERI resolution did not significantly influence GPA for males with average and low levels of depression, but among males with high levels of depression, ERI resolution led to worse GPA.

Collectively, these findings suggest that engaging in the processes of exploring race and trying to get a sense of clarity about what ones' ethnicity-race means worsen GPA among Black males who are experiencing mental health concerns (i.e., high anxiety or high depression). Research has shown that individuals who experience depressive symptoms and anxiety are more likely to be cognitively aware of negativity, more likely to experience excessive and persistent

worry and fear, and more likely to internalize negative evaluations (Eisenberg, Golberstein, & Hunt, 2009; Gotlib & Joorman, 2010; Hishinuma et al., 2012). As noted, Black males are more likely to experience harsher punishments and criticism from others in school settings than females (Cokley, 2012). Therefore, Black males who experience high depression or anxiety may be more likely to develop negative self-evaluations based on negative stereotypes and messages that they may be more aware of as they engage in identity processes.

These findings highlight the importance of research and interventions focused specifically with Black males who experience mental health challenges, in order to prevent negative effects on academic outcomes. Given that previous work has tended to focus more on content dimensions of ERI, rather than process dimensions (Chavous et al., 2003; Gushue & Whitson, 2006; Harper & Tuckman, 2006; Miller-Cotto & Brynes, 2016), these findings highlight the importance of continued work focused on ERI processes (e.g., exploration and resolution) among Black emerging adults, particularly those experiencing depression and anxiety. Further, more research is needed that focuses on understanding the types of messages that Black males internalize about their racial group as they engage in ERI exploration and resolution, and examine how these internalized messages may vary among males with and without high levels of anxiety and depression.

Results from this work would then be able to be implemented into interventions that dually targets improving mental health while boosting positive ERI exploration and resolution with positive messages. Given that emerging adulthood is an important time for identity development (Arnett, 2000; Umaña-Taylor et al., 2014), and Black males are at-risk for not graduating from college given the lack of sense of belonging, lack of support and resources, as well as experiencing racial discrimination, especially at Predominately White colleges and

universities in higher education (Carey, 2008; Harper & Hurtado, 2007; Hausmann et al., 2007), and GPA has important implications for securing awards and jobs after college, as well as improving health concerns (Kena et al., 2016), it is essential that future research and intervention focus on boosting positive ERI exploration and resolution processes, as well as improving mental health among Black males who are experiencing high anxiety and depression.

Interestingly, anxiety and depression did not moderate the relation between ERI dimensions and GPA for females. Prior work has demonstrated that Black females view academic achievement as a way to belong to their ethnic-racial group (Oyserman, Bybee, & Terry, 2003). In fact, the number of Black females enrolled in higher education has increased drastically in recent years (Census Bureau, 2016). Therefore, it is possible that when Black females are engaging in identity processes of exploring and resolving what their ethnicity-race means to them, those thoughts may also include positive images of themselves as college students and academics, which might allow them to overcome any mental health concerns (e.g., anxiety and depression) from worsening their academic outcomes. Supporting this notion was our finding that ERI exploration predicted higher GPA for females, and paired with our non-significant moderation analyses, it seems that this relation persists regardless of whether females are experiencing high or low levels of anxiety and depression. However, resolution did not directly predict GPA, so it may be that the process of ERI resolution is not quite as important to GPA as exploration. However, importantly, limited work has focused on ERI process dimensions among Black emerging adults, and therefore, findings must be considered preliminary. More work, especially mixed-methods longitudinal work, that focuses on the nuances involved in process dimensions of ERI among Black emerging adults is warranted.

Limitations and Future Directions

While the current study contributes to our understanding of the nuanced ways in which different dimensions of ERI, mental health, racial discrimination, and gender inform academic achievement, there are several limitations to consider. First, it is important to consider limitations in the measures used in the current study for racial discrimination and GPA. Specifically, racial discrimination was assessed as a one-item measure of the stress associated with students' experiences of broad racial discrimination. Given that one-item measures may not fully capture a construct, it will be important to test these relations with a larger measure of racial discrimination to fully capture individuals' experiences. In addition, it will be important to test how findings might vary based on the type of discrimination that is experienced (e.g., racial macroaggressions, colorism), which can be a conjecture, rather than using a broad item of overall racial discrimination. Regarding our assessment of academic outcomes, GPA was the only measure in this study, however, prior work has shown academic motivation, academic self-efficacy, and academic self-concept are important indicators of academic achievement (Choi, 2005; Gushue & Whitson, 2006; Kusrkar, Cate, Vos, Westers, Croiset, 2013). Therefore, future studies should use different types of indicators of academic achievement (e.g., motivation) when examining underlying ERI processes and individual and contextual factors.

In addition, in the current study we were limited to only controlling for cohort, however, there are other controls that we were unable to account for (e.g., social economic statuses; SES). Prior research has demonstrated that SES influences academic achievement among Black students (Brown & Jones, 2004). Therefore, future studies should take into account SES of the

participants when studying factors related to academic achievement among Black college students.

Regarding the moderators, a strength of the current study was that we tested three different moderators, both individual and contextual, as recommended by scholars (e.g., Miller-Cotto & Byrnes, 2016). However, prior work has found that other contextual factors, such as social support, play a role in academic success among underrepresented ethnic minority students (Rueger, Malecki, & Demaray, 2010; Syed, Azmitia, & Cooper, 2011). Therefore, it is possible that social support might influence the relation between ERI and academic achievement among Black students. Thus, more work is needed that tests whether other contextual factors (e.g., social support) moderate the relations between ERI dimensions and GPA.

Findings also cannot be broadly generalized to other schools without further research, as the sample in the current study was recruited from an urban, Predominately White Institution that consists of 29% underrepresented minority students. Prior work has found that Black students at Predominately White Institutions have different experiences related to academic achievement than Black students at historically Black universities (Kim, 2002). Therefore, future studies should examine these associations in a sample of Black students attending a historically Black university.

Additionally, sample-related limitations included an overrepresentation of female students compared to male students in the present study. However, despite the modest sample size, meaningful findings emerged for Black males, which indicates that more research needs to be conducted with larger numbers of Black males in order to acquire a more nuanced understanding of their experiences related to their ERI dimensions, psychological distress, and academic achievement.

Finally, regarding the design of the current study, given the cross-sectional design, the longitudinal effects of ERI dimensions on academic achievement could not be explored. Prior work has suggested that ERI changes over time (Umaña-Taylor et al., 2014). Thus, future longitudinal research should examine how ERI dimensions influence academic achievement over time, and how individual and contextual factors moderate these relations.

Conclusion

Despite its limitations, the current study builds on our understanding of the mechanisms that influence academic achievement among Black college students, and offers important insights for further investigation. First, the current study took a nuanced approach to examine the effect of individual and contextual factors (i.e., anxiety, depression, and discrimination) on the relations between three different dimensions of ERI (i.e., ERI exploration, resolution, and affirmation) and academic achievement (i.e., GPA), while also considering how this moderated process varied across Black males and females.

Findings indicated that ERI exploration predicted higher GPA among Black females. Given that the majority of previous work has focused on content dimensions of ERI (Chavous et al., 2003; Gushue & Whitson, 2006; Harper & Tuckman, 2006; Miller-Cotto & Brynes, 2016), this finding suggests that research in this area needs to consider both content and process dimensions of ERI when trying to understand mechanisms underlying Black college students' ERI. Further, findings indicated that when investigating ERI dimensions on academic achievement, it is necessary to include individuals' mental health, particularly for Black males. Findings indicated that anxiety and depression affected the strength and direction of the relation between process dimensions of ERI (i.e., ERI exploration and resolution) and GPA. Overall, findings from the present study highlight the importance of intersectionality when examining

ERI processes. Specifically, ERI formation processes differed based on whether individuals were Black females or Black males. Despite our cross-sectional design and other limitations, our findings highlight that we need to continue conducting research in this area to better understand Black females' and males' unique experiences with respect to their ERI processes and mental health, and impacts on academic achievement.

Overall, our findings, with continued evidence-based support, may have program and clinical implications. For example, educational interventions that focus on increasing academic achievement may want to consider promoting ERI processes that involve positive messages about one's group, while also addressing individuals' mental health, especially among Black males. Further, clinicians who are working with Black college students with anxiety and depression should facilitate discussions about ERI processes they may be engaging in and talk through them as part of their therapeutic approach and treatment. In conclusion, the present study provides insight into the nuanced ways in which ERI exploration, resolution, and affirmation, along with mental health and discrimination experiences, inform academic achievement among Black males, and females in college, and highlight that continued research in this area would be a fruitful endeavor.

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Table 1

Bivariate Correlations, Means, and Standard Deviations among Study Variables for Females (n = 265) and Males (n = 76).

	1	2	3	4	5	6	7
1.Participants' term GPA	--	.14	.00	-.05	-.14	-.04	-.10
2.Participants' Discrimination Stress	-.01	--	.16	.09	-.10	.07	.19*
3.ERI Exploration	.12*	.21***	--	.58***	.06	-.07	-.13
4.ERI Resolution	.03	.13*	.50***	--	.31**	-.26**	-.16
5.ERI Affirmation	-.05	-.14**	.01	.28***	--	-.31**	-.14
6.Participants' Anxiety	-.10*	.17**	.07	.00	-.07	--	.57***
7.Participants' Depression	-.24***	.18***	.01	-.03	-.03	.66***	--
Males							
Mean	2.72	2.83	2.86	3.28 ^a	3.72 ^a	1.47 ^a	2.16 ^a
SD	.92	1.26	.85	.62	.56	.55	.80
Females							
Mean	2.92	3.09	2.94	3.49 ^a	3.86 ^a	1.70 ^a	2.38 ^a
SD	.81	1.18	.79	.64	.36	.80	1.01

Note. ERI = Ethnic-racial identity. Correlations for males are above the diagonal; correlations for females are below the diagonal. For gender differences ^a indicates significant mean differences between males and females. $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$.

Table 2

Results of Wald Chi-Square Test for Equality Constraints Imposed Across Males and Females.

Path Type	Path Compared across Gender	Wald Test	df	p	Added Equality Constraint
Model with ERI Exploration and Discrimination as a Moderator					
Control	Cohort → GPA	.147	1	.70	Yes
Main effect	ERI Exploration → GPA	.161	1	.69	Yes
Main effect	Discrimination → GPA	1.85	1	.17	Yes
Interaction	ERI Exploration x Discrimination → GPA	.259	1	.61	Yes
Model with ERI Resolution and Discrimination as a Moderator					
Control	Cohort → GPA	.216	1	.72	Yes
Main effect	ERI Resolution → GPA	.33	1	.56	Yes
Main effect	Discrimination → GPA	2.68	1	.10	Yes
Interaction	ERI Resolution x Discrimination → GPA	.13	1	.72	Yes
Model with ERI Affirmation and Discrimination as a Moderator					
Control	Cohort → GPA	.004	1	.95	Yes
Main effect	ERI Affirmation → GPA	.76	1	.38	Yes
Main effect	Discrimination → GPA	1.02	1	.31	Yes
Interaction	ERI Affirmation x Discrimination → GPA	.01	1	.91	Yes
Model with ERI Exploration and Anxiety as a Moderator					
Control	Cohort → GPA	.01	1	.94	Yes
Main Effect	ERI Exploration → GPA	3.19	1	.07	No
Main Effect	Anxiety → GPA	.01	1	.94	No
Interaction	ERI Exploration x Anxiety → GPA	3.87	1	.05	No
Model with ERI Resolution and Anxiety as a Moderator					
Control	Cohort → GPA	.05	1	.82	Yes
Main Effect	ERI Resolution → GPA	1.23	1	.27	Yes
Main Effect	Anxiety → GPA	.46	1	.50	Yes
Interaction	ERI Resolution x Anxiety → GPA	1.37	1	.24	Yes
Model with ERI Affirmation and Anxiety as a Moderator					
Control	Cohort → GPA	.006	1	.94	Yes
Main Effect	ERI Affirmation → GPA	1.49	1	.22	Yes
Main Effect	Anxiety → GPA	.02	1	.89	Yes
Interaction	ERI Affirmation x Anxiety → GPA	1.50	1	.22	Yes
Model with ERI Exploration and Depression as a Moderator					
Control	Cohort → GPA	.05	1	.83	Yes
Main Effect	ERI Exploration → GPA	.60	1	.44	Yes
Main Effect	Depression → GPA	.31	1	.58	Yes
Interaction	ERI Exploration x Depression → GPA	.07	1	.79	Yes
Model with ERI Resolution and Depression as a Moderator					
Control	Cohort → GPA	.03	1	.86	Yes
Main Effect	ERI Resolution → GPA	1.60	1	.21	No
Main Effect	Depression → GPA	.07	1	.79	No
Interaction	ERI Resolution x Depression → GPA	4.26	1	.04	No
Model with ERI Affirmation and Depression as a Moderator					
Control	Cohort → GPA	.003	1	.96	Yes
Main Effect	ERI Affirmation → GPA	.46	1	.50	Yes
Main Effect	Depression → GPA	.15	1	.70	Yes
Interaction	ERI Affirmation x Depression → GPA	.87	1	.35	Yes

Note. Equality constraints were only added to Main effect and interaction paths if all three paths were not significant (> .05). If any of the main effect or interaction paths were significant ($p \leq .05$), no equality constraints were added to those three paths given that any one of them were significant.

Table 3

Final Partially Constrained or Fully Constrained Multigroup Models of ERI Dimensions with each Moderator for Males ($n = 76$) and Females ($n = 265$).

Path Type	Path Compared across Gender	B	p
<i>Model with ERI Exploration and Discrimination as a Moderator</i>			
Control	Cohort → GPA	.00/.00	.96/.96
Main effect	ERI Exploration → GPA	.09/.09	.13/.13
Main effect	Discrimination → GPA	-.01/-.01	.85/.85
Interaction	ERI Exploration x Discrimination → GPA	.06/.06	.16/.16
<i>Model with ERI Resolution and Discrimination as a Moderator</i>			
Control	Cohort → GPA	.00/.00	.98/.98
Main effect	ERI Resolution → GPA	.03/.03	.72/.72
Main effect	Discrimination → GPA	.01/.01	.86/.86
Interaction	ERI Resolution x Discrimination → GPA	.06/.06	.22/.22
<i>Model with ERI Affirmation and Discrimination as a Moderator</i>			
Control	Cohort → GPA	.01/.01	.90/.90
Main effect	ERI Affirmation → GPA	-.12/-.12	.24/.24
Main effect	Discrimination → GPA	.01/.01	.72/.72
Interaction	ERI Affirmation x Discrimination → GPA	-.12/-.12	.15/.15
<i>Model with ERI Exploration and Anxiety as a Moderator</i>			
Control	Cohort → GPA	.01/.01	.85/.85
Main Effect	ERI Exploration → GPA	-.15/.12	.27/.07+
Main Effect	Anxiety → GPA	-.10/-.11	.63/.12
Interaction	ERI Exploration x Anxiety → GPA	-.58/-.02	.04*/.84
<i>Model with ERI Resolution and Anxiety as a Moderator</i>			
Control	Cohort → GPA	.01/.01	.92/.92
Main Effect	ERI Resolution → GPA	.02/.02	.82/.82
Main Effect	Anxiety → GPA	-.10/-.10	.13/.13
Interaction	ERI Resolution x Anxiety → GPA	-.04/-.04	.68/.68
<i>Model with ERI Affirmation and Anxiety as a Moderator</i>			
Control	Cohort → GPA	.01/.01	.87/.87
Main Effect	ERI Affirmation → GPA	-.18/-.18	.09/.09
Main Effect	Anxiety → GPA	-.11/-.11	.08/.08
Interaction	ERI Affirmation x Anxiety → GPA	.00/.00	.99/.99
<i>Model with ERI Exploration and Depression as a Moderator</i>			
Control	Cohort → GPA	-.01/-.01	.88/.88
Main Effect	ERI Exploration → GPA	.08/.08	.16/.16
Main Effect	Depression → GPA	-.19/-.19	.00***/.00***
Interaction	ERI Exploration x Depression → GPA	.06/.06	.31/.31
<i>Model with ERI Resolution and Depression as a Moderator</i>			
Control	Cohort → GPA	-.01/-.01	.90/.90
Main Effect	ERI Resolution → GPA	-.21/.02	.22/.77
Main Effect	Depression → GPA	-.22/-.20	.08/.00***
Interaction	ERI Resolution x Depression → GPA	-.40/.05	.05*/.51
<i>Model with ERI Affirmation and Depression as a Moderator</i>			
Control	Cohort → GPA	-.01/-.01	.90/.90
Main Effect	ERI Affirmation → GPA	-.18/-.18	.08/.08
Main Effect	Depression → GPA	-.19/-.19	.00***/.00***
Interaction	ERI Affirmation x Depression → GPA	-.05/-.05	.56/.56

Note. ERI = Ethnic-racial identity. In the last column, Regression coefficients for males are before the slash, and regression coefficients for females are after the slash. Bolded paths are significantly different across males and females, unbolded paths are constrained to be equal across males and females. + $p \leq .07$ * $p \leq .05$ *** $p \leq .001$.

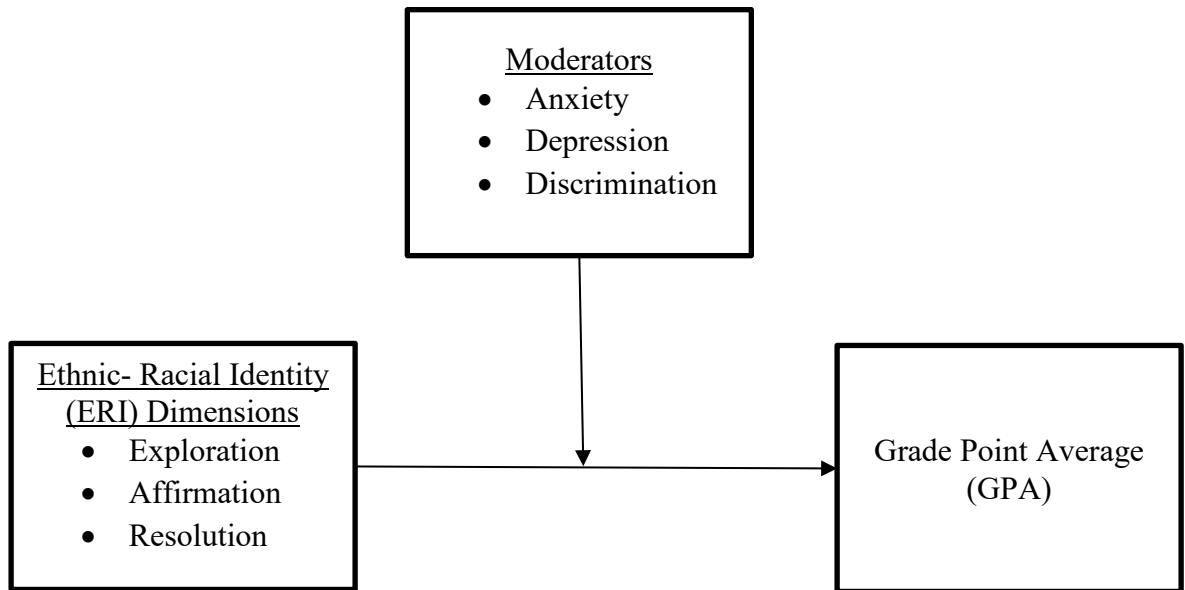


Figure 1. Conceptual Model Examining the Moderating Role of Individual and Contextual Factors in the Relation between Ethnic-Racial Identity Dimensions and Grade Point Average among Black College Students.

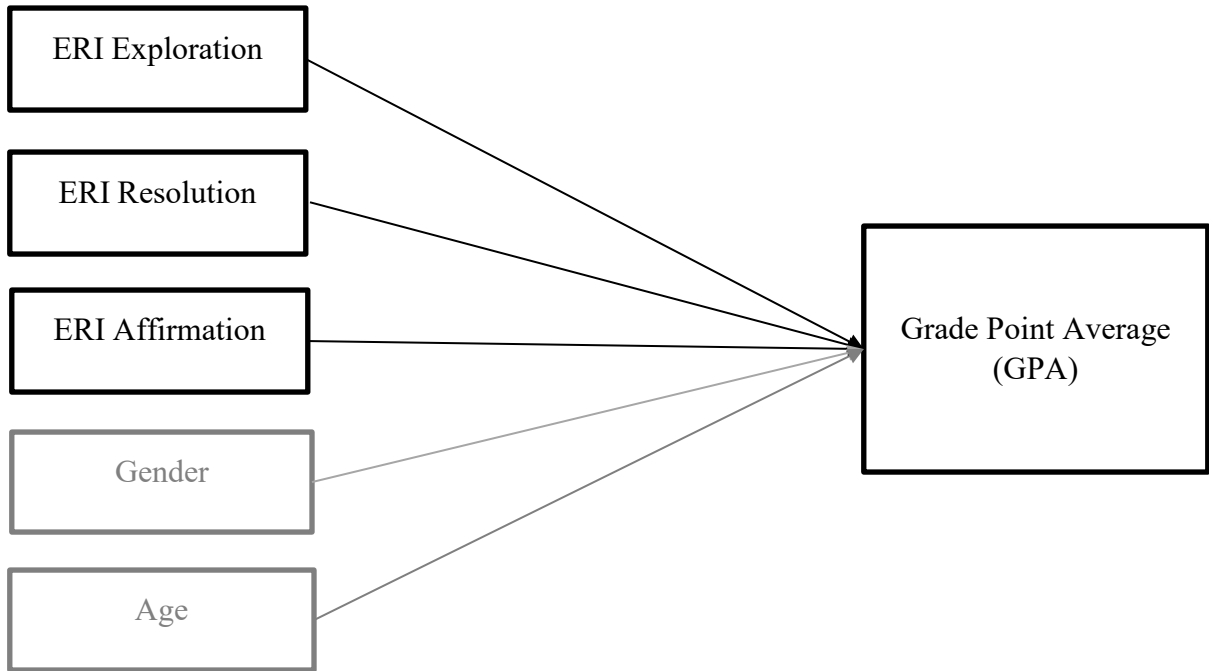


Figure 2. Testing whether Dimensions of ERI (i.e., ERI Exploration, ERI Resolution, and ERI Affirmation) Predict Grade Point Average, controlling for gender and age. Hypothesized variables are in black and control variables are in grey.

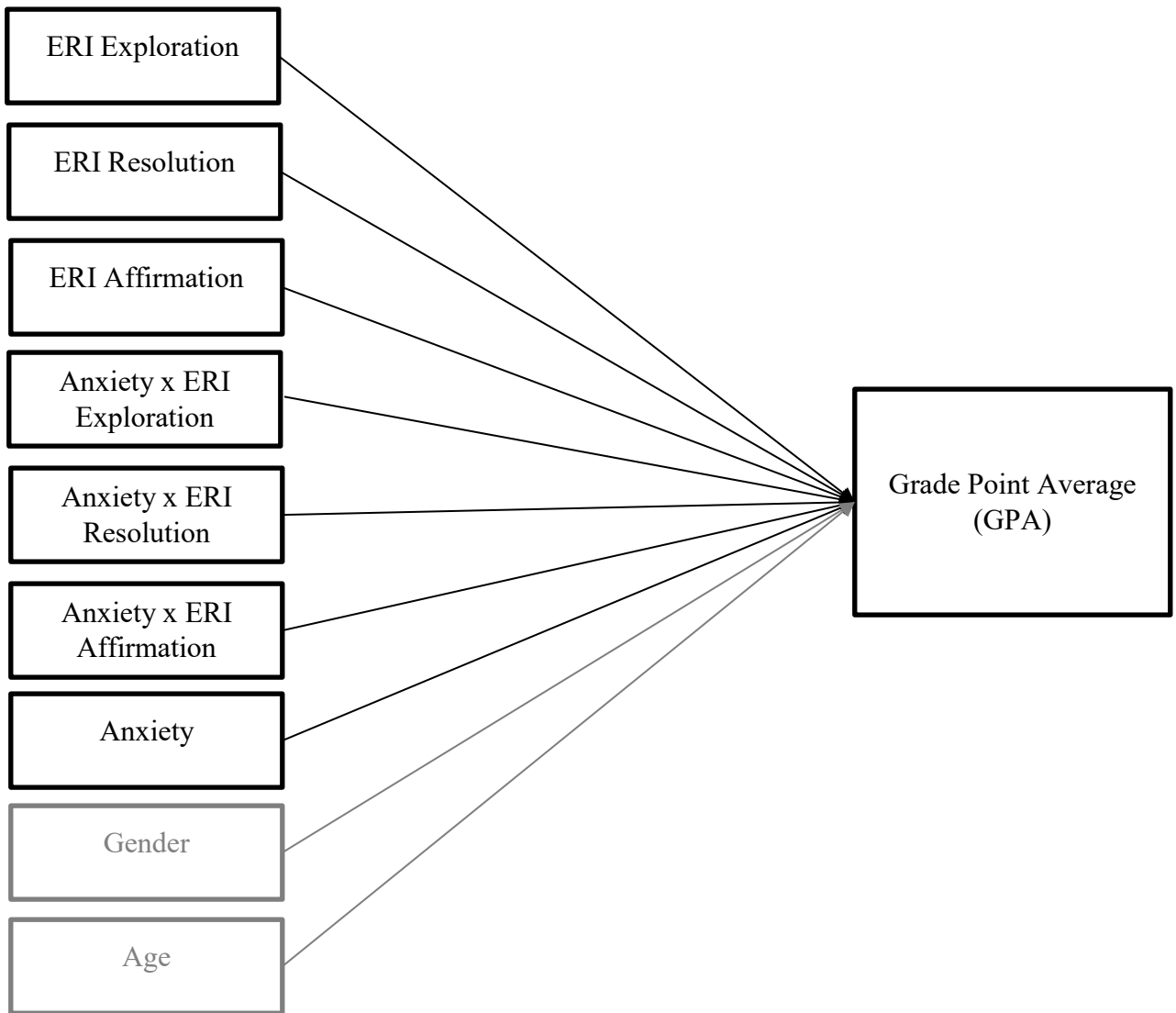
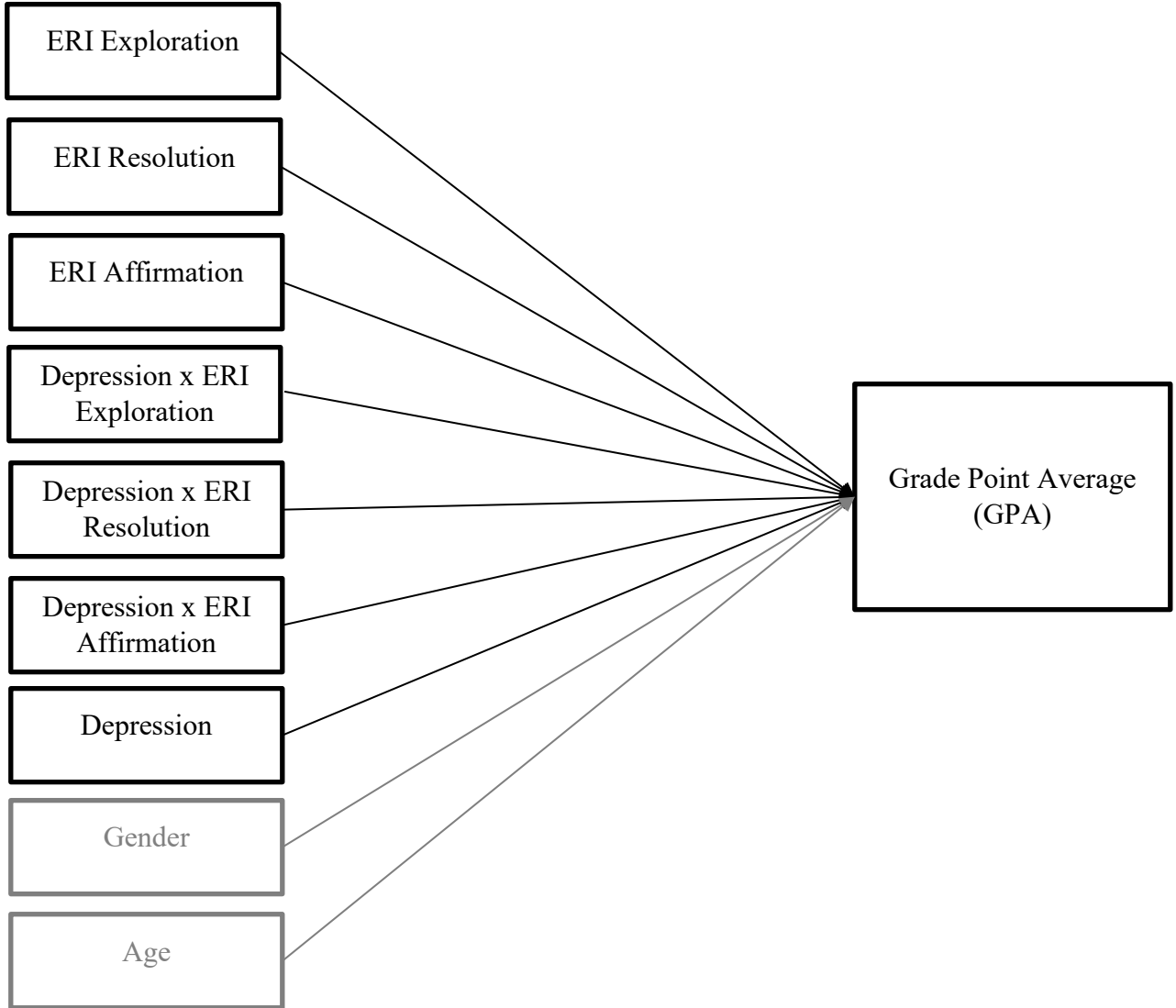


Figure 3. Testing whether Anxiety moderates the association between dimensions of ERI (i.e., ERI Exploration, ERI Resolution, and ERI Affirmation) and Grade Point Average, controlling for gender and age. Hypothesized variables are in black and control variables are in grey.

Figure 4. Testing whether Depression moderates the association between dimensions of ERI (i.e., ERI Exploration,



ERI Resolution, and ERI Affirmation) and Grade Point Average, controlling for gender and age. Hypothesized variables are in black and control variables are in grey.

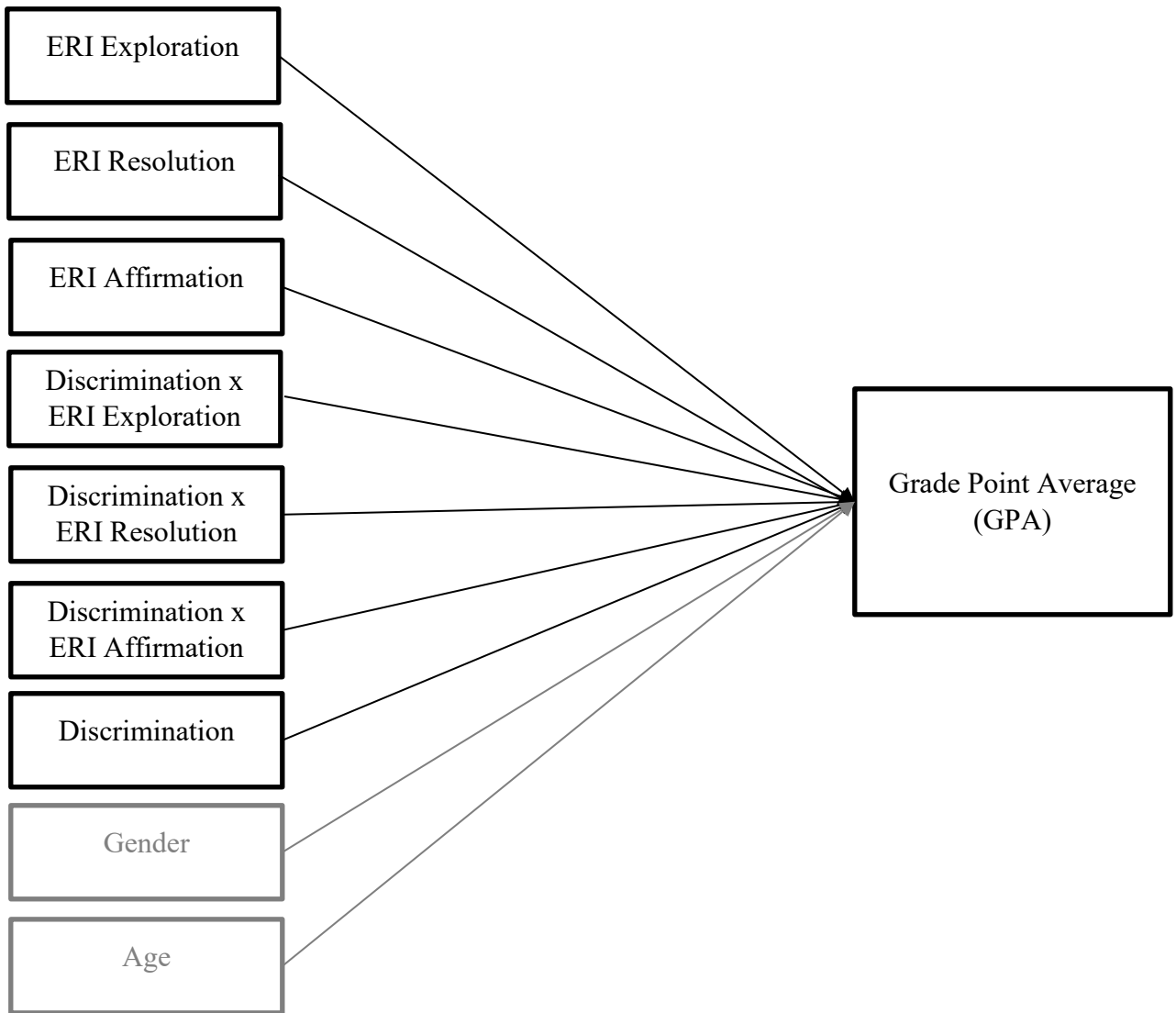


Figure 5. Testing whether Racial Discrimination moderates the association between dimensions of ERI (i.e., ERI Exploration, ERI Resolution, and ERI Affirmation) and Grade Point Average, controlling for gender and age. Hypothesized variables are in black and control variables are in grey.

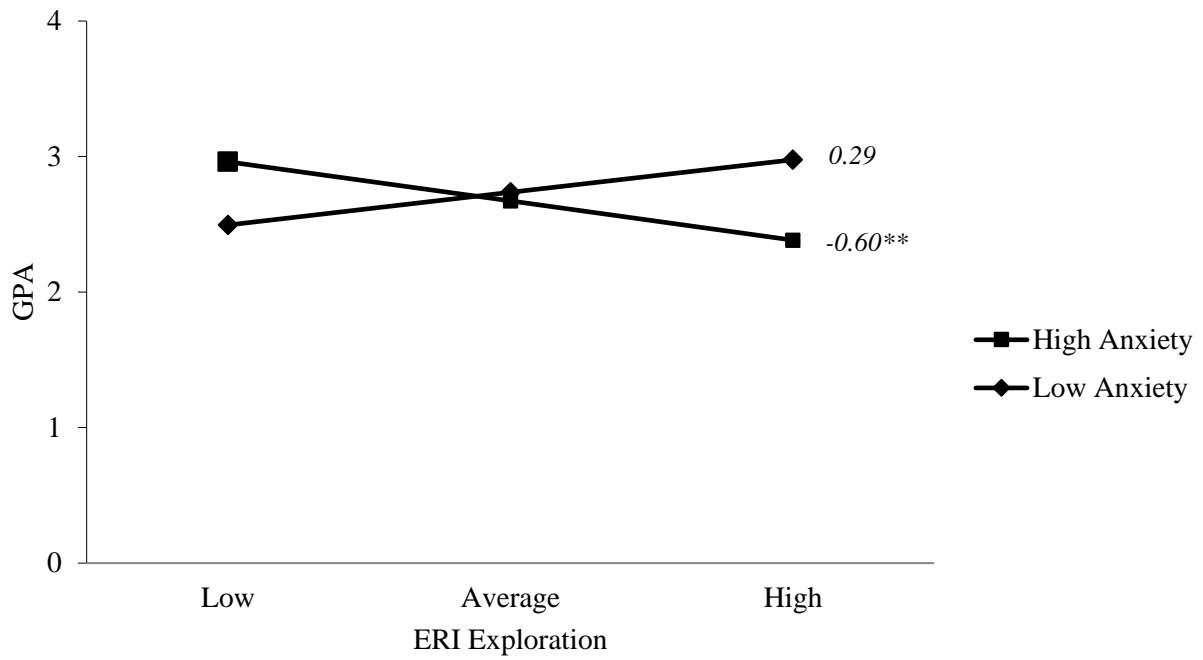


Figure 6. Moderation effects of males' anxiety at high (+1 SD) levels and low levels (-1 SD) on the association between ERI exploration and Grade Point Average (GPA). Note. ** Denotes significant slope at $p \leq .01$.

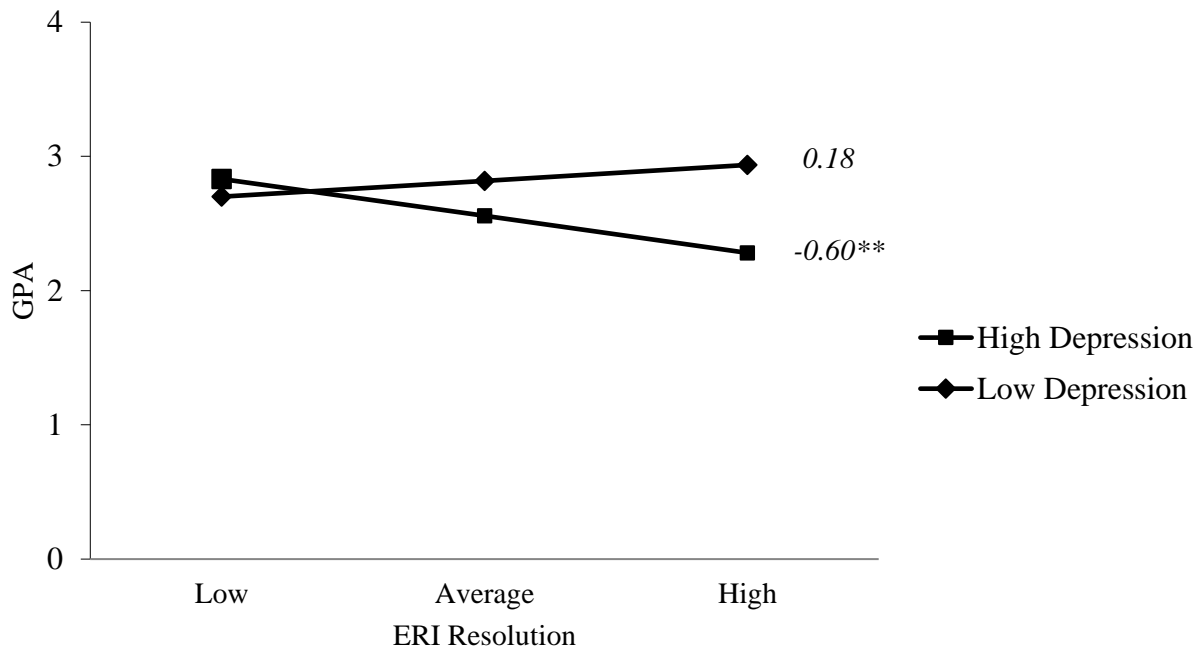


Figure 7. Moderation effects of males' depression at high (+1 SD) levels and low levels (-1 SD) on the association between ERI resolution and Grade Point Average (GPA). ** Denotes significant slope at $p \leq .01$.