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RACISM AND ANXIETY IN A BLACK AMERICAN SAMPLE: THE ROLE OF  
MEDIATORS AND A BRIEF MINDFULNESS MANIPULATION

A Dissertation Presented

by

JESSICA R. GRAHAM

Submitted to the Office of Graduate Studies,  
University of Massachusetts Boston,  
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

December 2013

Clinical Psychology Program

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## ABSTRACT

### RACISM AND ANXIETY IN A BLACK AMERICAN SAMPLE: THE ROLE OF MEDIATORS AND A BRIEF MINDFULNESS MANIPULATION

December 2013

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Directed by Professor Lizabeth Roemer

It is important to determine factors that may exacerbate the negative effects of experiences of racism on anxiety, as well as factors that might buffer racism's negative impact on anxiety in Black American samples. To examine these factors, we conducted two related studies. In study 1, 119 Black American individuals completed the Schedule of Racist Events, the five factor mindfulness questionnaire, the anxiety control questionnaire (assessing perceptions of control), the self-hatred subscale of the cross racial identity scale, and the depression anxiety and stress Scale. As hypothesized, frequency of racist experiences over the past week was significantly positively associated with anxious arousal symptoms and frequency of experiences of racism over the past year was significantly positively associated with anxious arousal and general anxiety symptoms. Additionally, stress appraisal of racist experiences was significantly

positively associated with anxious arousal and general anxiety symptoms. Unexpectedly, frequency of racist experiences over the past week were not significantly associated with general anxiety symptoms. As hypothesized, internalized racism mediated the relationship between past week experiences of racism and anxious arousal symptoms. Additionally, internalized racism mediated the relationship between frequency of past year experiences of racism and anxious arousal and general anxiety symptoms. Finally, internalized racism mediated the relationship between stress appraisal of racist experiences and anxious arousal and general anxiety symptoms. Contrary to hypotheses, perceptions of control (ACQ-R) did not mediate the relationship between racist experiences and anxious symptomology in this sample. Finally, as hypothesized, trait mindfulness moderated the relationship between past week frequency of racist experiences and anxious arousal only, in the present sample.

In a second experimental study, we explored the potential causal relationships between variables. Thirty Black American participants from Study 1 who endorsed that they had experienced racism in the past year, in addition to other inclusion criteria, participated in this study. Participants were randomly assigned to a mindfulness condition ( $N= 16$ ) or control condition ( $N= 14$ ) and were presented with a racially evocative stimulus before and after the experimental manipulation. We examined the effects of the brief mindfulness manipulation on self-report measures of distress and state anxiety. ANCOVA analyses (controlling for distress and anxiety prior to the manipulation) revealed that condition assignment had no significant effect on overall

subjective units of distress,  $F(1, 29) = .13, p = .73, \eta_p^2 = .005$ , or overall state anxiety symptoms,  $F(1, 27) = .23, p = .64, \eta_p^2 = .009$ .

These results provide preliminary evidence suggesting that experiences of racism are associated with anxiety symptoms in Black American populations and that internalized racism may be a mechanism through which experiences of racism and anxiety are connected. Additionally, these results suggest that mindfulness may buffer the negative effects of racism on anxiety in Black American populations, however, further research is needed to investigate the causal relationships between racism, mindfulness, and anxiety in Black populations.

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## CHAPTER 1

### SPECIFIC AIMS

In the general population of the United States, anxiety disorders have the highest prevalence rate among the major groups of mental disorders (Kessler et al., 2005). Although individuals who racially identify as Black make up 13.6% of the United States' population (42 million people, census bureau 2010), more research on anxiety disorders in individuals who racially identify as Black is needed. A replication of the National Comorbidity study found a 24.7% lifetime prevalence of anxiety disorders in Black Americans (Breslau et al., 2006). Additionally, Breslau and colleagues (2004) found anxiety disorders to be more persistent in individuals who identified as Black when compared to other racial groups. In this study, anxiety was found to be persistent if symptoms were present 2 years before the assessment and continued to be present in the 12 months leading up to the assessment. Given the presence of anxiety in Black samples, research examining the culturally-specific stressors or potential buffering factors that might contribute to or ameliorate the development and maintenance of anxiety in this population is needed. The proposed study focused on one potential stressor (racism) and one potentially effective treatment approach (mindfulness).

Correlational research has demonstrated a link between racist experiences and anxiety symptoms and disorders (e.g., Greer, 2011; Soto et al., 2011). One potential mechanism that links the experience of racism to anxiety symptoms is perceptions of uncontrollability. Perceived racism has been proposed to increase perceptions of uncontrollability (Broman et al., 2000) and many researchers focusing on majority of white samples have theorized that an individual's perception of lack of control over the environment and potentially threatening experiences (which racist experiences are) play a key role in the genesis and maintenance of anxiety symptoms (Barlow, 2002; Mineka & Kihlstrom, 1978). In addition to the experience of racism potentially contributing to the lack of perception of control over one's environment, the experience of racism has also been connected to the internalized stigma and negative self-evaluations that might also contribute to heightened anxious symptomology. Internalized racism has been defined as the internalization of negative beliefs about a marginalized group, by a marginalized group member (Williams & Williams-Morris, 2000). Several studies have found internalized racism to be associated with psychological distress (Parham & Helms, 1985; Carter, 1991; Szymanski & Gupta, 2009). Moreover, research suggests that critical self-beliefs are associated with heightened levels of anxious symptomology in majority white samples (Hoffman, 2000).

Given the evidence that anxiety exists and is particularly persistent in Black populations and the findings that suggest that the experience of racism is linked to

anxiety, the next step is to begin exploring factors that may buffer the negative effects of racism on anxiety in Black populations. Mindfulness may constitute such a buffering factor. The construct of mindfulness is defined as purposeful, present moment awareness with a compassionate and nonjudgmental lens (Kabat-Zinn, 1994). Correlational findings indicate that reports of mindfulness and anxiety symptoms are significantly negatively correlated among individuals who identify as Black (Graham, West, & Roemer, in press). Further, a recent study found that reports of mindfulness moderate (i.e., buffer) the association between perceived racism and anxiety symptoms among individuals who identify as Black (Graham, West, & Roemer, in press). The current study contributes to the literature by examining the relationship between the experience of racism and anxiety, two potential mechanisms that may underlie this relationship (perceptions of control and internalized racism), and the potential buffering effects of trait mindfulness and a brief mindfulness intervention.

#### Overarching Aims:

1. Examined whether experiences of racism were linked to anxious symptomology.
2. Examined whether perceptions of control mediated the relationship between the experience of racism and anxious symptomology.
3. Examined whether internalized racism mediated the relationship between the experience of racism and anxious symptomology.



4. Examined whether trait mindfulness moderated the relationship between experiences of racism and anxious symptomology.
5. Examined the potential causal effects of mindfulness by determining whether mindfulness practice reduced the anxiety elicited by a racial stimulus.

CHAPTER 2  
INTRODUCTION

**Anxiety in Black Populations**

Anxiety disorders have been described as the development of pathological fear and anxious apprehension around past or future oriented events (Barlow, 2002). In the general population of the United States, anxiety disorders have the highest prevalence rate among the major groups of mental disorders (Kessler et al., 2005). Specifically, in a national comorbidity study, Kessler and colleagues (2005) found the prevalence rates of anxiety disorders to be 28.8% in the general population. Additionally, in a review of epidemiological studies measuring quality of life and anxiety disorders, Mendlowicz and Stein (2000) found that anxiety disorders, as a group, were uniformly associated with poor quality of life and reduced psychosocial functioning.

Although Black Americans are one of the largest minority groups in the United States, comprising 13.6% of the United States' population (42 million people, census bureau 2010, anxiety disorders in individuals who identify as Black remains understudied. However, a replication of the National Comorbidity study found the lifetime prevalence of anxiety disorders in Blacks to be 24.7% (Breslau et al., 2006). Additionally, in a recent epidemiological study, Breslau and colleagues (2004) found

anxiety disorders to be more persistent in individuals who identified as Black when compared to other racial groups. In this study, disorders were considered to be persistent if participants' reported a first onset at least 2 years prior to the assessment that continued to be present in the 12 months leading up to the assessment. Furthermore, research has also shown that individuals who identify as Black are significantly less likely to seek mental health treatment when compared to Whites (Wang et al., 2005), which might contribute to the persistence of anxiety disorders in this population (Hunter & Schmidt, 2010).

Recently, researchers have explored the overlap among anxiety disorders and found an emerging body of evidence supporting the commonalities across anxiety disorders (Barlow, 1991, 2000, 2002; Suarez, Bennett, Goldstein, & Barlow, 2009, Norton, 2009). Furthermore, many models of anxiety describe anxiety disorders as a heterogeneous collection of disorders that share biological, genetic, and etiological factors (Zinbarg, 1998, Barlow, 2002; Campbell-Sills, Liverant, & Brown, 2004). In addition to the findings around the commonalities across anxiety disorders, research suggests that Black individuals experience several types of anxiety disorders and symptomology including Posttraumatic Stress Disorder (PTSD), Panic Disorder (PD), Obsessive-Compulsive Disorder (OCD), Social Phobia, and Generalized Anxiety Disorder (GAD; Hunt & Schmidt, 2010). The emerging body of literature supporting the commonalities across anxiety disorders, coupled with the statistics that Black individuals experience all groups of anxiety disorders, makes the proposed study an important step in exploring factors related to anxiety symptoms experienced by Black individuals in

general, although future studies should also address specific diagnostic categories.

The rate of anxiety disorders in Black populations coupled with a lack of treatment seeking in this community points to a significant public health risk. There is limited research that examines the stressors that might contribute to the development and maintenance of anxiety in this population and treatment approaches that might be efficacious. Exploring these issues might be an important step towards facilitating appropriate treatment of anxiety disorders in Black populations. In addition, a focus on culturally-specific factors, such as racist experiences and internalized racism, may increase acceptability of treatments and facilitate treatment seeking among this underserved population.

*The Negative Impact of Racism* Clark (1999) defines racism as beliefs, attitudes, behaviors and institutional and systemic approaches that degrade or belittle individuals or groups based on the color of their skin. Results from a recent national poll suggest that 87% of individuals who identify as Black in the United States experience racism as a “very serious” or “serious” problem (CNN/Essence Magazine/Opinion Research Corporation poll, 2008). Furthermore, several studies have established the experience of racial discrimination to be a widespread phenomenon in Black populations (Bell, 1992; Dovidio & Gaertner, 1986; Landrine & Klonoff, 1996). Landrine and Klonoff (1996) explored the frequency of various types of racism in a sample of 520 Black individuals. Results indicated that 96% of Blacks in the sample reported experiencing some type of racism over the past year, 98% reported experiencing some type of racism at some point in their lives, and 95% found racism to be stressful. Additionally, research suggests that

Black children become aware of the existence of racism at an earlier age than White children (Mcknown, 2004). There are many forms of racial disparities in the United States including, but not limited to, access to healthcare (Trivedi, Zaslavsky, Schneider, & Ayanian, 2006), education (Yun & Moreno, 2006), and income levels (Downey & Hawkins, 2008). Moreover, studies have found that racism is experienced in a variety of situations including interpersonal experiences (Broman, 1997), employment (Feagin, 1991), and health and social services (Harrison, 1994), to name a few. Many studies have found that the persistence and pervasiveness of racism is linked to psychological health difficulties in individuals who identify as Black (Clark et al., 1999; Donovan et al., 2012; Harrell, 2000; Harrell, Hall, & Taliaferro, 2003). Pieterse and Carter (2007) explored the relationship between general life stress, racism-related stress, and psychological health in a sample of 220 Black men. Results indicated that after controlling for general stress, racism-related stress predicted psychological distress for men in this sample. In addition, Barnes and Lightsey (2005) found the experience of racism to be significantly positively correlated with stress in a sample of 114 African American college students. Studies have also found that perceived racial discrimination is linked to higher levels of depression, anxiety, and somatization symptoms in African American samples (Broman, Mavaddat & Hsu, 2000; Landrine & Klonoff, 1996; Greer, 2011).

### **Racism & Anxiety**

While research has clearly established the frequency of racism experienced by Black individuals and negative associations between the experience of racism and mental

health more generally, few studies have empirically investigated the relationship between the experience of racism and anxiety, specifically. However, there is some research that supports the theory that racism is one of the stressors that contributes to the development and maintenance of anxiety in Black populations (Hunter & Schmidt, 2010; Soto et al., 2011). For instance, Soto and colleagues (2011) explored the relationship between self-reported frequency of race based and non-race based discrimination and GAD in a sample of 3,570 African Americans, 1,438 Afro Caribbeans, and 891 non-Hispanic Whites from the National Survey of American Life (NSAL). Results revealed that more than 40% of the African Americans surveyed reported experiences of racial discrimination with 4.5% of African Americans meeting criteria for GAD. In addition, 39% of the Afro-Caribbean group reported experiencing racial discrimination with a 2.7% lifetime prevalence rate of GAD. Finally, only 7% of the non-Hispanic White group reported racial discrimination and the lifetime prevalence of GAD in the non-Hispanic White group was 7.4%. Results showed that the frequency of race based discrimination predicted lifetime prevalence of GAD in the African American subgroup, but did not predict GAD in the Afro-Caribbean subgroup or the non-Hispanic White subgroup. The authors did not report immigrant status or cultural differences within the Afro-Caribbean or non-Hispanic White subgroups. These findings are consistent with previous research that has found the immigrant experience of racism and its effects to be different than that of African Americans (Hall & Carter, 2006). The findings that the experience of racial discrimination predicted lifetime prevalence of GAD in African Americans suggests that there is a connection between racism and anxiety in some Black

populations.

Another study (Rucker, West, & Roemer, 2009) explored the relationship between perceived racism, intolerance of uncertainty, and worry (a central feature of GAD) in a sample of 77 Black undergraduate students at an urban university. The results showed perceived racism to be significantly positively correlated to both worry and intolerance of uncertainty. While the results of this study are correlational and present no causal links, they suggest that racism might be an impactful factor in Blacks' experience of anxiety and that the relationship between the experience of racism and anxiety symptomology associated with GAD warrants further research.

Finally, laboratory findings have revealed associations between the experience of racism and many physiological symptoms and health issues related to anxiety including heightened blood pressure and heart rate activity (Townsend et al., 2007; Ma et al., 2008). Specifically, Black participants exposed to film excerpts showing racist situations involving Black individuals demonstrated a significant increase in heart rate activity and blood pressure (Sutherland & Harrell, 1987). Additionally, Sutherland and Harrell (1987) found trait anxiety to be a significant predictor of physiological reactions to these racially charged scenes. More recently, Brondolo and colleagues (2008) found that perceived racism was positively correlated with blood pressure in a sample of Black and Latino individuals. Similarly, Hill and colleagues (2007) found a positive association between perceived racism and ambulatory blood pressure in a sample of African Americans.

## **Racism and Anxiety: The Potential Impact of Perceptions of Control and Internalized Stigma**

Racist experiences may contribute to anxiety symptoms among Black individuals in several ways. One potential mechanism is through perceptions of uncontrollability. In this model of anxiety, perception of control can be defined as one's view of her/his ability to influence her/his environment or experiences (e.g., racist experiences). Findings from many studies in majority white samples have negatively linked perception of control to anxiety. For example, in a study that examined the relationship between perceptions of control over anxiety-related events in 140 adolescents, perceptions of control were found to be negatively associated with worry, a central feature of GAD, and diagnoses of GAD (Frala et al., 2010). Additionally, in a study of anxiety and depressive symptoms in a sample of 155 individuals undergoing coronary artery bypass, the participants who had a stronger perception of control over the outcome of their surgery reported significantly less anxiety, before and after the surgery, than those who reported a weaker perception of control (Gallagher & McKinley, 2009). These findings suggest that perceptions of control are connected to the development of anxiety. Additionally, the authors suggest that these findings point to the importance of assessment of perceptions of control which might identify individuals who are at greater risk for the development of anxiety symptomology and/or disorders.

These findings suggest that a sense of agency around the ways that one copes with future oriented, threatening experiences might be helpful in mitigating anxiety symptoms. In the context of racism, researchers have theorized that the experience of racism might



elicit a perception of uncontrollability of one's environment and therefore, contribute to the development and maintenance of anxiety in Black populations. Specifically, Broman and colleagues (2000) cite the theory of learned helplessness as a model for the ways that racism can impact an individual. According to this theory, an individual's cognitive responses play an important role in the development and maintenance of psychopathology. In the context of racism, an individual who identifies as Black might work hard to act in accordance with society's expectations and this individual would likely expect to receive fair treatment, dignity, and respect in response to this behavior. This attempt at controlling one's environment through hard work and acting in line with society's expectations has been described in the literature as "John Henryism" (Sherman et al., 1984). According to this theory, perception of uncontrollability of one's environment is initiated and maintained by the frequency of racist experiences, as the expectation that hard work and living according to society's rules will lead to fair treatment is continually shattered by the experience of racism. To date, no empirical research has examined the relationship between perceptions of control and the experience of racism in Black populations. In summary, frequent racist experiences may lead Black individuals to have low perception of control over their environment and future racist experiences. Other literature has linked low perception of control to the development and maintenance of anxiety disorders. Therefore, perception of control may be a key mechanism that links the experience of racism and anxiety in Black populations. The present study will further elucidate the role of perception of control in this relationship.

In addition to the experience of racism contributing to a perception of lack of

control over one's environment, which may lead to symptoms of anxiety, racism has also been associated with internalized and negative self-evaluations that may also contribute to the maintenance of anxious symptomatology. Specifically, several studies have focused on the ways that stigma of inferiority results from racist experiences and impacts mental health. Williams and Williams-Morris (2000) assert that Black individuals may internalize beliefs of racial inferiority communicated by the majority, otherwise known as internalized racism. Internalized racism is defined as the acceptance, by the marginalized group, of negative and critical beliefs about one's worth.

Many studies have found internalized racism to be linked to poor self-esteem and higher levels of psychological distress (Parham & Helms, 1985; Carter, 1991; Szymanski & Gupta, 2009). Specifically, Parham and Helms (1985) explored the relationship between internalized racism and self-esteem in a sample of Black undergraduate students at four predominantly White universities. Results indicated that Black students who endorsed devaluing themselves because they are Black also reported lower self-esteem. Although this study did not directly measure racist experiences, one can assume based on the existing literature that devaluing oneself due to race is due to racial socialization including both interpersonal and systemic racist experiences. In addition, Szymanski and Gupta (2009) explored the relationship between self reported internalized oppression, self-esteem, and psychological distress in a sample of lesbian, gay, bisexual, and transgender individuals who racially identified as Black. Results indicated that internalized racism and internalized homophobia were each significant negative predictors of self-esteem.

Finally, Carter (1991) explored the relationship between racial identity attitudes and psychological functioning in 95 Black college students. Racial identity attitudes were assessed using Cross, Parham, and Helms' (1991) 4 stages of racial identity development. According to these authors, Black individuals progress through the pre encounter, encounter, immersion-emersion, and internalization stages of racial identity development. The pre encounter stage is described as the stage in which the individual devalues his or her race and attempts to deny membership to this racial group. The encounter stage is defined as the time period when individuals have a series of experiences that challenge his or her anti-Black or pro-White attitudes. The immersion-emersion stage is described as the time when an individual becomes deeply involved in exploring Black culture and heritage. Finally, the internalization period is described as the period when the individual internalizes a positive Black identity. The results of this study indicated that pre-encounter racial identity attitudes were significantly positively associated with self-reported anxiety, memory impairment, paranoia, hallucinations, alcohol concerns, and global psychological distress.

Additionally, research has shown that critical beliefs about oneself and negative self-focused thoughts are associated with the development and maintenance of anxiety symptoms in predominantly white samples (Hofmann 2000; Rapee & Heimberg, 1997; Wells et al., 1995). Many theorists suggest that an over identification with one's negative thoughts or emotions exacerbates the cycle of anxiety and contributes to anxious symptomology becoming overwhelming and intolerable (Hayes, Strosahl, & Wilson, 1999). The present study will examine whether internalized racism underlies the

relationship between perceived racist experiences and symptoms of anxiety.

### **Mindfulness, Anxiety, & Racism**

In addition to a need for more research examining the relationship between the experience of racism, anxiety symptoms, and proposed mechanisms in Black populations, there is a need to explore the effectiveness of interventions for anxiety in this population. Given the indications that racism may contribute to anxiety, an important next step would be the exploration of potential interventions that might target the experience of racism as a stressor and mitigate its impact on anxiety. Mindfulness-based treatments may be beneficial in targeting both anxiety symptoms and the potential mechanisms that underlie anxiety in response to racist events.

Mindfulness has been described as paying attention, on purpose, in a particular non-judgmental way (Kabat-Zinn, 1994) and emphasizes an open and expansive awareness of one's thoughts and experiences (Walsh et al., 2009). Mindfulness-based approaches seek to help individuals learn a different, more accepting response to their anxious experiences. Bishop and colleagues (2004) suggest two facets of mindfulness, one that includes self-regulation of one's attitude toward negative internal thoughts and experiences and the second that emphasizes present moment awareness characterized by openness, curiosity, and acceptance. Additionally, Kabat-Zinn (2003) suggests that the cultivation of present moment awareness counteracts the negative effects of rumination over past and future events, which has been shown to contribute to the development and maintenance of both anxiety and depression. Mindfulness emphasizes the importance of

learning to attend to internal and external experiences without judgment, evaluation, or criticism. An additional aspect of mindfulness interventions that has been theorized to decrease anxiety symptoms is reflective responding versus reflexive responding (Hayes, Luoma, Bond, Masuda, & Lillis, 2006). Specifically, mindfulness helps individuals cultivate a deeper understanding of their internal experiences which in turn can allow individuals to respond to situations from a place of understanding and perspective as opposed to responding from a place of reactivity.

Many studies have shown both trait mindfulness and mindfulness based treatments to be associated with less anxiety (e.g., Roemer et al., 2009; Hofmann, Sawyer, Witt, & Oh, 2010). In a laboratory study, Arch and colleagues (2010) found that trait mindfulness was associated with less anxious responding above and beyond the influence of anxious and depressive symptoms in both anxious and nonanxious individuals. A mindfulness based treatment, Mindfulness Based Stress Reduction (MBSR) has been shown to reduce the tendency to ruminate and emotionally react to thoughts and physical sensations (Ramel, Goldin, Carmona, & McQuaid, 2004) and to reduce anxiety and stress (Chiesa & Serretti, 2009; Segal, Williams, & Teasdale, 2002). Koszycki and colleagues (2007) found Mindfulness Based Stress Reduction (MBSR) to effectively treat a sample of individuals suffering from social anxiety. Additionally, Roemer and colleagues (2008) found an acceptance-based behavioral therapy, which includes a significant mindfulness component, to effectively treat and reduce GAD and depressive symptoms in a sample of individuals with a principal diagnosis of GAD.

In relation to Black populations, Graham, West, and Roemer (2012) found trait

mindfulness to moderate the relationship between the experience of racism and anxious arousal in a Black sample of 57 undergraduates, with the relationship between the experience of racism and anxious arousal being significantly stronger at low levels of trait mindfulness than at high levels of trait mindfulness, suggesting mindfulness may buffer the impact of racist experiences on anxious arousal.

Individuals who experience anxiety often have a narrowed attention and focus on future-oriented threatening experiences and this narrowed attention is connected to negative responses to and avoidance of aversive internal experiences, such as anxious thoughts and emotions (Barlow, 2002; Craske, 1999). Anxiety is also associated with avoidance of situations where one might encounter a threat which can interfere with an individual's life values and goals (Roemer & Orsillo, 2005), leading to the exacerbation of distress and anxiety symptoms. This increased distress can lead to attempts at rigid control of internal experiences, which has been found to increase anxious symptomology and decrease quality of life (Hayes et al., 1996). Given the findings that link the experience of racism and anxiety in Black populations, it may be that Black individuals have a very valid experience of narrowed attention and focus on future oriented, threatening experiences of racism. This narrowed attention and focus on the experience of racism can be associated with avoidance of situations where one might experience racism and attempts to rigidly control one's anxious responses to racism. According to this model of anxiety, as Black individuals avoid the aversive internal experiences that arise in the face of racism (i.e., thoughts, emotions, physiological sensations), distress heightens, avoidance of life values and goals occurs, and quality of life decreases.

Research has shown that the experience of racism is connected to a decreased quality of life in multiple domains (Harrell, 2000). Through gaining a more accepting relationship with one's internal experiences, mindfulness-based treatments can provide Black individuals with cognitive and behavioral skills that might help individuals in this community approach the anxiety they experience in the face of racism and gain a sense of agency over their life experiences. Specifically, mindfulness approaches might help Black individuals focus their attention on the present moment and learn to approach the anxious thoughts and emotions that arise in response to the experience of racism, instead of avoiding or attempting to control these distressing anxious thoughts and emotions, which may decrease anxiety and avoidance.

In addition to addressing the anxiety that might come from repeated racist experiences, mindfulness skills might also help Black individuals cope with the internalization of racism that may also be associated with anxiety. Internalized racism has been defined as the acceptance by the marginalized group of the negative beliefs, words, and images about one's racial or ethnic group as truth and this internalization of negative stereotypes has been associated with feelings of worthlessness and powerlessness in African Americans (Szymanski & Gupta, 2009). A key mechanism of mindfulness approaches is the process of seeing your thoughts and feelings as objective events as opposed to seeing the thoughts and feelings as truths, otherwise described as decentering (Shapiro et al., 2006). The cultivation of a different perspective in which thoughts are held more loosely and the idea that these thoughts are not truth has been theoretically and empirically connected to less anxiety (Safran & Segal, 1990; Hayes,

Strohsal, & Wilson 1999; Carmody, Baer, Lykins & Oldendzki 2009). In the context of racism, mindfulness-based approaches, more specifically the decentering that is cultivated in mindfulness practice, might help Black individuals see these negative stereotypes and beliefs as objective thoughts instead of internalizing them as truths which can lead to the feelings of powerlessness, worthlessness, and low self-esteem. The current study looks to cultivate a decentered perspective through an introduction to mindfulness and mindfulness practice.

As described above, the perception of inability to control or have power over one's situation has been associated with the development and maintenance of anxiety disorders and symptomology (Barlow, 2002). Mindfulness based treatments have also been shown to be associated with heightened perceptions of control. Specifically, many mindfulness based treatments focus on perceptions of uncontrollability by teaching clients skills that help them gain mastery over their anxious symptomology in the face of external stressors that may be unalterable (i.e., racism). Treanor and colleagues (2011) found an acceptance-based behavioral therapy, which includes a significant mindfulness component, to be associated with reports of greater perceived control over anxiety in individuals receiving the treatment compared to a waitlist control group and these effects were maintained at 3 and 9 month follow-up time periods. This may seem contradictory because mindfulness-based approaches place a strong emphasis on relinquishing attempts at rigid control of internal experiences. However, rather than focusing on rigid control over one's internal experiences, mindfulness based approaches focus on one's ability to influence one's internal experiences to a degree by using compassion and awareness to



decrease the overwhelming nature of anxiety, which leads to heightened perceptions of control, rather than paradoxical effects associated with rigid efforts at control.

It is important to note that acceptance should not be confused with resignation (Roemer & Orsillo, 2009). Mindfulness skills can help Black individuals cope with and function in the face of racism, which might include taking action towards social justice. The major goal of mindfulness-based treatments is to help individuals learn the skills that will enable them to approach their negative internal experiences and to engage in valued living.

In conclusion, given that anxiety not only exists in Black populations, but is more persistent in Black populations when compared to other racial groups (Breslau et al., 2004), more research is needed to understand the ways that stressors, particularly those specific to Black populations, contribute to the development and maintenance of anxiety in this population. Specifically, the experience of racism has been positively associated with endorsement of anxiety disorders, physiological symptoms associated with anxiety, as well as reduced perception of control and the internalization of negative self-evaluations, both of which may also contribute to the maintenance of anxious symptomology. The possible relationships among these multiple findings need to be more fully understood. An important additional step is to explore interventions that might target the underlying mechanisms of anxiety in Black populations, including emotional responses to racist experiences. Through gaining a more accepting relationship with one's internal experiences, mindfulness may provide Black individuals with cognitive and behavioral skills that can help them approach the anxiety they

experience in the face of racism and gain a sense of agency over their life experiences.

The present study sought to explore the relationships between the experience of racism (both frequency and appraisal of these experiences) and anxiety symptomology and two potential mechanisms, perception of uncontrollability and internalized racism, through which these two experiences may be connected. Additionally, this study took a first step in attempting to explore approaches that might mitigate the impact of racism on anxiety symptomology in Black populations by examining the effect of a brief mindfulness manipulation on anxiety symptoms associated with the experience of racism.

#### Summary of the Current Study

The present study took a first step in attempting to explore the roles of a potential stressor, racism, potential mechanisms, perception of control and internalized racism, and a potential buffering factor, mindfulness, on anxiety symptomology in a Black sample. Study 1 explored the relationships between the experience of racism, internalized racism, perceived control, trait mindfulness and anxiety symptoms. Specifically, study 1 was a cross-sectional study that explored both perceptions of control and internalized racism as two potential mechanisms through which the experience of racism and anxiety symptoms are connected, as well as the potential buffering role of mindfulness in the relationship between racist experiences and anxiety symptoms. Study 2 was an experimental study that explored the causal link between racism and anxiety by looking at the impact of a racially evocative imaginative exercise on anxiety symptoms. The central focus of study 2 was to examine the effects of a brief mindfulness intervention on the anxiety response elicited by a racially evocative imaginative exercise.

**Hypothesis 1:** Experiences of perceived racial discrimination were predicted to be significantly positively correlated with general anxiety and anxious arousal symptoms.

**Hypothesis 2:** Perceptions of control were predicted to mediate the relationship between experiences of perceived racial discrimination and symptoms general anxiety and anxious arousal.

**Hypothesis 3:** Internalized racism was predicted to mediate the relationship between perceived racial discrimination and symptoms of general anxiety and anxious arousal.

**Hypothesis 4:** Trait levels of mindfulness were predicted to moderate the relationship between perceived racial discrimination and symptoms of general anxiety and anxious arousal. We predicted that among Black individuals reporting higher levels of trait mindfulness, there would be a weaker relationship between perceived racial discrimination and general anxiety and anxious arousal symptoms. Conversely, we predicted that among Black individuals experiencing lower levels of trait mindfulness, there would be a stronger relationship between perceived racial discrimination and general anxiety and anxious arousal symptoms.

Using participants from study 1, study 2 explored the impact of a brief mindfulness manipulation on the anxiety elicited by a racially evocative imaginative exercise.

**Hypothesis 5:** A brief mindfulness manipulation was predicted to lead participants to exhibit less of a stress response to a racist stimulus than participants in the control condition. We predicted that individuals who received a brief mindfulness intervention

would report reduced stress and anxious arousal symptoms, as measured by self-reports of subjective units of distress and state anxiety. We also explored whether the brief mindfulness intervention would increase perceptions of control.

CHAPTER 3  
STUDY 1 METHODS

**Participants**

Participants for Study 1 were required to be at least 18 years of age and racially identify as Black in order to address hypotheses 1-4. A total of 250 participants were recruited. Participants were recruited through study announcements via University of Massachusetts Boston (UMB) email. In addition, the researcher made announcements in Psychology courses and distributed flyers on the UMB campus. The researcher also made announcements and left flyers at the UMB campus Black Student Union and in Africana Studies courses. Participants were also recruited through word of mouth outside of UMB and emails and phone calls to community health centers and other community organizations. Only participants who racially identified as Black were included in the sample.

The final sample consisted of 119 participants who identified as Black and completed the necessary study variables. Sixteen percent of the sample identified as male, 83.2% identified as female, and .8% identified as intersex. The ethnicities of study participants varied (48.7% African American, 39.5% Caribbean, 10.9% African, and 0.8% Central American). In reference to immigration status, 79.8% of the sample identified as being US-born and 20.2% of the sample identified

as being born in a different country. The age of participants ranged from 18 to 53 years of age ( $M = 25.52$ ,  $SD = 8.10$ ). 38.7% reported being full-time undergraduate or graduate students, 51.3% reported having jobs in the community and 10% did not report their status. Yearly income level for participants ranged from below \$15,000 to \$200,000 and above (See Table 1). Education level for participants varied in the sample (See Table 2).

Table 1.

*Yearly Income Level*

Yearly Income	Percent of the Sample
\$0- 15,000	22.7%
\$15,001 – 25,000	13.4%
\$25,001 – 35,000	16.8%
\$35,001 – 50,000	14.3%
\$50,001 – 75,000	13.4%
\$75,001 – 100,000	8.4%
\$100,001 – 200,000	2.5%
>\$200,000	.8%

Table 2.

*Education Level*

Yearly Income	Percent of the Sample
8 <sup>th</sup> grade or less	1.7%
1-3 years of High School	1.7%
High School Diploma	10.9%
Vocational School/other non-College	1.7%
1-3 Years of College	59.7%
College Degree	16%
Master's Degree	7.6%

## Measures

Participants completed questionnaires online through Psych Data.

*Demographic Questionnaire.* A questionnaire was administered asking the participants' age, sex, gender identity, race, ethnicity, personal income, family income, immigration history, and how often people perceive them to be the race they are.

The *Schedule of Racist Events* (SRE; Landrine & Klonoff, 1996) is an 18-item self-report measure designed to assess the frequency of perceived racial discrimination in the past year and over a lifetime. This measure also asks participants to rate how much endorsed perceived racial discrimination is evaluated as stressful. For the purposes of the present study we shifted the questions to address frequency of racist experiences over the past week, over the past year, and stress appraisal of these experiences. Participants were asked to answer each question on a 7-point Likert scale looking at the past week (SRE-W), past year (SRE-Y), and stress appraisal (SRE-A). Examples of items on the past week and year frequency subscales include, "How many times have you been treated unfairly by people in service jobs because you are Black?", "How many times have you been accused or suspected of doing something wrong because you are Black", and "How many times have you been made fun of, picked on, shoved, hit, or threatened with harm because you are Black?" The SRE-A asks how stressful each of these experiences was. The original subscales of the measure have shown good concurrent validity in relation to stress-related variables and psychiatric symptoms on the Hopkins Symptom Checklist

(Derogatis, Lipman, Rickels, Uhlenhuth, & Covi, 1974; Landrine & Klonoff, 1996). The SRE-W, SRE-Y, and SRE-A demonstrated good internal consistency in the current sample (Cronbach's alphas for past week, year, and stress appraisal = .93, .92 and .92, respectively).

The *Depression, Anxiety, Stress Scale* (DASS-21; Lovibond & Lovibond, 1995) is a 21-item measure of anxiety and depression symptoms. In particular, this measure is composed of 3 factors, depression (DASS-D), anxious arousal (DASS-A), and stress (DASS-S). As there are many different components of anxiety symptoms, this measure assesses anxious arousal in addition to the worry, tension, and stress related parts of anxiety. Items include "I found it hard to wind down", "I found myself getting agitated", and "I felt scared without any good reason". Participants are asked to respond to questions asking how much each item has applied to their lives over the past week, using a scale that ranges from 0 (Did not apply to me at all) to 3 (Applied to me very much, or most of the time). The DASS-21 has been shown to have adequate construct validity, internal consistency, temporal stability, and reliabilities in a majority White sample (Henry & Crawford, 2005). In a study of coping with racism among a sample of Black college students internal reliability coefficients for the depression and anxious arousal scales were .82 and .88 respectively (West, Donovan, & Roemer, 2010). Additionally, the DASS-21 stress and anxious arousal subscales have shown good internal consistency in a sample of Black students (Cronbach's alpha = .85 & .82, respectively) (Graham, West, & Roemer, in press). For the purpose of this study, anxiety symptoms were



measured using scores from the anxiety and stress subscales (for this study we will call the stress subscale “general anxiety”). The DASS-A and DASS-S Subscales demonstrated good internal consistency in the present study (Cronbach’s alphas = .80 and .83, respectively).

The *Five Facet Mindfulness Questionnaire* (FFMQ; Baer, Smith, Hopkins, Krietemeyer & Toney, 2006) was developed by assessing the factor structure of existing mindfulness measures. The FFMQ consists of 39 items that assess five different facets: non-reactivity (e.g., “I watch my feelings without getting lost in them”), observing (e.g., “I notice the smells and aromas of things”), acting with awareness (e.g., “I am easily distracted”), describing (e.g., “My natural tendency is to put my experience into words”), and non-judging (e.g., “I disapprove of myself when I have irrational ideas”). Participants respond using a 5-point scale, which ranges from 1 = *never or very rarely true* to 5 = *very often or always true*. The five subscales have demonstrated good internal consistency (non-reactivity = 0.75, observing = 0.83, acting with awareness = 0.87, describing = 0.91, and non-judging = 0.87) in majority White samples. In addition, the overall measure has demonstrated good internal consistency in a Black sample ( $\alpha = .90$ ; Graham, West, & Roemer, in press). The FFMQ has demonstrated incremental validity, with three facets (act with awareness, nonjudge, nonreactivity) predicting psychological symptoms beyond the variance accounted for by the other facets, as well as discriminant validity (Baer et al., 2006) in majority White samples. The FFMQ demonstrated good internal consistency in the current sample (Cronbach’s alpha = .86). Although the FFMQ was

developed to look at distinct facets of mindfulness, an overall score was used in the current study to represent overall mindfulness as a single construct (supported by the good internal consistency reported).

The *Anxiety Control Questionnaire-Revised* (ACQ-R, Brown et al., 2004) is a 15 item measure of one's perceived control over anxiety related events. Items reflect perceived control over internal emotional states (e.g., "I am able to control my level of anxiety), external threats (threat control, e.g., "There is little I can do to change frightening events"), as well as stress control, (e.g., "I usually find it hard to deal with difficult problems"). Participants are asked to rate how strongly they agree or disagree with each item on a Likert-type scale that ranges from zero (strongly disagree) to five (strongly agree). Lower scores indicate less perceived control. Factor analysis indicates the presence of three factors, representative of the domains mentioned above, as well as a higher order factor of perceived control in both clinical and non-clinical samples. Scale reliabilities were .71, .73, .73, and .85 for stress control, emotion control, threat control, and the higher order factor of perceived control respectively in majority White samples. This measure has not been used in a Black sample previously. The ACQ-R overall score demonstrated good internal consistency in the current sample (Cronbach's alpha = .83).

The *Cross Racial Identity Scale* (CRIS; Worrell, Vandiver, Cross 2004) is a 40 item self-report measure of racial identity development and internalization of racism. This measure was developed specifically for African American samples. For the purpose of

this study, the Self-Hatred (CRISSH) subscale of the CRIS was used. Participants were asked to rate how strongly they agree or disagree with each item on a Likert-type scale that ranges from one (strongly disagree) to seven (strongly agree). Items on this subscale include “I go through periods when I am down on myself for being Black” and “I sometimes struggle with the feelings about being Black”. The CRIS has demonstrated structural, convergent, and discriminant validity in Black samples (Worrell, Vandiver, & Cross, 2004). The CRIS Self Hatred subscale demonstrated good internal consistency in the current sample (Cronbach’s alpha = .92)

## CHAPTER 4

### STUDY 1 RESULTS

ANOVAS and correlations were conducted to examine relationships among demographic variables and all study variables. No demographic variables were significantly associated with both predictor and outcome variables, therefore no demographic variables were controlled for in subsequent analyses.

Three study variables were significantly positively skewed, SRE-W, SRE-Y, & CRISSH. The SRE-Y and CRISSH subscales were transformed using square root transformation which corrected the skew for both variables. The SRE-W subscale was transformed using Log transformation, because of the extreme nature of the skew, which corrected the skew. These transformed variables were used in all subsequent analyses. Raw score means, standard deviations, and correlations among main study variables are presented in Table 3 (untransformed means are presented for clarity of interpretation).

Ethnic differences on all study variables are presented in table 4 . Ethnic groups were differentiated based on those individuals who reported being African American and those individuals who reported a Black immigrant background (including participants who were born in the US, but reported having an ethnic background associated with a country outside the United States). The Black immigrant background group was made up of individuals who self-identified as any ethnicity

other than African American. A significant ethnic difference emerged on past week frequency of racist events subscale of the SRE, with individuals who did not identify as African American reporting higher frequency of past week racist experiences as compared to individuals who identified as African American [ $t(110)=-1.95$ ,  $p=.05$ ,  $d=.37$ ]. Additionally, there were no significant differences on study variables based on immigrant status. This immigrant status differentiation was based on those individuals who were US born and those individuals who were born in different countries.

Table 3.

Means and Standard Deviations of Variables of Interest (Untransformed)

	Mean	Standard Deviation
DASS-A	5.44	4.69
DASS-S	7.67	5.17
SRE-W	24.85	12.33
SRE-Y	35.81	16.64
SRE-A	42.24	21.15
FFMQ	128.00	18.71
ACQ-R	45.61	12.15
CRISSH	12.58	7.74

*Note:* DASS-A = Depression Anxiety and Stress Scale-Anxious Arousal Subscale ; DASS-S = Depression Anxiety and Stress Scale- General Anxiety Subscale; SRE-W = Schedule of Racist Events, Past Week Frequency subscale; SRE-Y = Schedule of Racist Events, Past Year Frequency subscale; SRE-A = Schedule of Racist Events stress, Appraisal subscale; ACQ-R = Anxiety Control Questionnaire; CRISSH = Cross Racial Identity Scale, Self-Hatred Subscale

Table 4.

*Ethnicity Differences in Anxiety & Stress Symptoms, the Experience of Racism, Perceptions of Control, Internalized Racism and Trait Mindfulness*

	Mean	Standard Deviation	(df)F	Effect Size(Cohen's d)
<b><u>DASS-A</u></b>				
African American	4.74	4.55	(117) -1.61	.30
Immigrant Background	6.11	4.76		
<b><u>DASS-S</u></b>				
African American	7.48	4.82	(113.37) -.41	.08
Immigrant Background	7.87	5.53		
<b><u>SRE-W</u></b>				
African American	22.52	6.41	(76.52) -2.01*	.46
Immigrant Background	27.02	15.74		
<b><u>SRE-Y</u></b>				
African American	35.24	14.71	(109.56) -.36	.07
Immigrant Background	36.35	18.37		

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<b><u>SRE-A</u></b>					
African American Immigrant Background	42.59	19.54	(111.30)	.17	.03
<b><u>ACQ</u></b>					
African American Immigrant Background	47.69	11.91	(116.87)	1.84	.34
<b><u>CRISSH</u></b>					
African American Immigrant Background	11.55	7.36	(116.86)	-1.42	.26
<b><u>FFMQ</u></b>					
African American Immigrant Background	130.51	20.77	(108.17)	1.43	.27
African American Immigrant Background	125.61	16.34			

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*Note:* DASS-A = Depression Anxiety and Stress Scale-Anxious Arousal Subscale; DASS-S = Depression Anxiety and Stress Scale-Stress Subscale; SRE – W = Schedule of Racist Events, Past Week Frequency Subscale; SRE-Y = Schedule of Racist Events, Past Year Subscale; SRE –A = Schedule of Racist Events, Appraisal Subscale; ACQ = Anxiety Control Questionnaire; CRISSH =Cross Racial Identity Scale, Self-Hatred Subscale; FFMQ = Five Factor Mindfulness Questionnaire

\*  $p < .05$

In order to address Hypothesis 1, that experiences of perceived racial discrimination would be significantly positively correlated with general anxiety and anxious arousal symptoms, zero order correlations were conducted between measures of racism (SRE-W, SRE-Y, SRE-A) and anxiety (DASS-A & DASS-S). In addition, for descriptive purposes, we calculated correlations with the measures of perceptions of control (ACQ), internalized racism (CRISSH), and trait mindfulness (FFMQ). As expected, past year experiences of racism and stress appraisal of racist experiences were significantly positively correlated with general anxiety and anxious arousal in this sample. Frequency of past week experiences of racism was also significantly positively correlated with anxious arousal. However, SRE-W was not significantly correlated with general anxiety in this sample.

Additionally, perceptions of control were found to be significantly negatively correlated with anxiety symptoms (DASS-A & DASS-S) and internalized racism in the current sample (CRISSH). Trait mindfulness (FFMQ) was also significantly negatively correlated with anxiety symptoms (DASS-A & DASS-S) and internalized racism (CRISSH). See table 5.



Table 5.

*Correlations Among Study Variables*

	DASS -S	DAS S-A	SRE- W	SRE-Y	SRE-A	ACQ-R	CRISS H	FFMQ
1. DASS-S	--	--	--	--	--	--	--	--
2. DASS-A	.69**	--	--	--	--	--	--	--
3. SRE-W	.18	.26**	--	--	--	--	--	--
4. SRE-Y	.26**	.31**	.70**	--	--	--	--	--
5. SRE-A	.28**	.31**	.64**	.88**	--	--	--	--
6. ACQ-R	-.50**	-.56**	-.05	-.11	-.15	--	--	--
7. CRISSH	.42**	.55**	.36**	.40**	.37**	-.49**	--	--
8. FFMQ	-.28**	-.39**	-.08	-.12	-.05	.59**	-.35**	--

*Note:* DASS-S = Depression Anxiety and Stress Scale- General Anxiety Subscale; DASS-A = Depression Anxiety and Stress Scale-Anxious Arousal Subscale ; SRE-W = Schedule of Racist Events-Past Week subscale; SRE-Y = Schedule of Racist Events – Past Year subscale; SRE-A = Schedule of Racist Events stress appraisal subscale; ACQ-R = Anxiety Control Questionnaire; CRISSH = Cross Racial Identity Scale, Self-Hatred subscale; FFMQ = Five Factor Mindfulness Questionnaire

\*\*  $p < .01$

\*  $p < .0$

Hypotheses 2 and 3 predicted that (a) perceptions of control would mediate the relationship between experiences of perceived racial discrimination and symptoms of general anxiety and anxious arousal and (b) internalized racism would mediate the relationship between perceived racial discrimination and symptoms of general anxiety and anxious arousal. In order to demonstrate mediation, significant correlations need to be initially demonstrated between a) the independent variable (experiences of racism) and outcome (anxiety symptoms), b) the independent variable (experiences of racism) and the

mediator (perceptions of control or internalized racism) and b) the mediator (perceptions of control or internalized racism) and the outcome (anxiety).

### **Mediating Role of Perceptions of Control in the Relationship Between Racism & Anxiety**

Bivariate correlations did not reveal correlations between experiences of racism and perceptions of control. Given these findings, we could not test mediation with these variables.

### **Mediating Role of Internalized Racism in the Relationship Between Racism & Anxiety**

Frequency of past week experiences of racism were not significantly associated with general anxiety, therefore the mediation of internalized racism could not be tested with this set of predictor and outcome. For all other proposed relationships, the necessary significant correlations between independent variable and both mediator and outcome, as well as between mediator and outcome, emerged. Therefore, a series of hierarchical regressions predicting the outcome (anxious arousal or general anxiety symptoms) were conducted in which the independent variable (racist experiences) was entered first, followed by the mediator (internalized stigma). Mediation is demonstrated when the proposed mediator emerges as a significant predictor and the beta weight for the independent variable drops significantly.

For mediation of past week frequency of racist experiences and anxious arousal, bivariate correlations revealed that past week frequency of racist experiences was significantly positively correlated with anxious arousal ( $r=.26$ ,  $p<.01$ ) and internalized

racism ( $r=.36, p<.01$ ). Additionally, anxious arousal was significantly positively correlated with internalized racism ( $r=.55, p<.01$ ). Regression results indicated that internalized racism fully mediated the relationship between past week frequency of racist experiences and anxious arousal ( $beta = .39, p < .01$ ), such that when internalized racism was added to the model, past week frequency of racist experiences was not predictive of anxious arousal ( $beta$  dropped from .78 to -.22). A Sobel test indicated that the indirect effect was significant ( $z = 3.52, p < .001$ ). See table 6.

Table 6.

*The Mediating Effect of Internalized Racism in the Relationship Between the Past Week Frequency of Experience of Racist Events and Anxious Arousal*

	B	SE B	Beta
Step 1			
SRE-W	4.01	.31	.78*
Step 2			
SRE-W	-1.14	1.01	-.22
CRISSH	2.08	.39	1.04*

*Note.*  $\Delta R^2 = .08$  for Step 2. CRISSH = Cross Racial Identity Scale Self Hatred subscale; SRE-W = Schedule of Racist Events past week frequency subscale

\*  $p < .05$

For mediation of past year frequency of racist experiences and anxious arousal, bivariate correlations revealed that past year frequency of racist experiences was also significantly positively correlated with anxious arousal ( $r=.31, p<.01$ ) and internalized racism ( $r=.40, p<.01$ ). Additionally, as noted above, internalized racism was significantly positively correlated with anxious arousal ( $r=.55, p<.01$ ). Regression results indicated that internalized racism fully mediated the relationship between past

year frequency of racist experiences and anxious arousal ( $beta = .88, p < .01$ ), such that when internalized racism was added to the model, past year frequency of racist experiences was not predictive of anxious arousal ( $beta$  dropped from .79 to -.06). A Sobel test indicated that the indirect effect was significant ( $z = 3.83, p < .001$ ).

Table 7.

*The Mediating Effect of Internalized Racism in the Relationship Between the Past Year Frequency of Experience of Racist Events and Anxious Arousal*

	B	SE B	Beta
Step 1			
SRE-Y	.94	.07	.79*
Step 2			
SRE-Y	-.07	.23	-.06
CRISSH	1.76	.38	.88*

*Note.*  $\Delta R^2 = .06$  for Step 2. CRISSH = Cross Racial Identity Scale Self Hatred subscale; SRE-Y = Schedule of Racist Events past year frequency subscale  
\*  $p < .05$

For mediation of stress appraisal of racist experiences and anxious arousal, bivariate correlations revealed that stress appraisal of racist experiences was also significantly positively correlated with anxious arousal ( $r=.31, p<.01$ ) and internalized racism ( $r=.37, p<.01$ ). Additionally, as noted above, internalized racism was significantly positively correlated with anxious arousal ( $r=.55, p<.01$ ). Regression results indicated that internalized racism fully mediated the relationship between stress appraisal of racist experiences and anxious arousal ( $beta = .70, p < .01$ ), such that when internalized racism was added to the model, stress appraisal of racist experiences was not

predictive of anxious arousal (*beta* dropped from .77 to .14). A Sobel test indicated that the indirect effect was significant ( $z = 4.08, p < .001$ ).

Table 8.

*The Mediating Effect of Internalized Racism in the Relationship Between the Stress Appraisal of Racist Events and Anxious Arousal*

	B	SE B	Beta
Step 1			
SRE-A	.12	.01	.77*
Step 2			
SRE-A	.02	.02	.14
CRISSH	1.41	.25	.70*

*Note.*  $\Delta R^2 = .09$  for Step 2. CRISSH = Cross Racial Identity Scale Self Hatred subscale; SRE-A = Schedule of Racist Events stress appraisal subscale

\*  $p < .05$

For mediation of past year frequency of racist experiences and general anxiety symptoms, bivariate correlations revealed that past year frequency of racist experiences was also significantly positively correlated with general anxiety ( $r=.26, p<.01$ ) and internalized racism ( $r=.40, p<.01$ ). Additionally, internalized racism was significantly positively correlated with general anxiety ( $r=.42, p<.01$ ). Regression results indicated that internalized racism fully mediated the relationship between past year frequency of racist experiences and general anxiety ( $beta = .64, p < .01$ ), such that when internalized racism was added to the model, past year frequency of racist experiences was not predictive of general anxiety ( $beta$  dropped from .84 to .23). A Sobel test indicated that the indirect effect was significant ( $z = 3.34, p < .001$ ).

Table 9.

*The Mediating Effect of Internalized Racism in the Relationship Between the Past Year Frequency of Experience of Racist Events and General Anxiety*

	B	SE B	Beta
Step 1			
SRE-Y	1.31	.08	.84*
Step 2			
SRE-Y	.36	.27	.23
CRISSH	1.68	.46	.64*

*Note.*  $\Delta R^2 = .03$  for Step 2. CRISSH = Cross Racial Identity Scale Self Hatred subscale; SRE-Y = Schedule of Racist Events past year frequency subscale

\*  $p < .05$

For mediation of stress appraisal of racist experiences and general anxiety, bivariate correlations revealed that stress appraisal of racist experiences was also significantly positively correlated with general anxiety ( $r=.28, p<.01$ ) and internalized racism ( $r=.37, p<.01$ ). Additionally, as noted above, internalized racism was significantly positively correlated with general anxiety ( $r=.42, p<.01$ ). Regression results indicated that internalized racism fully mediated the relationship between stress appraisal of racist experiences and general anxiety ( $beta = .68, p < .01$ ), such that when internalized racism was added to the model, stress appraisal of racist experiences was not predictive of general anxiety ( $beta$  dropped from .81 to .20). A Sobel test indicated that the indirect effect was significant ( $z = 3.50, p < .001$ ).

Table 10.

*The Mediating Effect of Internalized Racism in the Relationship Between the Stress Appraisal of Racist Events and General Anxiety*

	B	SE B	Beta
Step 1			
SRE-A	.16	.01	.81*
Step 2			
SRE-A	.04	.02	.20
CRISSH	1.79	.30	.68*

*Note.*  $\Delta R^2 = .08$  for Step 2. CRISSH = Cross Racial Identity Scale Self Hatred subscale; SRE-A = Schedule of Racist Events stress appraisal subscale

\*  $p < .05$

**Moderating Role of Mindfulness in the Relationship Between Racism and Anxiety Symptoms**

In order to address hypothesis 4 a series of hierarchical regressions were conducted to test the moderation effects for trait mindfulness (FFMQ) in the relationship between racist experiences and anxiety symptoms. All of the regressions were completed in multiple steps. First, centered scores were computed for all of the predictor and moderator variables (SRE-W, SRE-Y, SRE-A, FFMQ). Second, using either DASS-S or DASS-A (anxiety) as the outcome variable, a predictor and a moderator variable were entered in the first step of the regression; for example, using DASS-A as the outcome measure, frequency of past week racist events and trait mindfulness (centered) were entered in this step. Next, the interaction term was entered in the second step of the

regression; for example, the product of frequency of past week racist events and trait mindfulness (centered) was entered in this step. Steps 1 and 2 were tested separately for anxious arousal symptoms (DASS-A) and stress symptoms (DASS-S) for each of the analyses.

It was predicted that the relationships between the frequency of racist events over the past week (SRE-W) and over the past year (SRE-Y) and anxiety symptoms (DASS-A & DASS-S) would be moderated by trait mindfulness. It was also predicted that the relationship between stress appraisal of these events (SRE-A) and anxiety symptoms (DASS-A & DASS-S) would be moderated by trait mindfulness.

Trait mindfulness did not emerge as a significant moderator of the relationships between frequency of racist events – past week, frequency of racist events – past year, or stress appraisal of racist events in predicting general anxiety symptoms in this sample, although mindfulness, frequency of racist events- past year, and stress appraisal of racist events all emerged as significant unique predictors of general anxiety in these regression analyses (see tables 11 – 13).



Table 11.

*The Moderating Effect of Trait Mindfulness on the Relationship Between the Past Week Frequency of Experience of Racist Events and General Anxiety*

	B	SE B	Beta
Step 1			
FFMQ	-.07	.03	-.15*
SRE-W	5.29	3.06	.09
Step 2			
FFMQ	-.07	.03	-.15*
SRE-W	4.77	3.23	.08
FFMQ x SRE-W	-.09	.16	-.03

*Note.*  $R^2 = .72$  for Step 1;  $\Delta R^2 = .001$  for Step 2. FFMQ = Five Factor Mindfulness Questionnaire; SRE-W = Schedule of Racist Events past week frequency subscale  
\*  $p < .05$

Table 12.

*The Moderating Effect of Trait Mindfulness on the Relationship Between the Past Year Frequency of Experience of Racist Events and General Anxiety*

	B	SE B	Beta
Step 1			
FFMQ	-.07	.03	-.14*
SRE-Y	.94	.37	.13*
Step 2			
FFMQ	-.07	.03	-.14*
SRE-Y	.94	.38	.13*
FFMQ x SRE-Y	-.002	.02	-.005

*Note.*  $R^2 = .73$  for Step 1;  $\Delta R^2 = 0$  for Step 2. FFMQ = Five Factor Mindfulness Questionnaire; SRE-Y = Schedule of Racist Events past year frequency subscale  
\*  $p < .05$

Table 13.

*The Moderating Effect of Trait Mindfulness on the Relationship Between the Appraisal of Racist Events and General Anxiety*

	B	SE B	Beta
Step 1			
FFMQ	-.07	.03	-.15*
SRE-A	.07	.02	.15*
Step 2			
FFMQ	.07	.03	-.15*
SRE-A	.06	.02	.15*
FFMQ x SRE-A	-.001	.001	-.03

Note.  $R^2 = .74$  for Step 1;  $\Delta R^2 = .001$  for Step 2. FFMQ = Five Factor Mindfulness Questionnaire; SRE-A = Schedule of Racist Events Appraisal subscale

\*  $p < .05$

Trait mindfulness also did not emerge as a significant moderator in the relationship between past year frequency of racist events or stress appraisal of racist events and anxious arousal symptoms, although again mindfulness, past year frequency of racist events and stress appraisal of racist events all emerged as independent predictors in these regression analyses (see tables 14 & 15).

Table 14.

*The Moderating Effect of Trait Mindfulness on the Relationship Between the Past Year Frequency of Experience of Racist Events and Anxious Arousal*

	B	SE B	Beta
Step 1			
FFMQ	-.09	.02	-.22*
SRE-R	.99	.30	.18*
Step 2			
FFMQ	-.09	.02	-.23*
SRE-R	.90	.31	.16*
FFMQ x SRE-R	-.03	.02	-.08

Note.  $R^2 = .67$  for Step 1 and  $\Delta R^2 = .006$  for Step 2. FFMQ = Five Factor Mindfulness Questionnaire; SRE-R = Schedule of Racist Events past year frequency subscale

\*  $p < .05$

Table 15.

*The Moderating Effect of Trait Mindfulness on the Relationship Between the Stress Appraisal of Racist Events and Anxious Arousal*

	B	SE B	Beta
Step 1			
FFMQ	-.09	.02	-.23*
SRE-A	.06	.02	.19*
Step 2			
FFMQ	-.09	.02	-.23*
SRE-A	.06	.02	.18*
FFMQ x SRE-A	-.002	.001	-.08

Note.  $R^2 = .68$  for Step 1 and  $\Delta R^2 = .006$  for Step 2. FFMQ = Five Factor Mindfulness Questionnaire; SRE-A = Schedule of Racist Events Stress Appraisal subscale

\*  $p < .05$

Trait mindfulness did significantly moderate the relationship between past week frequency of racist experiences and anxious arousal in this sample. The final step significantly improved the model  $\Delta R^2 = .01$ ,  $F(1, 108) = 57.94$ ,  $p < .05$ . See Table 16.

Table 16.

*The Moderating Effect of Trait Mindfulness on the Relationship Between the Past Week Frequency of Racist Events and Anxious Arousal*

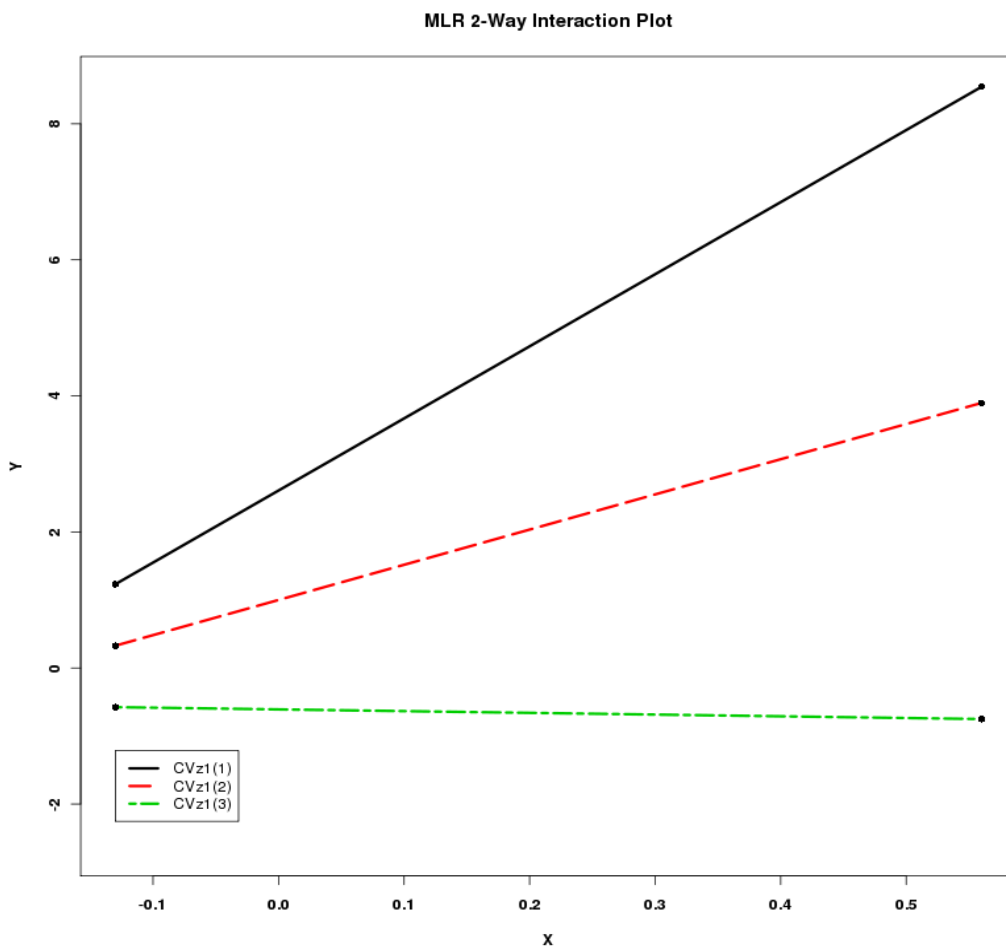
	B	SE B	Beta
Step 1			
FFMQ	-.09	.02	-.23*
SRE-W	6.88	2.50	.15*
Step 2			
FFMQ	-.09	.02	-.23*
SRE-W	5.17	2.58	.11*
FFMQ x SRE-W	-.29	.13	-.13*

Note.  $R^2 = .67$  for Step 1 and  $\Delta R^2 = .01$  for Step 2. FFMQ = Five Factor Mindfulness Questionnaire; SRE-A = Schedule of Racist Events Past Week Frequency subscale

\*  $p < .05$

To interpret this interaction, the method recommended by Preacher and colleagues (2006) was used to identify higher and lower regions of significance. Derived regions of significance specify the upper and lower values of the moderator at which the relationship between the independent and dependent variables differ significantly. This method allows us to only interpret interactions when there are participants who have values of the moderator in the regions of significance, which represents a meaningful approach to the analysis and interpretation of interactions. Simple slopes were calculated for one standard deviation below the mean of the moderator (trait mindfulness), at the mean of the moderator, and one standard deviation above the mean of the moderator. Results indicated that the simple slope was significant at the mean (simple slope= 5.17,  $t=2.01$ ,  $p=.05$ ), and not significant at one standard deviation above the mean (simple slope = .25  $t=.04$ ,  $p=.97$ ). Regions of significance analyses showed that frequency of racist experiences over the past week was significantly positively associated with anxious arousal for values of trait mindfulness lower than the mean, .0753 ( $M = 128.00$ ), and not significantly related to anxious arousal for values of trait mindfulness above the mean, .0753, suggesting high levels of trait mindfulness may buffer the impact of racist experiences on anxious arousal. This was consistent with predictions. See Figure 1.

Figure 1. Two Way Interaction: Mindfulness Moderates Relationship Between Past Week Frequency of Racist Experiences and Anxious Arousal



Note: Y = Anxious Arousal; X= Past Week Frequency of Racist Experiences; CV<sub>z</sub>1 = Relationship at Low Trait Mindfulness; CV<sub>z</sub>2 = Relationship at Mean of Trait Mindfulness; CV<sub>z</sub>3 = Relationship at High Trait Mindfulness

## CHAPTER 5

### STUDY 2 METHODS

The purpose of Study 2 was to examine whether a brief mindfulness manipulation played a causal role in reducing stress associated with a racially evocative imaginative exercise. In the mindfulness manipulation condition, participants experienced a brief mindfulness intervention. In the control condition, participants listened to recorded NPR articles about the origin of pies and electric cars and worked on a word search puzzle. We posited that engagement in the mindfulness manipulation would lead participants to exhibit less of a stress response to a racist stimulus than participants in the control condition. We predicted that individuals engaged in the mindfulness manipulation would demonstrate less racism-related stress and less anxiety than participants in the control condition, as measured by self-reported state anxiety (Brief State Anxiety Measure; BSAM), and self-reported stress (Subjective Units of Distress Scale; SUDS), in response to a racism-related imaginative exercise.. We also explored whether the mindfulness manipulation would lead to increased perceptions of control among participants in the mindfulness condition compared to those in the control condition.

## Participants

For Study 2, inclusion criteria were based on responses to questions in Study 1. In order to ensure that the racist stimulus used in Study 2 would be personally relevant and that it would be easily understood, we chose to use inclusion criteria that ensured that the participants did perceive racism currently in their lives and were, in fact, often perceived as Black and had been exposed to English for a number of years. To be included in Study 2, participants must have reported having experienced racism over the past week or year (a score of 1 or above on a single item on either subscale of Schedule of Racist Events), usually being perceived as Black (a score of 4 or above on demographic questionnaire item, “How often do people perceive you to be the race you are?”), and speaking English for at least five years (a question from the demographic questionnaire).

We contacted 71 self-identified Black American participants from Study 1 who met criteria for Study 2. We were able to recruit 30 participants (4 males and 26 females) who agreed to participate in the laboratory portion of the study (Study 2). There were no significant differences in experiences of racism or demographic variables among those who agreed to participate in Study 2 and those who did not.

The mean racism-related stress score on the SRE for the current sample was 46.55<sup>1</sup>. The mean age of participants was 28.07 (SD=9.62). Thirteen participants ethnically identified as African American; twelve participants identified as Afro-Caribbean; and one participant identified ethnically as each of the following: Guatemalan; Sierra Leonean; Puerto Rican; and African American, Native American, and

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<sup>1</sup> In the development study of the Schedule of Racist Events scale (SRE), Landrine and Klonoff (1996), reported the following central tendency data: M = 51.47, Mdn= 49, and Mode = 17. No standard deviations were reported in this study.

Irish together. In reference to immigration status, 86.7% of the sample reported being born in the United States and 13.3% of the sample reported being born outside of the United States. Three participants identified as full-time students, two participants did not report their current occupation, and twenty-five participants reported having jobs in the community. Income levels and education varied in the sample. See tables 17 & 18.

Table 17.

*Yearly Income Level*

Yearly Income	Percent of the Sample
\$0- 15,000	23.3%
\$15,001 – 25,000	10%
\$25,001 – 35,000	16.7%
\$35,001 – 50,000	20%
\$50,001 – 75,000	10%
\$75,001 – 100,000	10%
\$100,001 – 200,000	3.3%
Did not report	6.7%

Table 18.

*Education Level*

Yearly Income	Percent of the Sample
1-3 years of High School	3.3%
High School Diploma	6.7%
Vocational School/other non-College	3.3%
1-3 Years of College	66.7%
College Degree	13.3%
Master's Degree	6.7%



## Measures

*Brief State Anxiety Measure (BSAM; Berg, Shapiro, Chambless, & Ahrens, 1998).* The BSAM contains 6 of the 20 items (relaxed, steady, strained, comfortable, worried, tense) of the State-Trait Anxiety Inventory (STAI; Spielberger, 1983). Berg et al. (1998) report a high correlation ( $r=0.93$ ) between the BSAM and the STAI. Additionally, the BSAM had good internal consistency (.83). This measure was used periodically throughout the experimental portion of this study to assess current anxiety. The BSAM demonstrated good internal consistency at baseline (Cronbach's alpha = .88), after the first imaginal exercise (Cronbach's alpha = .80), and after the second imaginal exercise (Cronbach's alpha = .85).

*Subjective Units of Discomfort (SUDS; Hope et al., 2000; Wolpe & Lazarus, 1967).* SUDS ratings ask client's to rate their current anxiety on a scale from 0 indicating "No anxiety, calm, relaxed" to 100 indicating "Very severe anxiety, the worst ever encountered." Before and after the imaginal exercise, participants were asked to rate their current level of discomfort using this 0-100 scale. SUDS have been used as a measure of emotional processing in numerous studies.

*Racism-Related Imaginal Exercise.* The participants in this study listened to a pre-recorded vignette describing a shopping trip to a jewelry store. Participants were asked to imagine that they themselves were shopping in the store. The vignette consists of

racism-related information and is designed to elicit racism-related stress. It was used in a previous study in our lab (West, Graham, & Roemer, 2013) and was associated with significant increases in SUDS scores and race-related stress in a sample of Black American undergraduate and graduate students, confirming its validity.

*First, I would like for you to close your eyes and get comfortable in your chair. [pause for a moment] I would like for you to now imagine yourself approaching a jewelry store that you would like to go into to purchase a watch. [pause] Now you are opening the door to the store and you are making eye contact with the White salesperson. You notice the salesperson looks at you, but does not speak to you. You begin to walk over to a watch display counter. Your eyes are drawn to the shiny and sparkling timepieces. Through the glass counter, you find yourself moving your fingers across the glass as you look at the watches. When you see your favorite watches, you even find yourself bending down to view them at eye level. While you are looking around, you notice someone else entering the store. As soon as the White customer enters the store, you hear the salesperson say, "Welcome! Please let me know if there is anything I can help you with today." [pause] You begin to wonder why you are being ignored. [pause] You continue walking around the watch counters. You begin trying to make eye contact with the salesperson so that the watch display counters could be unlocked for you to try on the watches you like. As you are doing this, you hear the salesperson offering to unlock the watch counters for the person who entered the store after you. Now, you begin to walk over to the counter by the salesperson and other customer. You are waiting. [pause] You are still waiting [pause]. After some moments of waiting, you decide to say, "May I please try on a watch?" The salesperson does not make eye contact with you and continues to look down at the watch counter. After a second or two, you say, "Excuse me." But before you can make your request again, the salesperson interrupts and says, "Is there something I can help you with?" [pause] When you are ready, you can open your eyes and bring your attention back to the room.*

*The Toronto Mindfulness Scale (TMS; Lau et al., 2006) is a state measure of mindfulness. This measure consists of 10 items, and asks participants to rate what they just experienced on a scale from 0 (not at all) to 4 (very much). The TMS is designed to capture the extent to which the participant experienced a feeling of heightened awareness,*

as well as a quality of that awareness that consists of openness, curiosity, and acceptance (Lau et al., 2006). This measure was used in the experimental study as a manipulation check to make sure that mindfulness was induced. The TMS demonstrated adequate internal consistency in the current sample (Cronbach's alpha = .75). In addition, the subscales of the TMS demonstrated adequate and good internal consistency in the current sample (decentering subscale: Cronbach's alpha = .69 , curiosity subscale: Cronbach's alpha = .91)

*Vividness of Visual Image Question* . To determine whether participants were imagining the racist scenario, participants were asked on a scale of 1 (perfectly clear and as vivid as normal vision) to 5 (no image at all, you only “know” that you are thinking of the situation) “*How vivid were the images in this vignette?*” after each imagery period.

*Perceptions of Control Over Thoughts*. To explore the impact of the experimental manipulation on perceived control over thoughts during the racist scenario, participants were asked on a scale of 1 (being the least control) to 5 (being the most control) “*How much do you feel in control of your thoughts?*” following the second racist imaginal scenario.

*Open-ended questions*. Participants in the who listened to the brief mindfulness intervention (both participants in the mindfulness condition and participants in the control condition who opted to listen to the intervention after the manipulation) were asked a series of open-ended questions following the mindfulness manipulation to preliminarily explore the feasibility and acceptability of mindfulness in the current sample. The

questions included, “How did you feel following the instructions for being mindfully aware?

Did you feel that practicing during the experiential exercises was helpful? Why or why not? Would practicing mindfulness be something you might want to do again? Was there anything in the instructions or in the experiential exercises that did not seem useful or that you responded to negatively? If so, what? ”

### **Procedure**

The laboratory space utilized for the experimental sessions in this study was provided by the Department of Psychology at the University of Massachusetts Boston. The laboratory consists of two adjacent rooms. The participant room contains a desk, computer, and intercom for communication between the participant and the experimenter. The participants completed the experimental tasks in this room. The second room contains a desk, computer, and physiological equipment including a Biopac encoder, heart rate electrodes, skin conductance sensors, and AcqKnowledge 3.9 software. In addition, the two rooms that were used for experimental procedures are equipped with audio and visual monitoring systems, in order to observe participants during the study.

Participants were randomly assigned to a mindfulness intervention or control condition using block randomization, by balancing on biological sex, ethnicity (African American and Immigrant background), and mindfulness. We used the median score on the FFMQ in a previous Black American sample,  $M=128$  (West, et al., 2013) to randomize participants to the mindfulness or control conditions based on high and low

scores on the FFMQ completed in Study 1 in order to have an equal distribution of trait mindfulness scores across condition. Participants who ethnically identified as African American were randomized separately from individuals who identified as being Black, but having a different ethnicity than African American. We did not have enough power to analyze the groups separately and, instead, analyzed all 30 participants together. Sixteen participants were randomized to the mindfulness condition and fourteen participants were randomized to the control condition.

When participants arrived at the lab, they were informed that the study examined responses to different tasks and reminded that they could choose not to answer any questions or withdraw their participation at any time. Once written informed consent was obtained, the experimenter helped familiarize the participant with the materials in the laboratory room. The experimenter communicated to the participant through a two-way intercom for the duration of the study in order to minimize social desirability effects.

Participants first completed a baseline anxiety assessment that included the Brief State Anxiety Measure (BSAM; Berg, Shapiro, Chambless, & Ahrens) and Subjective Units of Distress (SUDS; 0-100; Wolpe & Lazarus, 1967). They also acclimated to the room for a five minute baseline period by sitting quietly in a chair.

After completion of these measures, the participants listened to the following instructions for the imaginal exercise spoken by the experimenter into the intercom. These instructions were spoken each time the participants listened to the racially evocative imaginative exercise.

“Next you will listen to a recording that describes an event that I would like for you to imagine is happening to you right now. It is important that you listen to this event very carefully so that you can really see yourself experiencing the event. Remember, you can withdraw your participation at anytime”

After participating in this imaginal exercise, participants were asked to report their SUDS on a scale of 1-100. Next, the participants were asked on a scale of 1 (perfectly clear and as vivid as normal vision) to 5 (no image at all, you only “know” that you are thinking of the object) “How vivid were the images in this vignette?” The participants were then asked to complete the Brief State Anxiety Measure (BSAM; Berg, Shapiro, Chambless, & Ahrens).

At this time the participants in the mindfulness condition were asked to listen to a brief audio recording that included an introduction to the principles of mindfulness, followed by engaging in an experiential mindfulness exercise. Similar procedures have been shown to elicit self-reported mindfulness in laboratory experiments (e.g., Erisman & Roemer, 2010; Hayes-Skelton, personal communication). In the control condition, participants were asked to listen to two audio recorded National Public Radio (NPR) articles, followed by engaging in a pizza themed word search puzzle. The first article was about electric cars and the second article was about the origin of pies. This nonspecific factor control condition allowed us to control for the amount of time that participants were actively engaging with the experimenter. For the full description of the

mindfulness and control manipulation see appendix A. The voice in the recording was the same for both conditions. For both conditions, the recordings and activities took approximately 15 minutes. Participants in both conditions were then asked to complete the Toronto Mindfulness Scale (TMS; Lau et al., 2006) as a manipulation check, in addition to another SUDS rating.

All participants then listened to the audio vignette of the racist-related imagine exercise again, and completed SUDS, vividness, BSAM measures, and a question about participants' perception of control. At this point, participants in the control condition had an opportunity to experience the mindfulness condition if they chose and then all participants answered the open-ended questions about mindfulness. All participants were then debriefed. The experimental protocol is presented in table 19.

Table 19. *Experimental Protocol for Study 2*

Step 1	Baseline SUDS and BSAM Ratings (Initial 5 minute recovery period prior to ratings for the purposes of physiological assessment))
Step 2	Listen to Audio Vignette
Step 3	SUDS, Visual Vividness Question, & BSAM
Step 4	3 Minute Physiological Recovery Period (for the purposes of physiological assessment)
Step 5	15 Minute Intervention (Mindfulness or Control)
Step 6	SUDS & Toronto Mindfulness Scale (Manipulation Check)
Step 7	Listen to Audio Vignette for the Second Time
Step 8	SUDS, Visual Vividness Question, BSAM, & Perceptions of Control question
Step 9	Open-ended Responses to Mindfulness Questions
Step 10	Debriefing

## CHAPTER 6

### STUDY 2 RESULTS

Data were screened for skewness and kurtosis in order to test assumptions of normality. There was no indication of asymmetry among the measures of interest; therefore, no transformations were necessary.

#### **Manipulation and Randomization Checks**

To test the validity of the intervention, the Subjective Units of Distress (SUDS) measure and the Brief State Anxiety Measure (BSAM) were administered at different points throughout the study. The SUDS was administered at baseline, immediately after the first imaginal exercise, immediately after the mindfulness manipulation, and again at the end of the experiment. The BSAM was administered at baseline, after the first imaginal exercise and again at the end of the experiment. Independent *t*-tests revealed no significant differences between conditions at baseline assessment on the SUDS [ $t(28) = -1.18, p = .25, d=.43$ ] or on the BSAM [ $t(27) = .11, p = .91, d= .04$ ], providing evidence that randomization achieved pre-intervention equivalence of conditions. However, the difference in SUDS across condition at baseline, as evidenced by the medium effect size, suggests that the control condition participants may have been more distressed at baseline compared to the mindfulness participants. See table 20 for means and standard deviations in each condition across time points.



Table 20. Means (and standard deviations) for SUDS and Brief State Anxiety Measure (BSAM) at each timepoint (N= 30)

	Mindfulness Condition	Control Condition
Baseline SUDS	15(22.80)	27.14(33.15)
Baseline BSAM	10.18(4.66)	10(3.61)
Post 1 SUDS	24.29 (24.29)	32.14 (30.43)
Post 1 BSAM	12.5 (4.10)	11.62 (3.40)
Int SUDS	19.33 (22.82)	22.86 (30.24)
Post 2 SUDS	20 (23.30)	25.71 (28.75)
Post 2 BSAM	10.13 (3.91)	10.31 (3.37)

*Note.* Baseline SUDS = Baseline subjective units of distress; baseline BSAM = Baseline Brief State Anxiety Measure; Post 1 SUDS = subjective units of distress following the first imaginative exercise; Post 1 BSAM = Brief State Anxiety Measure following the first imaginative exercise; IntSUDS = SUDS following the manipulation; Post 2 SUDS = SUDS following the 2<sup>nd</sup> imaginative exercise; Post 2 BSAM = Brief State Anxiety Measure following the 2<sup>nd</sup> imaginative exercise

In addition, correlated t-tests were performed to examine the effects of the audio vignette. Results indicated that there was a significant difference in self-reported SUDS scores from baseline (M = 20.67, SD = 28.28) to immediately after the first audio vignette (M = 28.00, SD = 27.22) indicating that the audio vignette successfully elicited a significant increase in subjective distress for the full sample [ $t(29) = -2.45, p = .02$ ]. Results also indicated that there was a significant difference in self-reported BSAM

scores from baseline ( $M = 10.10$ ,  $SD = 4.15$ ) to immediately after the first audio vignette ( $M = 12.10$ ,  $SD = 3.76$ ) indicating that the audio vignette successfully elicited a significant increase in state anxiety for the full sample [ $t(28) = -3.01$ ,  $p = .005$ ].

In order to ensure that participants in each condition were visualizing the vignette with comparable vividness, comparison of means on the vividness of visual imagery question were conducted between conditions. Participants' responses ranged from perfectly clear to having no image at all. T-tests revealed no significant differences between conditions on participants' level of visual vividness while listening to the vignette after the first vignette [ $t(28) = -1.42$ ,  $p = .26$ ,  $d = .52$ ] and after the second vignette [ $t(27) = -1.16$ ,  $p = .26$ ,  $d = .52$ ] (See Tables 21 and 22 for means between groups).

Table 21. *Pre-visual vividness means between conditions*

Condition	Mean (SD)
Mindfulness	3.31 (2.30)
Control	4.64 (2.82)

Table 22. *Post-visual vividness means between conditions*

Condition	Mean (SD)
Mindfulness	2.93 (1.91)
Control	3.86(2.28)

However, the difference in visual vividness across condition after the first and second vignettes, as evidenced by the medium effect sizes, suggests that the control condition participants may have imagined the vignette less vividly than the mindfulness participants at both time points.

To test the validity of the mindfulness manipulation, independent *t*-tests were conducted on the Toronto Mindfulness Scale (TMS) subscales (curiosity & decentering) scores after the experimental condition, comparing conditions. *T*-tests revealed no significant differences between conditions on the TMS curiosity subscale [ $t(27) = -.20, p = .96, d = .27$ ] or the TMS decentering subscale [ $t(27) = 1.48, p = .15, d = .38$ ]. However, a small to medium effect size emerged on the decentering subscale suggesting that the mindfulness manipulation may have been marginally effective in teaching mindfulness to the participants in the mindfulness condition. See tables 23 & 24 for means and standard deviations of TMS subscales.

Table 23. *Means and Standard Deviations TMS curiosity subscale*

Condition	Mean (SD)
Mindfulness	13.53 (5.66)
Control	13.94 (5.64)

Table 24. *Means and Standard Deviations TMS decentering subscale*

Condition	Mean (SD)
Mindfulness	15.62 (5.55)
Control	12.71(4.98)

### Testing Hypotheses

In order to test Hypothesis 5, analyses of covariance (ANCOVA) were conducted to examine the differences between participants in the mindfulness and control conditions on levels of stress and anxiety, as measured by the SUDS and BSAM, after the mindfulness manipulation. We predicted significant effects on the SUDS and BSAM with participants in the mindfulness condition reporting less stress and anxiety in

response to the second imaginal exercise, when compared to participants in the control condition.

The first ANCOVA examined the difference between conditions (mindfulness or control) on self-reported subjective units of distress after the post-mindfulness (or control) audio vignette and activity, while controlling for self-reported subjective units of distress immediately after the first audio vignette. Condition assignment had no significant effect on overall subjective units of distress,  $F(1, 29) = .13, p = .73, \eta_p^2 = .005$ , suggesting that there was no difference between conditions on SUDS scores after the second audio vignette controlling for the first.

The second ANCOVA examined the difference between conditions (mindfulness or control) on state anxiety (BSAM) after the post-mindfulness (or control) audio vignette, while controlling for state anxiety (BSAM) immediately after the first audio vignette. Condition assignment had no significant effect on overall state anxiety,  $F(1, 27) = .23, p = .64, \eta_p^2 = .009$ , suggesting that there was no difference between conditions on BSAM scores after the second audio vignette controlling for the first.

In order to explore differences in perceptions of control in response to the racist scenario across conditions following the manipulation, mean perceptions of control were compared between conditions.  $X$  T-tests revealed no significant differences between conditions on participants' level of perceptions of control following the second vignette [ $t(27) = -.42, p = .68, d = .16$ ].

In order to assess the feasibility and acceptability of mindfulness in the current sample, participants in the mindfulness condition (and some participants who listened to

the mindfulness manipulation after the experimental portion of the study was over) were asked a series of open-ended questions about their experience of the mindfulness manipulation. Overall, 20 participants were asked open-ended questions about their experience of the mindfulness manipulation. All participants had a positive response to the mindfulness manipulation and six participants had negative or neutral experiences with the mindfulness manipulations. The following are examples of participants' positive responses to the mindfulness manipulation.

“I felt more aware like I felt more relaxed like you know what’s going on I don’t know how to explain it it’s like you feel more peaceful.”

“Um I just felt like it was um it was interesting and I felt like it’s kind of cool it’s like being mindful of your mind, like considerate of your mind basically and that’s pretty cool.”

“Um, I actually felt better, because I felt it’s like a new way, a new approach of dealing with stress. Like just being mindfully aware—me, I’m absent-minded anyway, so I actually took, took more, more into it, because, um—you know, just me dealing with stress overall, in general, it is, it does help to be more mindfully aware of your surroundings and actually what’s going on, what the actual situation that you’re dealing with. And it’s actually an easier way to cope than to just sit and just think about it and just stress and, you know, or whatever, you know, you do, as far as when you’re stressed. I like it.”

“Um, felt the weight lifted off my shoulders like, I was able to separate myself from the experience or whatever *muffled* it was nice.”

One participant, from a Christian background, spoke about the ways that mindfulness was congruent with her religious practices and belief system:

“Well, I come from like a hyper-Christian and Midwestern background. And so, mindfulness is like a giant part of our church and our outreach and things. And they're always telling you to, like, every single time one thought comes into your head to, like, "Step back, and see how that thought is really affecting you, and everyone and everything, and God," and Yeah.”

Although most participants had positive responses, six participants had negative or neutral experiences, which seemed to have different reasons behind them. For instance, one participant found it difficult to become more aware of her struggles:

“Well that was kinda uncomfortable (*laughs*). It’s odd because you know lately I’ve been really mindfully aware, of unsuccesses, you know like in my life and it’s very disappointing that I’m not discouraged and then in my awareness of what I am feeling and remembering I notice that I hang onto these memories and emotions and there just a dead weight and just like so heavy sometimes it’s just like this is like such a coincidence that some of these questions was on it.”

One participant felt put off by the instructions, as if she was being reprimanded or told that she was not thinking correctly or dealing with things correctly:

“I felt... I felt like they were um, good instructions, but I kind of felt like I was being, like, a little bit reprimanded. Like I wasn't being mindfully aware. Or like, ‘You might jump to conclusions, and you should not.’ It kind of tinged how I took the instructions a little bit.”

Other participants felt neutral about the experience:

“It was like fifty-fifty for me. I didn’t find it helpful, and I didn’t find it not helpful. It was kind of like, I was kind of like neutral with it.”

These findings summarize the open-ended responses of the participants who experienced the brief mindfulness intervention. The majority of participants responded positively to the mindfulness manipulation, with many commenting on how they felt it helped them in response to stress. In addition to these positive responses, some participants had neutral or negative responses that are also important to consider in future work.

## CHAPTER 7

### DISCUSSION

While the literature establishes a prevalence and persistence of anxiety in Black populations (Breslau et al., 2004), little research has explored potential stressors that contribute to the development and maintenance of anxiety disorders and potential buffering factors. The present study furthers the literature by exploring the association between experiences of racism and anxiety in a Black American sample. Additionally, the current study explored potential mechanisms, perception of control and internalized racism, through which racism and anxiety may be connected in Black populations. In addition, a preliminary exploration of the ways that trait mindfulness may serve as a buffer against the experience of racism and help individuals cope with the anxious symptomology that is associated with the experience of racism was conducted. Finally, the present study explored the causal effects of a brief mindfulness manipulation on anxiety symptoms elicited by a racially evocative imaginative exercise.

As expected, past week frequency of racist experiences was significantly positively associated with anxious arousal. Furthermore, frequency of past year experiences of racism and stress appraisal of racist experiences were significantly positively associated with both anxious arousal and general anxiety in this sample. These findings are in line with previous findings that have established the negative impact of

racism on general mental health (Barnes & Lightsey, 2005; Pieterse & Carter, 2007) and the few studies suggesting a positive association between racism and anxiety more specifically (Rucker, West, & Roemer, 2009; Soto et al., 2011, Donovan et al., 2012). Unexpectedly, past week experiences of racism were not significantly associated with general anxiety symptoms. While surprising, a potential explanation for these findings has been explored in a recent study with a Latino/a sample where more frequent higher stress experiences of racism did not predict anxiety symptoms, but more frequent lower stress experiences of racism did predict anxiety symptoms, suggesting that the types of racist events assessed in the SRE may not have an equal impact on anxious symptoms (Huynh, Devos, & Dunbar, 2012). Additionally, Donovan and colleagues (2012) found that more overt experiences of racism predicted anxious symptomology, while more covert experiences did not, in a sample of Black women. These findings are worthy of further exploration in Black American samples, with more attention paid to categorizing the types of racist events (e.g. examining severity of experience), rather than aggregating or viewing each item in isolation.

An alternative explanation may be that untested moderators masked this particular association. For instance, previous research (Graham & Roemer, 2012) revealed that church-based social support moderated the relationship between racist experiences and general anxiety symptoms in a sample of Black individuals who attend church. An additional potential explanation, given that frequency of past year racist experiences were positively associated with general anxiety, may be that past week racist experiences do not impact general anxiety because general anxiety symptoms are more chronic



symptoms as opposed to acute. In addition, exploratory analyses revealed that, when separated into subgroups based on ethnicity, past week experiences of racism and general anxiety were significantly positive in the Black immigrant background group, but not significant in the African American group. These exploratory findings suggest that ethnic background is an important consideration in the relationship between racism and anxiety. More research is needed to elucidate these ethnic differences.

There is also significant heterogeneity in Black American populations based on varying levels of racial identity, socioeconomic status, ethnic background, geographic locations, and immigration status which may affect the experience of racism and/or its relation to anxiety. Specifically, Sellers and colleagues (1998) suggest that racial identity differs for African Americans based on their attitudes and beliefs associated with being Black and process of identity development. Future research might explore the impact of racial identity development on the relationship between Black Americans' experiences of racism and symptoms of anxiety.

As expected, trait mindfulness was found to moderate the relationship between frequency of past week racist experiences and anxious arousal symptoms in this sample, such that the relationship between past week frequency of racist events and anxious arousal was significant at low levels of trait mindfulness and not significant at high levels of trait mindfulness. Given the literature suggesting a positive link between racism and anxiety and the literature suggesting mindfulness to be negatively associated with anxious symptomology, it is not surprising that at low levels of trait mindfulness, anxious arousal and past week frequency of racist experiences were significantly positively

related. It may be that mindfulness is particularly helpful during acute experiences of anxious arousal and physiological responses to racist experiences. These findings suggest that mindfulness skills may serve as a buffer to the negative impact of racist experiences on anxiety symptoms for Black Americans. Specifically, through the cultivation of present moment awareness, acceptance, self compassion, and decentering , it may be that mindfulness may help Black Americans with the acute anxiety that arises in the moment and helps individuals make choices that reflect their values.

Contrary to hypotheses, trait mindfulness did not moderate the relationships between past year frequency of racist experiences or stress appraisal of racist experiences and general anxiety or anxious arousal. As noted above, Graham and Roemer (2012) found church-based social support moderated the relationship between the experience of racism and general anxiety in a sample of church-going Black individuals such that at low levels of church-based social support the relationship between the experience of racism and general anxiety was significantly positive and it was not significant at high levels of church-based social support. It may be that church-based social support is more helpful to Black individuals when it comes to general anxiety symptoms following racist experiences, while mindfulness may be more helpful during acute experiences of anxious arousal elicited from racist experiences. Additionally, it may be that different moderators produce a differing buffering effect. Specifically, it may be that arousal symptoms are better buffered by mindfulness practice targeting those symptoms. Moreover, the long term stress response to racist experiences that accumulate over a lifetime may be better targeted by social support through a culturally meaningful source

such as the church. It may also be the case that a retrospective account of experiences of racism may not be the most appropriate indicator of the effectiveness of mindfulness. Given that these findings were based on self-reports and that there were no additional measures of mindfulness activities it may be that participants' responses on the FFMQ were not accurately reflective of their actual behavior. Additionally, it is also important to note that the measures used in the present study addressed somewhat different time frames. Specifically, the anxiety measure (DASS-21) inquires about participants' experiences of anxious arousal and general anxiety symptoms over the past week, while only one of the subscales of the SRE measured past week experiences of racism, while the other subscale of the SRE inquired about racist events in the past year. These differences may, in part, account for the modest association between the stress appraisal of racism and frequency of racist experiences over the past year and anxious arousal and general anxiety in this sample.

Unexpectedly, perceptions of control were not significantly associated with experiences of racism in the present sample, therefore mediation was not tested. One possible explanation is that the items in the ACQ-R did not address anxiety specific to racist experiences. It may be important for future research to address perceptions of control of internal and external experiences specific to the experience of racism as opposed to anxiety more generally. The ACQ-R also has not been validated in Black American samples which may mean that perceptions of control were not measured accurately in the current sample. Given that control may be a complex construct, it may be important to be able to expand the measurement of perceptions of control to the

externalization, versus internalization, of responsibility for racist experiences and the impact of this construct on anxiety symptomology.

Also unexpectedly, internalized racism did not mediate the relationship between past week experiences of racism and general anxiety symptoms. Again, a potential explanation may be that past week experiences of racism present more of an acute association with general anxiety whereas past year experiences may represent the more chronic nature of general anxiety symptoms. However, as expected, internalized racism mediated the relationship between frequency of past week and past year experiences of racism and stress appraisal of racist experiences and anxious arousal and general anxiety. These findings are in line with previous research that suggests internalized racism has a negative impact on mental health in Black American populations (Parham & Helms, 1985; Carter, 1991; Szymanski & Gupta, 2009). Taken together, these findings suggest that internalized racism may be a risk factor that connects experiences of racism to anxiety and should potentially be a focus of treatment, among others, for Black American individuals who both experience racism and struggle with anxiety.

Study 2 used an experimental manipulation to examine the effects of a brief mindfulness manipulation on subjective units of distress and state anxiety symptoms in response to a racially evocative stimulus. Results indicated that engaging in a brief mindfulness manipulation did not buffer participants' experience of stress and anxiety. Several explanations for these findings are possible. Specifically, results showed no differences in scores on the state mindfulness measure between conditions, although a medium to large effect size emerged on the decentering subscale. This may indicate that

the mindfulness condition experienced more of a decentered perspective after the manipulation, suggesting the intended effect of the manipulation. However the size of this effect and its lack of statistical significance suggests it may not have been sufficient to effect anxiety and stress symptoms. Additionally, results showed that the control condition imagined the racially evocative stimulus significantly less clearly than those participants in the mindfulness condition. Thus, participants in the mindfulness condition may have had a more intense exposure (because it was more vivid) to cope with, which could have reduced the apparent effectiveness of the mindfulness manipulation for the individuals in the mindfulness condition. It also may be that the mindfulness manipulation was too brief and did not effectively teach mindfulness to the participants. The means in the mindfulness condition on the state mindfulness measure were lower when compared to other studies that used a similar mindfulness manipulation (Erisman & Roemer, 2010). In addition, one participant indicated that she had a difficult time focusing on negative emotional experiencing during the mindfulness intervention. This may indicate that it was more difficult to induce mindfulness in this particular context, specifically, in the context of the racially evocative stimulus. In a therapeutic context, it takes time for clients to cultivate mindfulness skills (i.e. – present moment awareness, self-compassion, decentering). Perhaps longer manipulations or interventions across time would be more effective. In response to the mindfulness manipulation, one participant felt that she was being bossed around during the instructions and throughout the manipulation. In the context of therapy, therapists may want to adjust their wording when applying mindfulness with clients to have a more suggesting and positive tone.

Additionally, results indicated that the racially evocative imaginative exercise elicited a significant amount of anxiety in participants and it may be that the heightened anxiety coupled with the difficult nature of cultivating mindfulness, made it difficult for participants to engage in the mindfulness exercises and learning.

Despite the findings that the brief mindfulness manipulation did not buffer participants' experience of stress in this study, several participants who experienced the mindfulness manipulation reported having a positive experience with mindfulness. These responses in addition to the buffering effects of trait mindfulness in the current study and in the literature (Graham, West, & Roemer, in press) suggest that the use of mindfulness based strategies warrant further exploration in research and clinical settings with Black Americans who experience anxiety in response to racism.

## **Limitations**

### **Study 1**

There are several limitations that are important to consider when interpreting the results of the present study. First, the cross-sectional design limits predictive and causal conclusions that can be drawn from the data. It is also important to note that neither the FFMQ nor DASS-21 have been validated in Black samples. Additionally, self-report measures constrain an individual's responses to the choices presented. These constraints do not allow individuals to respond fully to the questions asked and may exclude important information about participants' experiences. Self-report measures also assume that participants have a certain level of awareness of their internal experiences, which is not always present.

Another important limitation to be kept in mind when interpreting the findings of the present study is that participants in this study varied in ethnic identification and immigrant history. Research suggests that Black individuals' experiences of racism can differ based on ethnicity (Hall & Carter 2006). Furthermore, ethnicity has been found to buffer and in some cases intensify the experience of racism (Yoo & Lee 2008). Specifically, research suggests that having a strong connection to ethnic group identity may buffer the negative impact of racism stress and depression (Mossakowski, 2003; Noh et al., 1999). While the current study did not have enough power to explore these relationships within specific ethnic groups, it is important for future research to explore differences in the experience of racism, coping, and anxiety within specific ethnic populations in the Black community.

## **Study 2**

Study 2 is significantly limited by a small sample size, which reduced the statistical power of the analyses. For this reason, effect sizes were reported in order to meaningfully examine non-significant findings and to obtain information about which findings may be important to pursue in future studies. While no significant findings emerged, it is important to note that a medium to large effect size on the TMS decentering subscale suggests that it is possible that the manipulation was somewhat effective in teaching decentering as a mindfulness skill in the current sample.

Additionally, it is important to again note the heterogeneity within the Black sample. We did not have enough power to differentiate ethnicity or immigrant status when testing the hypotheses, which may affect findings given the research suggesting

differing experiences of racism based on ethnicity and immigration status (Hall & Carter, 2006; Yoo & Lee, 2008). Given the small sample size it may be particularly likely that findings within a specific ethnic group could be disguised because all ethnic groups were collapsed into the same sample.

### **Clinical Implications**

Given the findings that racism is positively associated with anxiety and that internalized racism mediates the relationships between experiences of racism and anxiety in the sample, it is important to think about potential buffering factors and targets for treatment. Specifically, therapists may want to provide psychoeducation at the beginning of treatment that discusses that ways in which racism has been shown to negatively impact mental health. This psychoeducation may include providing language that describes different types of racism for instance, racial macroaggressions, or more overt experiences of racism (racial slurs, violence, offensive jokes) and racial microaggressions, or more covert experiences of racism (i.e., – a White person clutching their purse or locking their car doors when a person of color is in sight). In addition, research suggests that active coping strategies such as confrontation, positive reappraisal, and seeking social support may buffer the negative impact of racism on mental health outcomes including anxiety (Pascoe & Richmond, 2009). Therapists may want to employ the use of some of these strategies with clients who are experiencing racism related-stress. In addition, given that the internalization of racism is characterized by negative feelings and opinions about one's racial background, the promotion of positive racial and ethnic



identity in therapy may also serve a buffer to the negative mental health consequences of racism. Further, given the findings that trait mindfulness emerged as a moderator in the relationship between racism and anxiety, mindfulness may be a helpful tool for Black individuals experiencing racism. Clinicians might think about teaching mindfulness to Black individuals who experience racism and the internalization of racism to help them cope with the aversive negative internal experiences (i.e. – anxiety, internalized stigma) that arise in the face of racist experiences.

Additionally, the responses to the open-ended questions regarding the mindfulness manipulations were, overall, very positive. Several of the participants stated that learning mindfulness skills in the study was helpful and that they would be interested in trying mindfulness again. These responses suggest that mindfulness can be an acceptable form of intervention in Black communities and that clinicians need to begin thinking about how to incorporate mindfulness skills in session, in a culturally adapted and competent manner. Specifically, clinicians might suggest culturally relevant ways to practice mindfulness, for instance in church. Also, clinicians can provide culturally relevant examples in therapy that explore the ways that mindfulness may be helpful to a Black American client in 1) preparing for the experience of racism by using mindfulness exercises, 2) experiencing racism in the moment by using breathing techniques or brief awareness check-ins, and 3) coping with the longer term impact of racism on stress by cultivating awareness of stress responses and making choices that are in line with the things that are most meaningful to them.

## **Future Research Directions**

Results from the present study provide evidence that the experience of racism is related to anxious symptomology. Future research may want to explore the use of physiological measurements of anxiety and stress among Black Americans experiencing racism. Additionally, the results provide preliminary evidence of the mediating role of internalized racism and the potential buffering role of trait mindfulness in the relationship between racism and anxiety. Future research should explore the impact of internalized stigma on anxiety symptoms and also treatments that may target internalized stigma. Additionally, future research should explore the ways that mindfulness may help Black American individuals cope with the anxious arousal they experience.

Given that immigration status has emerged as such an important factor in the relationship between racism and mental health outcomes, future research should tease apart these distinct relationships. For instance, future research might explore the relationships between racism and anxiety in Black individuals who were not born in the United States, Black individuals who are first generation Americans with an immigrant background, Black individuals who are second generation Americans with an immigrant background, and African Americans separately. Exploring the impact of racism on each of these groups separately may provide information about the buffering or exacerbating role of both ethnic identity and immigration status.

At the same time, it is also important to note that every individual who identifies as Black American does not share the same lived experience. Qualitative research may be helpful in exploring the ways Black American individuals' experiences with racism,

anxiety, and mindfulness can be different. For instance, historically, concepts such as "mindfulness" could be considered "new age" and inconsistent with one's religious background. The participants in the current study had positive responses to the mindfulness manipulation, including one participant who felt it was consistent with her Christian background. However, this may not represent the experiences of all Black Americans. Given the well-established importance of religion in Black American communities (Taylor & Chatters, 2010), it will be important for future research to explore the potentially culturally incongruent aspects of mindfulness for some Black Americans, as well as potential ways to adapt mindfulness based interventions to make them a more effective coping resource.

Future research might also benefit from longitudinal studies that follow Black American individuals across multiple time points to assess the ways that racism impacts an individual over a lifetime or at least over a period of several years. It may also be important to explore the negative impact of internalized racism in longitudinal studies in addition to the buffering effects of racial identity and awareness of structural inequalities. Getting a sense of the potential longer lasting effects of racism on anxiety may inform prevention and intervention efforts. It may also be useful for future research to focus on Black American samples that have clinical levels of anxiety, specifically GAD, given the research that suggests that the frequency of racist experiences predicts lifetime prevalence of GAD in African Americans. Finally, as noted above, it will be important for future research to examine different types and severity of racist experiences, given the research that suggests severity may impact experiences of distress for some individuals.

The results from the current study suggest that racism is associated with higher levels of anxiety and that mindfulness may be an important buffer to consider when exploring the experience of racism and anxiety in Black American populations. More broadly, they suggest a need for continued research on the impact of racism on the mental health of Black American individuals, specifically on the nature of anxiety in this population.

## APPENDIX A MINDFULNESS INTERVENTION

### A. RATIONALE

*For the next several minutes, I'm going to ask you to think about, and try, a particular kind of awareness, called mindful awareness. Today I'm just going to tell you a little bit about this way of paying attention, and have you try it out, to see what it's like for you.*

*Mindful attention is paying attention in the present moment, with openness and curiosity, instead of judgment. We often focus on things other than what is happening in the moment – worrying about the future, thinking about the past, focusing on what is coming next, rather than what is right in front of us. And it is useful that we can do a number of things without paying full attention to them. However, sometimes it is helpful to bring our attention, particularly a curious and kind attention, to what we are doing in the moment.*

*Sometimes we do pay close attention to what we are thinking and feeling and we become very critical of our thoughts and feelings and we try to either change them or distract ourselves because this critical awareness can be very painful. For example, we might notice while we are talking to someone new that our voice is shaky, or we aren't speaking clearly, and think, "I'm such an idiot! What is wrong with me? If I don't calm down, this person will never like me!"*

*Being mindfully aware falls between these two extremes – we pay attention to what is happening inside and around us, we see events and experiences as what they are, and we allow things we can't control to be as they are while we focus our attention on the task at hand. For example, when talking to someone new we might notice those same changes in our voice and take a moment to reflect, "This is how it is now, there go my thoughts again", and gently bring our attention back to the person and our conversation. This second part of being mindfully aware, holding our judgments loosely and not trying to change our thoughts or feelings can be especially hard. In fact, often being mindfully aware involves practicing not judging our tendency to have judgments!*

*Being mindfully aware is a process: We do not reach a final and total state of mindful awareness. It is a way of being in one moment that comes and goes. Mindful awareness is losing our focus 100 times and returning to it 101 times.*

*The best way to understand mindful awareness is to practice it, so let's do that now.*

### B. MINDFULNESS EXERCISE I:

*First, just allow your eyes to close gently, or to lower....and bring yourself to sit in an upright position.... begin by noticing how you are sitting in the chair....noticing the places where you are touching the chair, the places where you are touching the floor....noticing where the air is touching your skin and what that feels like...and now gently draw your attention to your breath.... noticing (without trying to change it) where your breath is coming from...noticing where it enters your body when you inhale... how it travels through your body before you exhale it.... Noticing how your body moves with each inhalation, each exhalation....allowing any thoughts or feelings that occur to naturally rise and fall, without trying to hold onto them or get rid of them.....just continue bringing your awareness to your experience in this moment.... and continuing to notice your breath...as you allow whatever comes to come and whatever goes to go and whatever stays to stay....and again bringing your awareness to the room, to the way you are sitting in the chair, and gradually opening your eyes when you are ready. [Continue the exercise for 5 minutes.]*

### **C. MINDFULNESS AND EMOTIONS**

*One of the hardest times to be mindfully aware is when we are experiencing a strong emotion, like fear, or sadness, or joy. In those moments, we often want to either hold on to the emotion or get rid of it, rather than allowing it to rise and fall naturally. And sometimes it feels like we can make emotions stay or make them leave, but other times we may find that trying to make an emotion stay makes it leave even faster, while trying to get rid of it keeps it hanging around. Also, emotions can give us important information about our lives, a particular situation, or the way someone we care about is responding to us. So it can be useful for us to notice the emotions we are having, as they happen, rather than judging them or trying to change them. We can bring the same kind of awareness you just practiced to any emotional experience, noticing what we feel in our bodies, what thoughts we have, and just letting that experience happen without getting caught up in it. Our feelings will change on their own when we let them be, rather than seeing them as bad or good or something to be changed.*

*This is also something that is easier to experience than it is to describe. Let's do another exercise to give you a sense of what I'm describing.*

### **D. MINDFULNESS EXERCISE II:**

*Become aware of any anxious thoughts, sensations or feelings that you are experiencing right now. We are going to go through a mindfulness exercise focused on your current mood.*

*First, make yourself comfortable in your chair. Take a few moments to notice your breathing. Close your eyes, and focus on your breath... Noticing how your breath travels into your body, through your body, and back out of your body... noticing any tension in your body... and gently letting it go... Spending a few moments just focusing your attention on your breath... Now draw your attention to any anxious thoughts, sensations, or feelings that you are experiencing right now. . . Just noticing your current experience without trying to change your thoughts, sensations, or feelings . . . Noticing any sensations in your body, noticing any tension . . . noticing the thoughts running through your mind . . . noticing how you feel, seeing if more than one emotion is present . . . Noticing any urges to respond . . . Just noticing your experience, bringing curiosity and compassion to what you are experiencing, observing what happens to you when you are feeling some anxiety, without altering it or judging it . . . Then noticing when you are trying to alter or judge, and just letting go, refocusing on the current experience . . . Noticing any efforts to push feelings away or efforts to hold on to feelings . . . Noticing how your feelings change or ways they don't change. [Continue the exercise for 5 minutes.]*

### *Control Condition*

For the next several minutes, I am going to ask you to listen to two articles from National Public Radio and work on a word search puzzle.

### **Electric Cars**

*Under fuel-economy rules announced by the White House this summer, cars will have to get an average of 54.5 miles per gallon by 2025 — nearly double the current average. Reaching that goal will take not only feats of engineering but also changing how Americans think about their cars and how they drive them. The electric car is one of the ways carmakers expect to lower their average fuel consumption and get to the 55 mpg average. The problem is, people aren't buying, whether all-electric or plug-in hybrid. General Motors is struggling to sell 10,000 Chevy Volts this year, and Nissan has sold just over 8,000 Leafs. For context, about 13 million cars are expected to be sold in the U.S. in 2011.*

*Brian Brockman with Nissan took me on a test drive of the all-electric Leaf. Starting the car, there's no sound of the engine turning on because there's no gas engine under the hood. The car is not only quiet but also smart, and it looks genuinely space-aged. The Leaf doesn't fly, but Nissan claims the car gets about 100 miles per charge — sort of.*

*Brockman says physics naturally takes over even with these cars. If you're going 80 mph on the highway, you will naturally get more resistance against the car. "The car has to work a little bit harder, so the range is going to go down a little bit faster," he says. What Brockman doesn't say is you're only going to reach the 100-mile range on cool spring days doing about 40 mph, with the air conditioning off and the car going downhill. Consumer Reports, which tested the Leaf, said it gets an average of about 65 miles on a charge. To see how the cars charge, we drove to a charging station at the local power company near Detroit. The problem is that there aren't yet enough places to go to charge the cars, and right now it can take up to 16 hours depending on the type of outlet used.*

*The other problem is what car people call "range anxiety." "That feeling in your stomach starts to set, like, 'Oh, no. What if I can't make it?' And that's part of the problem," says Brian Moody with [AutoTrader.com](http://AutoTrader.com). Moody says people feel like they don't have a grasp on how it works or how long the range is. "It's sort of like a microwave oven: You know what it does, but you don't know exactly how it does it," Moody says. "It works by magic, and people don't like that." Once people actually find out about the cars, they like them even less. Craig Giffi, a U.S. automotive practice leader for Deloitte, recently conducted a study of what people around the world think about electric vehicles. Giffi says people like the idea of electric cars — that's the good news. "The bad news is that the technology is currently at a point where they have to make trade-offs," Giffi says. "So they want that same vehicle — they want it to look and feel the same. They also want it to perform the same."*

*Giffi says consumers want an electric car to go as far as a gasoline-powered car on a single charge, and they want to be able to recharge it as quickly as they can refuel. Nobody is expecting those capabilities anytime soon. "The problem is, the chances of there being a 500-mile range electric car, at this point, it seems pretty unlikely," Moody says. "You can go to the Henry Ford Museum in Dearborn, Mich., and see electric cars. To me, that's not great progress." Bob Casey, senior curator of transportation at [the Henry Ford Museum](http://the Henry Ford Museum), took me on a tour to see some of those electric cars from more than 100 years ago. One of the vehicles on display is an electric car owned by Clara Ford, wife of Henry Ford. Like today, electric cars in Clara's day couldn't do what gas-powered cars could, so electric carmakers had to turn to niche markets. And there was demand for electric cars, it turned out, among well-to-do urban women, Casey says. "[The cars are] quiet, they're clean, [and] if you're living in a city you don't have to go very far," he says. "If you're wealthy, you can install a charger in your home or in your garage. And if you're wealthy, you can afford these things, because they were expensive." Not that much has changed with electric cars in more than 100 years. Casey says if they're to be widely adopted, it's drivers themselves — and their habits — that will need to change.*

## **The Origin of Pies**

*This is the month when the stately, voluptuous turkey takes a place of pride on most dinner tables. But when it comes to dessert, it's worth considering the relevance of another bird — the humble magpie. That's because, according to the Oxford English*



Dictionary, the word "pie" — defined as a baked dish topped with and sometimes also surrounded by pastry — may well derive from the Latin word *pica*, meaning magpie.

So how do you get from a smart Roman bird to the traditional Thanksgiving dessert? The OED *admits* it's all bit uncertain, but offers a few linguistic clues to how these black and white birds could have been transformed into edible pies.

Magpies didn't actually acquire the prefix *mag-* until the 17<sup>th</sup> century. Before that they were called simply "pies" or "pyes," the original Latin having been shortened and smoothed as it made its way through older versions of French and English. These chattering pies *first show up* in English manuscripts in the 13<sup>th</sup> century, along with their close relatives crows, rooks and ravens. But it's not long before the word *pie* starts to turn up with its edible meaning. The dictionary references a Rogero Pyman selling pies in 1301. And the cook *who joined* Geoffrey Chaucer's pilgrims headed for Canterbury, "koude rooste, and sethe, and broille, and frye,/ Maken mortreux, and wel bake a pye" in the *Canterbury Tales*.

One possibility is that this linguistic sleight of hand occurred because of *the association* between a magpie's characteristic black and white plumage, and the appearance of medieval pies.

It's not that farfetched. The word *pie* quickly became *an adjective* describing things that had patches of black and white, like a friar's habit. Later it came to denote birds, animals and people whose feathers or coats displayed contrasting patches of light and dark: Think piebald horses, pied wagtails, and the Pied Piper of Hamelin.

So maybe those long ago diners were struck by the contrast between the light paste, and the rich dark filling that oozed out when the pie was opened. Or perhaps it was the filling itself — resplendent with light and dark meats — that reminded them of the black and white birds.

I don't know enough about 13<sup>th</sup> century cookery to judge how likely this is, but I suspect that the paste might have functioned as more as scorched heat shield than as a pale foil for the unctuous filling. And in my experience, British stews are more muddied than marbled.

I like the next idea more: the filling as the key to the association. But not because of its color. More because of *its content*. Magpies and crows are well-known for their habit of collecting an assortment of odds and ends in their nests. Not so very different, the thinking goes, from the way medieval cooks assembled ingredients for their pies.

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