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The Nuanced Relationship Between Mindfulness, Racial Prejudice, and Policy Support

Jared Michael Cutler
Portland State University

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The Nuanced Relationship Between Mindfulness, Racial
Prejudice, and Policy Support

by

Jared Michael Cutler

A dissertation submitted in partial fulfillment of the
requirements for the degree of

Doctor of Philosophy
in
Applied Psychology

Dissertation Committee:
Kimberly Barsamian Kahn, Chair
Tessa Dover
Todd Bodner
Andrew Mashburn

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2024

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Abstract

Researchers have investigated the relationship between mindfulness and prejudice, although the findings have been somewhat inconsistent (Oyler et al., 2022). Two broad factors may be responsible for these mixed findings: different conceptualizations of mindfulness across studies, and ideological differences among participants (see Figure 1.1). Attention monitoring and acceptance, together, are proposed to be responsible for the psychological benefits of mindfulness, including reduced emotion rumination (Lindsay & Creswell, 2017). Attention alone, however, strengthens rumination (Pearson et al., 2015), which predicts prejudice (Steele et al., 2019). Additionally, prejudice hinders the endorsement of equitable policy (Baranauskas, 2022). As such, mindfulness measures and interventions that capture attention alone, then, may be positively related to prejudice and negatively associated with support for equitable policy, whereas mindfulness measures and interventions that capture attention and acceptance, together, may be negatively related to prejudice and positively related to support for equitable policy. Finally, if meditation strengthens awareness of one's current values (Chen & Jordan, 2020), then it may enhance prejudice and discriminatory intent and reduce support for equitable policy for those who value power, such as political conservatives and those high in social dominance orientation (SDO). This dissertation consisted of three chapters that together established a nuanced mindfulness-prejudice relationship. The first project employed a correlational survey design to explore the

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relationship between a primarily attention-based measure of trait mindfulness (PABTM) and explicit prejudice and racial policy support (Chapter II). It was hypothesized that PABTM would positively predict explicit sexual and racial prejudice, and negatively predict support for equitable racial policy, and warmth towards racial minorities was predicted to mediate the PABTM-racial policy relationship. PABTM was associated with higher levels of explicit prejudice and with less support for equitable racial policy. The mindfulness-policy relationship was mediated by explicit racial prejudice. In the second paper (Chapter III), a correlational, survey-based study explored whether state attention monitoring and acceptance (Multidimensional State Mindfulness Questionnaire, MSMQ, Blanke & Brose, 2022) in tandem predicted implicit racial prejudice, using the Implicit Association Test (IAT, Greenwald et al., 1998). It was hypothesized that state attention would predict greater implicit racial prejudice for those low in state acceptance but would predict reduced implicit racial prejudice for those high in state acceptance. State attention monitoring predicted greater implicit racial prejudice for those low in state acceptance, implying that attention alone may have a harmful relationship with implicit racial prejudice. Additionally, for those high in acceptance, attention monitoring was unrelated to implicit racial prejudice, connoting acceptance may serve as a buffer of the attention-prejudice relationship. In the final study (Chapter IV), an experiment compared the effects of a brief attention-based meditation (ABM) to an attention and acceptance meditation (AAM). An ABM was expected to enhance explicit racial prejudice and

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decrease support for equitable racial policy, whereas an AAM was expected to decrease explicit racial prejudice and increase support for equitable racial policy. Further, SDO and political ideology were expected to moderate, with both meditations predicted to reduce explicit racial prejudice for those in low in SDO and political liberals but increase it for those high in SDO and political conservatives. Finally, explicit racial prejudice was expected to mediate the moderated meditation-policy and meditation-discriminatory intent relationships. As predicted, SDO moderated the meditation-explicit racial prejudice relationship, with the combined meditation conditions, which increased attention but not acceptance, predicting greater warmth towards racial minorities for those low in SDO, but less warmth for those high in SDO. Generally, this program of research clarifies the nuanced mindfulness-prejudice relationship by demonstrating under what circumstances it may alter prejudice. Specifically, PABTMs and ABMs may have a damaging relationship with prejudice generally, although this relationship may depend on one's acceptance levels and their endorsed ideologies. These findings also suggest that meditations that enhance attention may be promoting awareness of one's presently held values.

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Dedication

I've dedicated this dissertation to my parents, Michael and Tammy Cutler. I finally finished! I wouldn't have made it this far without you! I wish I could celebrate this with you... rest in peace.

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Special thanks to my advisor, Dr. Kim Kahn, who guided me through the traditional graduate school challenges, but also supported me through a number of family emergencies as well! Without this support, I may very well have dropped out of the program! I was fortunate to have had your support and to have made it to this point.

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Security Office may be even slower and less effective than the VA! Jokes aside, I may not have finished this program without your help and daily struggle.

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Chapter I Introduction

Prejudice and discrimination produce lasting inequities in the workplace (e.g., Hammarstedt et al., 2015; Pager & Shepherd, 2008), housing (e.g., Yinger, 1987), and the criminal justice system (e.g., Flores et al., 2021; Kahn & Martin, 2016), to name a few. Classically, prejudice is defined as an animosity directed at another person who belongs to a group that is perceived to be harmful (Allport, 1954).

Modern forms of prejudice, however, are more subtle (Banaji & Heiphetz, 2010). Due to these differences, researchers propose the existence of two distinct types of prejudice. Explicit prejudice captures a person's intentional, deliberate, and conscious animosity towards some person or social group (Banaji & Heiphetz, 2010), whereas implicit prejudice captures an automatic association of a negative judgment with some individual or group due to their identity (Banaji & Heiphetz, 2010). Discrimination, then, can be understood as the differential treatment of a group or group member due to their marginalized social identity (Pager & Shepherd, 2008, p. 181). Reducing prejudice against marginalized groups may help close these inequities and improve the quality of life for stigmatized individuals in the United States.

One potential route to reducing prejudice -- mindfulness meditation -- is becoming more popular in academic research and American life (Van Dam et al., 2018). Mindfulness practice involves honing one's attention on events as they occur and avoiding engaging with those experiences in a sharp or judgmental manner (Kabat-Zinn,

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1989; Lindsay & Creswell, 2017). Mindfulness meditation may reduce general prejudice (e.g., Burgess et al., 2017) via reduced automaticity (e.g., Lueke & Gibson, 2015) and reduced emotion reactivity (e.g., Hadash et al., 2016). Further, given that prejudice and discrimination are associated (e.g., Chapman et al., 2013) if meditation can reduce prejudice, then it may also be able to address broader discrimination, as well. Indeed, mindfulness interventions reduce discriminatory intent in dictator games (Lueke & Gibson, 2016), but fail to reduce racial discrimination among officers (Hunsinger et al., 2019), suggesting potentially mixed findings. Indeed, research on the relationship between mindfulness and prejudice is relatively mixed in the empirical literature (e.g., Hunsinger et al., 2019; Nicol & De France, 2018), implying that the relationship between mindfulness and prejudice may be more complex than originally thought (see Chen & Jordan, 2020). This relationship may depend, in part, on individual-level worldviews, such as political ideology (Feldman & Huddy, 2014) and social dominance orientation, or SDO (a preference for unequal societies where some groups dominate over others, Pratto et al., 1994), as well as study design-related factors, such as how mindfulness is operationalized and the content of meditation training. This dissertation explores this possibility.

Emerging theory poses that attention monitoring and acceptance skills may be the key facets of mindfulness that must be cultivated to achieve its full benefits (Lindsay & Creswell, 2017), whereas attention monitoring alone without acceptance may have limited benefits (Lindsay et al., 2018; 2019), yet also can produce negative side effects

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(Manigault et al., 2021; Pearson et al., 2015). Both facets may be required to reduce prejudice through mindfulness meditation, whereas mindfulness interventions and measures that solely capture attention monitoring may, instead, positively predict prejudice via greater emotion rumination (Manigault et al., 2021; Pearson et al., 2015). Given that mindfulness strengthens awareness of one's presently endorsed values (Chen & Jordan, 2020), and that political ideology and SDO predict greater endorsement of power-related values (Caprara et al., 2006; Feather & McKee, 2012), they may moderate the relationship between mindfulness and prejudice, such that mindfulness practice may increase prejudice for political conservatives and those high in social dominance orientation (SDO), but reduce it for political liberals and those low in SDO.

The goal of this dissertation is to better understand the complex relationship between mindfulness and prejudice, focusing predominantly on racial prejudice (see Figure 1.1). This project explores how this relationship may depend on individual-level ideologies and on researcher-controlled factors, such as how researchers defined and measured mindfulness and mindfulness programs. The first project (Chapter II) explored whether a primarily attention-based trait mindfulness (PABTM) measure was associated with explicit racial and sexual prejudice and discriminatory intentions across two studies. The second project (Chapter III) investigated whether state attention monitoring predicted greater implicit racial prejudice for those low in acceptance but reduced implicit racial prejudice for those high in acceptance. The final project in this dissertation (Chapter IV) compared the efficacy of a brief attention-based (ABM) to a brief attention monitoring

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and acceptance meditation (AAM) to reduce explicit racial prejudice and discriminatory intent and evaluated SDO and political ideology as moderators of these trainings.

In addition, this dissertation explores the relationship between mindfulness and its components, and racial policy support (see Figure 1.1). Given that racial prejudice can serve as a barrier to endorsing equitable racial policies (Baranauskas, 2022), meditation should be related to racial policy support if it negatively predicts racial prejudice. A second goal of this dissertation, then, is to better understand the relationship between mindfulness and racial policy support, and how the operationalization of mindfulness measures and the content of meditation programs shape this relationship. The first paper in this dissertation (Chapter II, Cutler et al., in prep) evaluates whether PABTM predicted less support for equitable racial policy and greater support for building a wall on the Southern border of the U.S. Relatedly, the third study (Chapter IV) also explored how an ABM compared to an AAM differentially shaped support for racial policy.

Meditation and Mindfulness

Mindfulness, which has roots in ancient Buddhism, is conceived somewhat uniquely by religious texts compared to Western secular researchers (Silbersweig & Vago, 2012), and can manifest in multiple distinct forms, including as a trait and a practice (Van Dam et al., 2018). In the Satipaṭṭhāna Sutta, an early Buddhist text, mindfulness is described as the ability to attend to experiences in the moment while avoiding distraction (Anālayo, 2004). Conversely, the Western conceptualization of mindfulness presents it as a form of attention where one consciously concentrates on

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internal and external experiences as they happen in the present and approaches these experiences with a nonevaluative lens (Lindsay & Creswell, 2017). Both approaches to mindfulness share a common goal: to assist others by alleviating suffering among practitioners (Silbersweig & Vago, 2012). Due to these competing conceptualizations, defining mindfulness is somewhat difficult, as there is no universal definition in the academic or popular literature (Van Dam et al., 2018).

Unsurprisingly, then, researchers have studied mindfulness in the form of meditation practice and how it can benefit individuals. Research identifies five facets that make up meditation training (Cardoso et al., 2004). Meditation is a practice (1) that involves relaxing one's muscles (2). Additionally, meditation also involves the non-judgmental mindset that develops during practice (3). In this mindset, one approaches experiences without reacting to or evaluating them. Finally, meditation is self-initiated (4), and directs attention (5). Meditation can function as an umbrella term that encapsulates an array of contemplative techniques, such as mindful breathing, a common practice used in many mindfulness interventions (Matko & Sedlmeier, 2019).

Theorists have applied mindfulness interventions in multiple contexts to improve the lives of those who engage in the practice regularly. The Mindfulness-Based Stress Reduction (MBSR) intervention was designed in medical settings (Kabat-Zinn, 1982, for a history, see Kabat-Zinn, 2003) to alleviate stress and pain symptoms among patients with chronic diseases. This intervention is typically eight weeks in length, with eight 2.5-hour classes and about 40 minutes of homework per day (see Carmody & Baer, 2009).

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The intensive MBSR program enhances self-awareness and regulation and encourages participants to maintain their practice post-intervention (Kabat-Zinn, 1982). The training begins with ABMs, such as mindfulness breathing. Mindful breathing is a technique where one concentrates their attention on their breath (Cardoso et al., 2003), and is asked to return their focus to their breath when distracted, with the goal of building attention skills. In later phases in the program, practitioners seek to use mindful awareness and AAMs to recognize automatic unhealthy habits, with the goal of ending them and approaching their experiences in an accepting way (Kabat-Zinn, 1982). Many mindfulness interventions are adapted in part from the MBSR program, including Mindfulness-Based Cognitive Therapy (Teasdale et al., 2000) and Mindfulness-Based Mind Fitness Training (Jha et al., 2017).

MBCT (Teasdale et al., 2000) was another early mindfulness program created to address mental health issues, such as anxiety and depression (Hofmann & Gomez, 2017; Williams, 2008). This intervention concentrates one's attention on negative thoughts and feelings, and then uses self-compassion and acceptance to break up those thoughts (Segal et al., 2002). Moving forward, mindfulness interventions inspired by MBCT have also improved psychological well-being (Klainin-Yobas et al., 2016) through heightened emotion regulation (McDonald & Baxter, 2017).

Mindfulness is also providing benefits to students and teachers in public K-12 schools. Students practicing mindfulness in the education system see reduced levels of test anxiety (Bootzin & Stevens, 2005), improved attention (Semple et al., 2005),

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improved social skills (Wall, 2005), improved sleep (Biegel et al., 2009), and academic performance (for a review, see Mejklejohn et al., 2012). For teachers, mindfulness interventions heighten physical and psychological health (Poulin et al., 2008), and boost motivation (Jennings et al., 2011; for a review, see Mejklejohn et al., 2012). In addition, mindful skills for middle school teachers following a mindful teacher wellness intervention negatively predict depression and anxiety, and burnout on the job and are positively associated with emotionally supportive interactions in the classroom (Braun et al., 2019). Finally, middle school teachers in a Mindfulness-Based Emotional Balance (MBEB) intervention, relative to a control, witness reduced anxiety and stress along with improved organization in the classroom, and these effects are strongest for the newer teachers (Roeser et al., 2022).

Given the many benefits that mindfulness practice and interventions bring, it is becoming exponentially more familiar in academic literature and popular culture (Van Dam et al., 2018). Indeed, new mindfulness phone apps are available for download, and meditation videos are also freely available on the internet. As such, one can gauge the popularity of meditation with the public by tracking the popularity and usage of mindfulness apps and YouTube Channels. Headspace is one such mindfulness app, which has approximately 70 million users. Similarly, the Calm app has been downloaded approximately 150 million times (<https://www.calm.com/blog/about>).

Conversely, one can assess the popularity of mindfulness in the academic literature by tracking the growing number of published articles on mindfulness in the past

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decade (Van Dam et al., 2018). In the year 2000, approximately 100 academic articles on mindfulness were published, compared to close to 1,100 in 2015. It may be largely good for society that mindfulness practice is proliferating in popular culture. However, when a concept becomes well-known, this can be detrimental in some instances if the concept is misused or not fully understood (Van Dam et al., 2018). Knowing the boundary conditions of mindfulness interventions can help reduce the chance that they may have unintended negative consequences (see Chen & Jordan, 2020). This dissertation seeks to illustrate the complexity of the mindfulness-prejudice relationship, with implications for the use of mindfulness practice theoretically and in applied contexts.

Racial Prejudice, Discrimination, and Policy

Racial prejudice and discrimination have deep roots in the U.S. and have consistently placed racial minorities at a disadvantage in society (e.g., Bobo, 2011). Although traditional, explicit forms of racial prejudice have been on the decline recently (see Bobo, 2011), racial inequities on important outcomes remain in the U.S., also known as the attitude-inequality mismatch (e.g., Devine et al., 2012). Given that racial animosity has typically been seen as socially unacceptable in much of the U.S., participants may be less willing to express their racial prejudice publicly (Greenwald et al., 2008). Racial discrimination and inequality, then, have been theorized to survive in part due to the persistence of implicit racial biases (see Bobo, 2011; Devine et al., 2012). However, during the Trump era, social norms in the U.S. regarding the expression of racial prejudice may have shifted, and individuals feel freer to act on their explicit racial biases

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(e.g., Newman et al., 2021). With racial prejudice becoming more socially acceptable in some circles and situations, any approach that can address these biases would have benefits for stigmatized minorities.

Fortunately, both explicit and implicit racial prejudice can be reduced (Charlesworth & Banaji, 2022; Paluck et al., 2021), although it is difficult to do and often requires a multi-faceted approach (see Devine et al., 2012; Kahn & Martin, 2020, but see Lai et al., 2016). Further, adequately powered and well-designed studies of prejudice reduction interventions are uncommon and often produce small effects (e.g., Paluck et al., 2021). There is more work, then, that can be done to identify potent approaches to reducing explicit and implicit racial prejudice and discrimination.

One way to address racial discrimination and inequities can be by passing equitable racial policies (e.g., Alvarez et al., 2022). Distinct racial policies may have the effect of either reinforcing or breaking down racial inequities (e.g., Alvarez et al., 2022). Unsurprisingly, racial prejudice may serve as a blockade to embracing equitable racial policy (e.g., Baranauskas, 2022; Knowles et al., 2010) and may facilitate support for policies that may reinforce racial inequities (e.g., Enns & Jardina, 2021). Interventions to reduce prejudice may then have the additional effect of shifting racial policy support. Further, given that racial prejudice and discrimination are associated (e.g., Chapman et al., 2013), interventions that target racial prejudice should similarly reduce racial discrimination.

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Mindfulness and Prejudice

Meditation practice may be another tool to help address both explicit and implicit racial prejudice within individuals (e.g., Burgess et al., 2017). Mindfulness is hypothesized to reduce prejudice by decreasing one's use of automatic psychological processes (Kang et al., 2013), which would lead to decreased activation of negative stereotypes regarding an outgroup. Additionally, mindfulness could be related to reduced prejudice via enhanced empathy and prosociality (Berry et al., 2018), given that empathy and prejudice are negatively related (Gutsell & Inzlicht, 2010). Finally, mindfulness could reduce prejudice by making one less reactive to emotions as they arise (Hadash et al., 2016). Being less reactive to emotions linked to outgroups (see Mackie et al., 2017) could limit prejudice.

Indeed, researchers have begun to investigate the mindfulness-prejudice relationship with varying degrees of success. Some studies, including trait mindfulness measures that capture attention and acceptance explicitly, find a negative relationship with prejudice (Gervais & Hoffman, 2013; Kucsera, 2009; Salvati et al., 2019; Verhaeghen & Aikman, 2020). However, other studies using attention and acceptance measures of trait mindfulness produce null findings (Nicol & De France, 2018; Verhaeghen & Aikman, 2020). Only one study, according to a recent review on mindfulness and intergroup conflict, explores the relationship between a PABTM and prejudice, finding no relationship between the two (Nicol & De France, 2018, see Oyler et al., 2022).

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In terms of brief interventions, mindfulness reduced explicit and implicit prejudice (Edwards et al., 2017; Lueke & Gibson, 2015; 2016; Parks et al., 2014; Tincer et al., 2016). However, it has also not been effective at reducing prejudice (Cox, 2018; Hessler-Smith, 2001; Korsmo, 2019; Stell & Farsides, 2015). Additionally, although mindfulness has increased prosocial behavior towards racial outgroups, it has not closed the gap in helping behavior that favors one's racial ingroup (Berry et al., 2021). Overall, a recent review has found a negative relationship between mindfulness, as a trait, an intervention, and intergroup conflict (Oyler et al., 2022). However, these effects are small, and the authors note the presence of multiple null findings, which may be due to potential moderating factors.

Mindfulness Manifold

The Self-Awareness, Regulation, and Transcendence framework argues that practitioners develop three critical mindful skills, in chronological order (S-ART, Silbersweig & Vago, 2012). These skills are self-awareness, self-regulation, and self-transcendence. Self-awareness is an attention-based skill where one hones attention on their experiences as they occur in the present, including tracking overly reactive responses to events. Self-regulation is the second skill, and is the ability to alter one's emotions, judgment of the self, and build self-compassion. Self-regulation, then, captures acceptance directed towards the self, but not others. The final skill to emerge from mindfulness practice, according to this framework, is self-transcendence, which involves seeing all individuals as linked and a reduced sense of importance regarding the self. A

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product of mindfulness, then, according to this framework, is to view both the self and others in an unbiased way.

The Mindfulness Manifold explains how mindfulness improves psychological well-being and reduces negative affect and emotion (Verhaeghen, 2019). The Mindfulness Manifold argues that there are five key skills that are required to achieve these benefits, and these skills are also achieved chronologically. These five skills are self-reflection, present-moment control of the self, self-preoccupation, self-compassion, and self-transcendence. Using a multi-level factor analysis, the first four of these skills were nested within the first two broader S-ART skills (self-awareness, self-regulation). Reflective awareness and controlled sense of self predicted both facets of self-regulation, which subsequently predicted self-transcendence (Verhaeghen, 2019). The Mindfulness Manifold, then, expands S-ART by adding sub-skills nested within each of its three foundational skills.

Additional research links the Mindfulness Manifold to prejudice via the binding and individuating moral foundations (Verhaeghen & Aikman, 2020). Given that mindfulness predicts prosocial values and behavior (Warren & Wray-Lake, 2018), it may also shape one's ethics, and the degree to which one endorses each of the five moral foundations (Haidt & Graham, 2007). The five moral foundations are harm, fairness, sanctity, respect for authority, and loyalty. The individuating moral foundations consist of harm and fairness, while the binding foundations consist of sanctity, loyalty, and respect for authority. The individuating foundations seek to protect the rights and dignity of

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persons, whereas the binding foundations seek to bring people together within societies (Haidt & Graham, 2007). Further, while the individuating foundations negatively predict prejudice, the binding foundations are positively related to prejudice (e.g., Barnett et al., 2020).

For explicit, but not implicit prejudice, self-transcendence (the final skill in the Manifold) predicts prejudice through support for both foundations. Although the binding foundations predict greater explicit prejudice, and the individuating foundations predict reduced explicit prejudice, self-transcendence positively predicts endorsement of both sets of foundations (Verhaeghen & Aikman, 2020), implying that mindfulness may have competing positive and negative relationships with explicit prejudice. This may partially explain the mixed results on the mindfulness and prejudice relationship and conveys that mindfulness may assist in cultivating the endorsement of racially equitable and inequitable moral foundations. However, this model is somewhat limited because it fails to link mindfulness with implicit prejudice. Further, many of the processes highlighted in the Manifold could be categorized in terms of attention monitoring and acceptance. As such, the more parsimonious Monitor and Acceptance Theory (MAT, Lindsay & Creswell, 2017) may be more successful at identifying the primary mechanisms of mindfulness.

Monitor and Acceptance Theory and Prejudice

Monitor and Acceptance Theory (MAT, Lindsay & Creswell, 2017) argues that mindfulness consists of two foundational facets, attention monitoring, and acceptance,

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which produce the bulk of its positive outcomes across domains. Attention monitoring is the ability to track one's experiences as they occur, whereas acceptance entails viewing those experiences in a gentle light. Additionally, the attention tenet of MAT notes that building attention monitoring skills without acceptance skills can backfire, by increasing emotion rumination and reactivity (Manigault et al., 2021; Pearson et al., 2015).

Subsequent work evaluates MAT by assessing how attention monitoring and acceptance, both in tandem and independently, predict psychological outcomes. AAMs cultivate attention by focusing on either an anchor (e.g., the breath) or one's sensations (e.g., Lindsay et al., 2018). AAMs also seek to build acceptance by instructing one, during meditation, to avoid harshly judging or responding to any experiences that may arise. Pre-MAT interventions were relatively common (for a review, see Lindsay & Creswell, 2017). Indeed, many intensive interventions usually combine elements of both types of meditation, beginning with ABMs (with the goal of building initial attention monitoring skills) and then moving to AAMs (Baer et al., 2012; Lutz et al., 2008).

Meditation phone apps and YouTube channels provide access to AAMs. The most popular meditation videos on YouTube have been viewed millions of times (<https://www.youtube.com/watch?v=O-6f5wQXSu8>). Similar to these mindfulness apps, AAMs are relatively common and freely available on YouTube for those who want them and can reach many. Consistent with MAT, AAMs reduce anxiety (Ainsworth et al., 2017), improve affective well-being (Lindsay et al., 2019), reduce loneliness (Lindsay et al., 2018), alleviate mind-wandering (Rahl et al., 2017), and attenuate stress reactivity

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(Manigault et al., 2021). High levels of trait attention monitoring and acceptance also predict lower levels of substance use, including alcohol and tobacco (Leigh & Neighbors, 2009).

AAMs similarly strengthen emotion nonreactivity (Hadash et al., 2016). Emotion nonreactivity captures one's ability to experience affect without being unduly swayed by it (see Baer et al., 2008). Nonreactivity should be associated with reduced explicit and implicit racial prejudice, reduced discriminatory intent, and influence policy support by attenuating one's reliance on automatic processes (see Kang et al., 2013), such as subtle stereotypes. Indeed, mindfulness reduces implicit race and age bias via a declining automatic activation of stereotypes (Lueke & Gibson, 2015). Further, nonreactivity may also reduce racial prejudice, discriminatory intent, and influence policy support by attenuating the potency of negative emotions linked to outgroup members (see Intergroup Emotions Theory, Mackie & Smith, 2017). These negative intergroup emotions, for instance, predict greater support for restricting immigration (e.g., Brader et al., 2008).

Conversely, ABMs concentrate exclusively on cultivating attention by focusing on an entity and bringing it back to it when distracted. Some mindful breathing techniques, depending on how they are taught, can be considered ABMs (see Lindsay et al., 2018). Focused attention meditation, where one fixates on some anchor during meditation, can also be considered attention-based (Ainsworth et al., 2017; Lutz et al., 2008). Although these techniques are somewhat rarer than AAM, these types of interventions are still used in the literature (for a review, see Ganesan et al., 2022). For

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instance, ABMs have been found to improve one's ability to control one's attention (Yamaya et al., 2021) but have failed to improve emotion regulation (Polsinelli et al., 2020).

These attention-based trainings are also often less effective than AAMs, including reducing distraction and improving well-being, and can have damaging emotional consequences (Lindsay et al., 2018, 2019; Rahl et al., 2017). ABMs heighten stress reactivity and elevate negative thought intrusion and anxiety (Ainsworth et al., 2017; Manigault et al., 2021). Similarly, trait attention monitoring is associated with greater emotion rumination (Pearson et al., 2015). Greater emotion reactivity may predict greater reliance on automatic stereotypic associations, leading to greater explicit and implicit prejudice, greater discriminatory intent, and potentially impact policy support (Lueke & Gibson, 2015; Peffley & Hurwitz, 2002).

Similar to AAMs, ABMs are accessible to the broader public through mindfulness apps, such as Headspace, as well as YouTube videos (Van Dam et al., 2018). Although Headspace provides an initial set of meditation techniques to be completed by novices, beginning with ABMs, and moving to AAMs, they also allow access to their full library of audio for members. YouTube channels go even further; given that most videos are freely available, any uninformed layperson can hypothetically access both AAMs and ABMs. This can potentially be detrimental if these lay folk solely use types of meditation that have emotional consequences, like ABMs (see Lindsay & Creswell, 2017; Van Dam et al., 2018). Additionally, given that acceptance takes longer to develop than acceptance

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(Baer et al., 2012), brief AAMs and ABMs could have consequences by cultivating states of attention but not acceptance.

Given that negative emotions are typically linked to outgroups (Mackie & Smith, 2017), greater emotion reactivity may enhance outgroup implicit prejudice and discriminatory intent by subtly enhancing the harshness of one's response to outgroup members. Similarly, anxiety positively predicts general prejudice and relevant policy support (e.g., Turoy-Smith et al., 2013; Voci & Hewstone, 2003). In short, ABMs and attention-based mindfulness measures may predict greater explicit and implicit racial prejudice, greater discriminatory intentions, and less equitable and greater inequitable racial policy support. However, these relationships may further depend on one's social dominance orientation (SDO) levels and political ideology.

Social Dominance Orientation as a Moderator of Meditation

The somewhat mixed results in the mindfulness and prejudice literature (e.g., Berry et al., 2023; Hunsinger et al., 2019; Nicol & De France, 2018) may be due to individual-level moderators, such as SDO (Pratto et al., 1994) and political ideology (Feldman & Huddy, 2014). SDO is an individual difference inequality ideology that delineates a preference for society to be structured in unequal group-based hierarchies (Pratto et al., 1994). Social Dominance Theory (SDT, Pratto et al., 2006) is a model of intergroup conflict and inequality from which the construct of SDO was developed. According to the theory (Pratto et al., 2006), cross-culturally, there are three different systems where group and societal inequality can be produced, including the age system

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(restrictions on children relative to adults), the gender system (typically men as dominant over women), and the arbitrary-set system (a grab bag, including identities such as race and income). Importantly, these group inequities are maintained and justified through the propagation of legitimizing myths. Specifically, hierarchy-enhancing legitimizing myths, such as just world beliefs, work to replicate and strengthen current inequities in a society (Pratto et al., 2006). However, hierarchy-attenuating myths, such as anti-racism, work to counteract group dominance and create a more equitable society. Generally, in unequal societies, these hierarchy-enhancing myths and institutions tend to be more powerful and plentiful than hierarchy-attenuating myths and organizations (Pratto et al., 2006).

Turning then to SDO, SDT suggests that it should be associated with policy positions and attitudes supporting group dominance and societal inequality (Pratto et al., 1994). Research generally has confirmed these predictions. SDO predicts greater racial prejudice (e.g., Heaven & St. Quintin, 2003) and sexual prejudice (Poteat & Mereish, 2012). In terms of policy positions, SDO is associated with less support for reparations for slavery and colonial atrocities (Van Assche et al., 2021), less support for the government providing permanent housing for the houseless (Wagoner et al., 2023), and greater endorsement of racial profiling (Kteily et al., 2019).

Additionally, those higher in SDO tend to embrace extrinsic values, such as power, and are more likely to reject intrinsic values, like universalism, or the desire to help all others (Feather & McKee, 2012). Values delineate your beliefs about what is important to you; they are stable across situations and can shape goal formation and

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behavior (Schwartz, 2012). Extrinsic values positively predict prejudice (e.g., Feather & McKee, 2008), whereas intrinsic values negatively predict prejudice (e.g., Souchon et al., 2016). Meditation, then, may also regulate explicit and implicit racial prejudice, discriminatory intent, and policy support by enhancing value awareness and alignment (Warren & Wray-Lake, 2017). If one's values encompass group-based inequality (as with high SDO individuals), then mindfulness and honing attention may serve to heighten the awareness of those values and elevate prejudicial responses.

Competing perspectives have emerged regarding mindfulness practice and its relationship with values (see Chen & Jordan, 2020; Warren & Wray-Lake, 2017). Given that trait mindfulness is associated with greater alignment with intrinsic values and less alignment with extrinsic values, mindfulness may be able to *shift* a person's underlying values (Warren & Wray-Lake, 2018). However, a brief mindfulness intervention reduced prosocial behavior for those low in trait empathy at baseline (Chen & Jordan, 2020, see also Ridderinkhof et al., 2017), connoting mindfulness may make people *more aware* of their *existing* values.

If mindfulness is associated with greater awareness and alignment with one's current values, rather than changing them (e.g., Chen & Jordan, 2020; Nicol & De France, 2018), then SDO may serve as a possible moderator of the relationship between mindfulness and prejudice. Specifically, mindfulness may predict *greater* racial prejudice for those higher in SDO and *reduced* racial prejudice for those lower in SDO, by increasing awareness and alignment with two differing sets of values. In addition, if

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mindfulness simply heightens current value alignment, SDO would moderate both an ABM and an AAM. Another possibility is that AAM may *shift* one's underlying values, whereas ABM may simply increase awareness and alignment with one's current values by failing to provide the tools to critically evaluate one's currently endorsed values. If that is the case, then SDO may moderate the ABM while not impacting the AAM.

Political Ideology as a Moderator of Mindfulness Practice

Given that it is associated with SDO (Pratto et al, 1994), political ideology may also moderate the mindfulness-prejudice relationship. Political ideology can be understood as a series of connected policy positions that come together to form a person's worldview (Campbell, 1960). Political ideology also delineates a person's opinions on how they think a social system should operate and how those desires can be translated into real world outcomes (Jost et al., 2009). Political ideology matters because it predicts societally important outcomes, including perceptions of candidates running for office and political positions (see Carmines & D'Amico, 2015).

Although there are many political ideologies (see Feldman & Huddy, 2014), this dissertation focused on two that are common in the U.S. currently: conservatism and liberalism. Political conservatives value stability in a society (Jost et al., 2003), and tend to prioritize issues of stability over equity, whereas liberals value equity and tend to value achieving equality over fighting instability (Jost et al., 2009). Political liberals also tend to hold lower levels of racial prejudice than conservatives (Brandt et al., 2014; Federico & Sidanius, 2002), and are more likely to endorse equitable racial policy (Federico &

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Sidanius, 2002). Unsurprisingly, conservatives and liberals also hold distinct sets of values, as liberals endorse universalism more strongly, whereas conservatives more strongly endorse the values of power and tradition (Caprara et al., 2006).

If mindfulness is associated with greater awareness of and alignment with one's currently held values (e.g., Chen & Jordan, 2020), then mindfulness may predict greater explicit and implicit racial prejudice for political conservatives, who value power (Caprara et al., 2006). In this case, mindfulness would then predict reduced explicit and implicit racial prejudice for political liberals, who tend to endorse universalism. Additionally, if mindfulness simply heightens alignment with one's current values, then political ideology should moderate an ABM and an AAM to influence explicit and implicit racial prejudice, with both interventions expected to elevate racial prejudice for conservatives and vice versa for liberals.

Present Investigation

The goal of this dissertation is to explore the nuanced relationship between mindfulness and prejudice, with an eye toward building effective interventions. Specifically, this dissertation explores how the content of mindfulness courses and measures, along with individual-level ideologies, may shape this relationship. Across studies, mindfulness is evaluated as a correlate of, and tool to reduce, racial prejudice and discriminatory intent, boost equitable and weaken inequitable racial policy support. This dissertation utilizes a multi-method and multi-measure approach to probe the relationship between mindfulness and prejudice across multiple levels of analysis, including capturing

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explicit and implicit prejudicial attitudes and policy support. Additionally, this dissertation informs interventionists by providing information about which facets of mindfulness may be required as part of a broader meditation intervention to address prejudice, and which facets may backfire and unintendedly enhance prejudice.

This dissertation consists of three distinct papers on the topic of mindfulness and prejudice. The first paper adopts a correlational, survey-based approach, looking at the relationship between PABTM and explicit racial and sexual prejudice, discriminatory intent, and racial policy support (Chapter II). The second paper similarly uses a correlational, survey approach to investigate whether state attention monitoring interacts with state acceptance to predict implicit racial prejudice (Chapter III). Finally, the third paper (Chapter IV) utilizes an experimental approach and extends prior studies by comparing the efficacy of an ABM to an AAM to address explicit racial prejudice and discriminatory intent and influence racial policy support. It also assesses whether explicit racial prejudice mediates the relationships between each meditation condition and discriminatory intent, and meditation and policy support, and whether SDO and political ideology moderated these mediations.

Chapter II Overview: Unpacking the Relationship between Trait Present Moment Awareness and Prejudice

Given the mixed empirical findings (see Oyler et al., 2022), the relationship between mindfulness and prejudice may depend on how mindfulness is measured. As attention monitoring alone is associated with negative outcomes, such as emotion

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rumination (Pearson et al., 2015), stress reactivity (Manigault et al., 2021), and anxiety and negative thought intrusion (Ainsworth et al., 2017), Chapter II probed whether, across two survey studies, primarily attention-based trait mindfulness had a harmful relationship with explicit racial and sexual prejudice and racial policy support. Further, this project explored whether explicit racial prejudice was a mediator of the relationship between trait mindfulness and policy support. Study 1 ($N = 202$) measured predominantly attention-based trait mindfulness (Mindful Attention and Awareness Scale, MAAS, Brown & Ryan, 2003), explicit affective sexual prejudice (feeling thermometers), and explicit cognitive transgender and sexual prejudice (Modern Homonegative Scale, and Transgender Prejudice Scale, Davidson, 2014). In this study, results found that PABTM predicted greater affective and cognitive sexual and transgender prejudice, supporting the hypothesis that PABTM would predict greater prejudice.

Study 2 ($N = 448$) measured primarily attention-based trait mindfulness (MAAS), explicit affective racial prejudice (feeling thermometers), discriminatory intent (resource allocation, Sidanius et al., 2007), and racial policy support (Tuch & Hughes, 2003). Echoing Study 1, PABTM predicted greater explicit affective racial prejudice, greater intent to racially discriminate, and less support for equitable racial policy. Further, affective racial prejudice mediated the relationship between PABTM and policy support, with mindfulness predicting greater affective racial prejudice, which then predicted less support for equitable racial policy. These findings suggested that the relationship between

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mindfulness and prejudice may be complicated, with measures of mindfulness capturing attention alone having a harmful relationship with prejudice.

With initial evidence unearthed at the trait level of a positive link between PABTM and explicit prejudice, the next study built on this finding using a correlational study that explored a possible relationship between the specific components of state mindfulness (e.g., attention and acceptance) and *implicit* racial prejudice (Chapter III).

Chapter III Overview: Mindfulness, Implicit Racial Prejudice, and Policy Support

In this chapter, an implicit measure of racial prejudice assessed whether the relationship between trait attention and explicit prejudice found in Chapter II generalized to implicit racial prejudice. Given that attention monitoring without acceptance predicts greater emotion reactivity and rumination (Ainsworth et al., 2017; Pearson et al., 2015), which have all been associated with racial prejudice (Leuke & Gibson, 2015; Steele et al., 2019), it was hypothesized that state attention monitoring would predict greater implicit racial prejudice for those low in acceptance. In addition, as emotion nonreactivity predicted attention monitoring and acceptance in tandem (Pearson et al., 2015), it was hypothesized that those high in both states would have lower levels of implicit racial prejudice.

In this survey study ($N = 140$), undergraduates responded to measures of state mindfulness (Multidimensional State Mindfulness Questionnaire, MSMQ, Blanke & Brose, 2022), including subscales capturing present-moment attention and acceptance. The present-moment attention subscale captured participants' levels of state attention

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monitoring, whereas the acceptance subscale measured state acceptance, consistent with MAT (Lindsay & Creswell, 2017). Further, participants also completed a race implicit association test (IAT, Greenwald et al., 1998) that assessed implicit racial prejudice.

As hypothesized, results indicated that state attention predicted greater implicit racial prejudice for those low in state acceptance. For those who were high in acceptance, attention monitoring no longer predicted implicit racial prejudice, suggesting that acceptance may buffer the attention-prejudice relationship. The final study expanded on the current findings by adopting an experimental, and thus causal, approach to probe the attention and acceptance facets of mindfulness and their causal relationship to prejudice.

Chapter IV Overview: The nuanced effects of attention and acceptance based mindfulness on explicit racial prejudice: Individual ideologies as a moderator

The first project in this dissertation (Chapter II) demonstrated that a PABTM was associated greater explicit prejudice, less support for equitable and greater support for inequitable racial policies and found that explicit racial prejudice largely mediated the relationship between attention-based trait mindfulness and policy support. The second project demonstrated that state attention monitoring predicted greater implicit racial prejudice for those low in acceptance, but acceptance buffered the effect of attention monitoring on implicit prejudice (Chapter III). This final project (Chapter IV) evaluated the efficacy of a brief ABM relative to an AAM intervention to influence explicit racial prejudice and discriminatory intent, along with racial policy support, and probed whether

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SDO and political ideology served as moderators of the mindfulness-prejudice relationship.

This experiment tested the effects of ABM and AAM interventions, relative to a mind-wandering control condition, on explicit racial prejudice, discriminatory intent, and racial policy support. Further, SDO and political ideology were tested as potential moderators of the meditation-warmth-policy and meditation-warmth-allocation mediations. Explicit racial prejudice was measured using feeling thermometers (see Chapter II), whereas discriminatory intent was measured using the resource allocation task (adapted from Sidanius et al., 2007) used in Chapter II. Racial policy support was measured using policy items from prior polls (McCarthy, 2022, see Chapter II), and SDO was measured using the updated SDO-7 short-form (Ho et al., 2015).

For this experiment, it was predicted that ABM would increase explicit racial prejudice and discriminatory intent, and decrease support for equitable racial policy, whereas AAM would decrease explicit racial prejudice and discriminatory intent and increase support for equitable racial policy. SDO and political ideology were expected to moderate this relationship, with both conditions expected to enhance warmth towards racial minorities for those low in SDO and political liberals but reduce it for those high in SDO and conservatives. Finally, warmth was expected to positively predict policy, and negatively predict discriminatory intent.

Results demonstrated, first, that the ABM and AAM conditions both increased state attention, but not state acceptance relative to the control condition, suggesting these

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interventions should both be understood as attention-based. The AAM and ABM did not significantly influence explicit racial prejudice, discriminatory intent, or racial policy support. However, SDO significantly moderated the effect of meditation on warmth towards racial minorities. Meditation increased warmth towards racial minorities for those low in SDO but decreased it for those high in SDO. Further, the broader moderated mediations were significant using SDO as a moderator, with warmth towards racial minorities positively predicting racial policy support and negatively predicting discriminatory intent. However, moderated mediation analyses using political ideology were not significant, although simple slopes coefficients for liberals and conservatives were consistent with prediction.

This study, along with others in this dissertation, provided additional empirical evidence for a nuanced relationship between mindfulness and prejudice, with implications for discriminatory intent and racial policy support. Specifically, this study demonstrated the importance of individual ideologies, particularly SDO, in shaping the mindfulness-prejudice relationship, particularly for ABMs. This study also produced beneficial information for organizations seeking to reduce racial inequities, as ABMs may be useful for those who already prefer equitable societies, but detrimental for those who value dominance. It may be valuable, then, to use brief ABMs with individuals who are already motivated to act equitably. This study also extended MAT to political and intergroup literatures by demonstrating that mindfulness is linked to harmful intergroup outcomes via the development of attention monitoring skills for those high in SDO.

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Summary

Given the somewhat inconsistent findings on mindfulness and prejudice, this dissertation clarifies a previously confusing mindfulness-prejudice relationship, by establishing the researcher-controlled and participant-level factors that shape this relationship. It is predicted, across three chapters, that attention-based measures and trainings should enhance prejudice, whereas attention and acceptance-based measures and trainings should reduce prejudice. These measures and trainings should similarly affect racial policy by influencing prejudice. Additionally, individual-level ideologies, such as SDO, should moderate the meditation-prejudice relationship, with ABM and AAM enhancing prejudice for those high in SDO (and political conservatives) and reducing it those low in SDO (and political liberals).

To summarize, this dissertation includes three completed projects on the nuanced relationship between mindfulness and prejudice. The first project (Chapter II) was a survey that probes the relationship between PABTM and explicit racial and sexual prejudice and racial policy support and probes prejudice as a mediator of the mindfulness-policy relationship. PABTM positively predicts sexual and racial prejudice, along with equitable racial policy support, confirming prediction. The second project (Chapter III) expands on these findings by employing a correlational design. State attention monitoring predicted greater implicit racial prejudice for those low in acceptance, and acceptance was found to buffer the effects of attention on implicit racial prejudice.

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The final study (Chapter IV) extends prior chapters by experimentally comparing the efficacy of an ABM to an AAM to reduce explicit racial prejudice and discriminatory intent, as well as influence racial policy support, and additionally probing SDO and political ideology as possible moderators of these trainings. Although the ABM and AAM did not impact these outcomes, SDO, but not political ideology, moderated the effect of meditation on explicit racial prejudice, with implications for racial policy support. Specifically, meditation strengthened explicit racial prejudice for those high in SDO but decreased it for those low in SDO.

In tandem, these projects utilize differing methodologies, including correlational/survey research and experimental designs, and also use mediation and moderated mediation analyses across studies. Given that each study design has its strengths and limitations, using diverse methods across projects strengthens this overall program of research. Subsequently, this dissertation probes outcomes at multiple levels of analysis, including the individual and the policy level. Finally, these studies utilize multiple types of prejudice measures, examining affective and cognitive measures of explicit prejudice, and a measure of implicit prejudice across studies.

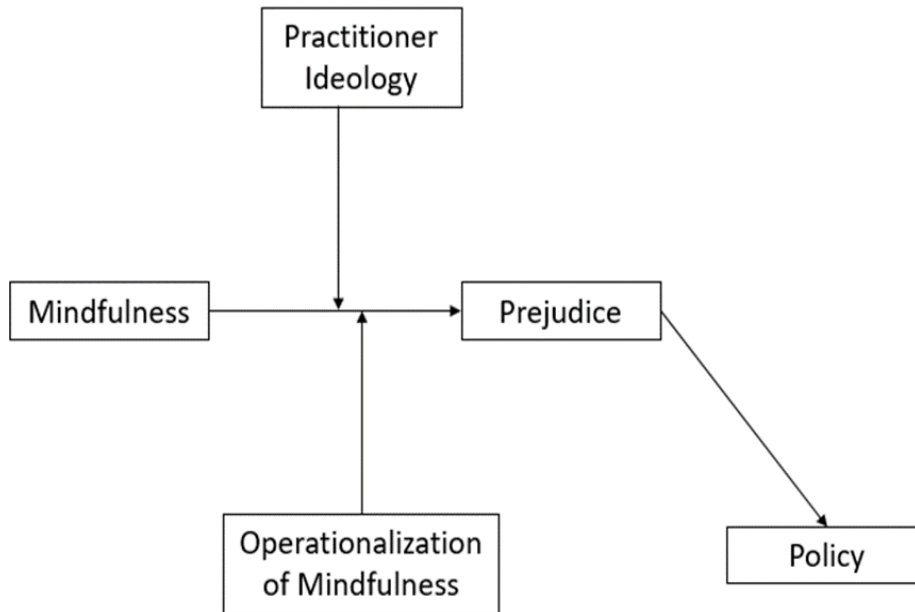
This dissertation contributes to the social psychological literature in multiple ways. This project scrutinizes the potential individual-level and design-level factors, including how mindfulness is measured and taught (attention-based versus attention monitoring and acceptance), and how they alter the mindfulness-prejudice and

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mindfulness-racial policy relationships. Further, it links mindfulness, as a trait and as a practice, to racial policy support.

This information could be useful for movements and organizations seeking to promote equitable racial policy, as it would improve efforts to utilize meditation to reduce prejudice by providing evidence for the targeted usage of ABMs for those who prefer equity at baseline. Additionally, for the public, these findings connote that mindfulness apps and companies should inform their customers of the potential negative side effects of brief meditation practice, particularly ABMs. However, the college student participants used in these studies likely were less motivated to engage in mindfulness than the average participant in applied studies, who often volunteers to gain some benefit from meditation practice (Baer et al., 2012). However, it is possible that meditation practice may be embedded in broader required diversity interventions where at least some participants may not be motivated to engage (Lai et al., 2023). As such, these implications may be more limited to contexts where meditation practices are required and/or participants are unmotivated. This project also helps to fill an existing gap in the literature regarding the mechanisms and boundary conditions of brief mindfulness practice seeking to address prejudice. In short, this dissertation illustrates the complexity of the mindfulness-prejudice relationship, with implications for discrimination and racial policy support (e.g., Baranauskas, 2022).

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Figure 1.1. Overall Theoretical Model.



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Chapter II Unpacking the relationship between attention-based trait mindfulness, explicit prejudice, and equitable policy support

Abstract

Research has explored mindfulness practice as an intervention to address explicit prejudice. Overall, these findings have been relatively mixed, which may be due to differences in how mindfulness is operationalized across research projects. Attention monitoring is an important facet of mindfulness that may play a key role in the relationship with prejudice (Lindsay & Creswell, 2017). Although attention monitoring with minimal acceptance can have cognitive benefits (Lindsay & Creswell, 2017), it is also associated with detrimental affective outcomes, such as greater rumination, anxiety, and threat awareness (Manigault et al., 2021; Pearson et al., 2015). Given that the factors above are all positively linked to prejudice (Mogg et al., 1994; Riek et al., 2006; Steele et al., 2019), primarily attention-based trait mindfulness (PABTM) may predict greater affective prejudice, which may subsequently be negatively associated with support for equitable racial policy. Across two correlational survey studies (Study 1 $N = 202$, Study 2 $N = 448$), PABTM and explicit affective sexual and racial prejudice were measured. In Study 2, discriminatory intent and racial policy support were additionally assessed. Results found that PABTM was a relatively consistent positive predictor of explicit sexual and racial prejudice and predicted less support for equitable racial policy in Study 2. Affective racial prejudice mediated the PABTM-policy relationship, such that it

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predicted greater explicit racial prejudice, which then predicted less support for equitable racial policy. Results suggest that PABTMs may have damaging relationships with explicit prejudice and equitable racial policy, connoting that attention-based mindfulness interventions to address prejudice and policy may backfire and should potentially be avoided.

Keywords: mindfulness; prejudice; intergroup relations; race

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Introduction

Systemic discrimination remains prevalent for racial and sexual minorities in the U.S. (e.g., Quillian et al., 2019; Robinson & Espelage, 2011). Public policies (e.g., reparations for slavery) can help address these inequities; yet an individual's prejudice can limit support for such equitable policies aimed to reduce inequalities (e.g., Baranauskas, 2022). Sustained prejudice and discrimination have led to harassment and unequal outcomes for members of marginalized groups in education, policing, and employment (Braunstein, 2017; Carvalho et al., 2022; Kahn & Martin, 2016; Quillian et al., 2019; Robinson & Espelage, 2011; Yinger, 1998). Identifying the correlates of prejudice, discrimination, and policy support can facilitate equity-focused interventions and assist organizations seeking to champion equitable racial policy.

Emerging research suggests that mindfulness, a receptive form of present-moment attention (Kabat-Zinn, 2003; Lindsay & Creswell, 2017), may reduce prejudice generally (see Oyler et al., 2022). However, there have been mixed results on the mindfulness-prejudice relationship (e.g., Nicol & De France, 2018), connoting this relationship may be more complex than originally projected. It was hypothesized in the current study that this may be due to differences in how trait mindfulness measures are operationalized.

Given that trait attention monitoring may be positively related to prejudice via increased affective rumination and reactivity (Manigault et al., 2021; Pearson et al., 2015), mindfulness measures that capture primarily present-moment attention may *positively* predict prejudice, *negatively* predict support for equitable, and *positively*

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predict support for inequitable racial policies. As negative emotions associated with outgroups can shape relevant policy positions (Cottrell et al., 2010), primarily attention-based trait mindfulness (PABTM) may predict reduced support for equitable and greater support for inequitable racial policy via affective racial prejudice. Across two studies, this paper investigates the relationship between PABTM and prejudice, discriminatory intent, and racial policy support (**H1 & H2**). Then, it examines whether affective prejudice mediated the relationship between PABTM and policy support (**H3**).

Mindfulness and its Benefits

One critical current limitation of mindfulness research is the lack of a common working definition for the term itself (Van Dam et al., 2018). This can make it difficult for researchers to compare findings across studies where mindfulness is operationalized differently (e.g., Oyler et al., 2022). Secular definitions of mindfulness vary, with some commonalities across definitions: mindfulness is understood as a form of attention where one consciously concentrates on sensations and events as they occur and then approaches them with a nonevaluative perspective (Bishop et al., 2004; Kabat-Zinn, 2003; Lindsay & Creswell, 2017).

In light of this background, researchers have investigated the benefits of mindfulness as a trait and as an intervention (Creswell, 2017). Broadly, mindfulness practice can help one become more attentive, less responsive emotionally, more nonjudgmental, and better able to communicate about their experiences (Baer et al. 2008; 2012). More specifically, classic clinical mindfulness interventions, such as Mindfulness-

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Based Cognitive Therapy (MBCT, Teasdale et al., 2000) alleviate stress, feelings of pain, and depressive symptoms (Williams, 2008). Finally, mindfulness has also been implemented in some public schools, with interventions improving psychological and physical health and performance-based outcomes for teachers and students (for a review, see Mejklejohn et al., 2012). Given the practical benefits that mindfulness practice can provide, researchers believe that there may be multiple paths for mindfulness to reduce general prejudice (see Burgess et al., 2017; Kang et al., 2013).

Prejudice against LGBTQI Individuals

Prejudice reflects a negative animosity directed towards someone due to their group identity, while discrimination is the *unequal treatment* of a person or group due to their group membership (Banaji & Heiphetz, 2010; Fiske, 2000). Prejudice and discrimination against sexual minorities are unfortunately common in the U.S., with approximately 50 % of LGBTQI individuals (Casey et al., 2019) and 74% of transgender persons reporting having experienced at least one discriminatory incident (Puckett et al., 2020). For these individuals, experiencing discrimination due to their marginalized identity can increase symptoms of anxiety and depression (Puckett et al., 2020; Williams et al., 2009). In the context of health care, anticipating discrimination can lead LGBTQI individuals to avoid seeking medical treatment (Seelman et al., 2017).

There has been a recent surge in anti-LGBTQI legislation in many states across the U.S. (American Civil Liberties Union, 2023). These policies include bans from participating in sports, restroom restrictions, restrictions on proper pronoun use, and

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restrictions on making changes to legal documents and identification (American Civil Liberties Union, 2023). For instance, in cities where anti-trans bills have passed, there are greater rates of anti-transgender discrimination (Truszczynski et al., 2022). LGBTQI individuals who report knowledge of these policies and their passage similarly experience greater mental health issues and are less likely to feel safe at school (Schanzle et al., 2023; Tebbe et al., 2022). Additionally, LGBTQI people are also more likely to be the victim of a hate crime and/or assaulted (Lombardi et al., 2002; Stotzer, 2009). Given these rising explicit biases and their many consequences for LGBTQI people, identifying potential negative correlates of sexual prejudice – and targeting ways to intervene-- would help to prevent these harms from occurring.

Explicit Racial Prejudice and Policy Support

Similarly, racial and ethnic minorities also experience sustained explicit prejudice and racial discrimination. Explicit racial prejudice captures intentional negativity directed towards a person due to their group membership (Banaji & Heiphetz, 2010). Racial inequities, partially a product of consistent racial prejudice and discrimination, are pervasive across societal domains, including in healthcare (Williams et al., 2019), policing, and in the courtroom (e.g., Carvalho et al., 2022; Kahn & Martin, 2016). Although individuals often endorse explicit sexual prejudice in certain areas of the U.S. (see Herek & McLemore, 2013), explicit racial prejudice has, until recently, been less common in the U.S. because it was socially sanctioned (see Sears et al., 2000). However,

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inflammatory racial language being spread by political elites has strengthened White people's willingness to express explicit racial prejudice (Newman et al., 2021).

Explicit racial prejudice is consistently negatively associated with racial policy support. For example, explicit racial prejudice was related to less support for reducing funding for police and moving it to social services (Baranauskas, 2022), more support for racial profiling by police (Weitzer & Tuch, 2006), and less endorsement of equitable racial policy generally (Ditonto et al., 2013; Weitzer & Tuch, 2006, see Chapter II). A person high in explicit racial prejudice then, may be much less likely to support equitable racial policy. By extension, if mindfulness can impact explicit racial prejudice, it may similarly affect racial policy support.

Mindfulness, Prejudice, and Racial Policy

Initial research on mindfulness and prejudice suggests multiple explanations for why it could reduce general prejudice (see Burgess et al., 2017; Kang et al., 2013). First, mindfulness may reduce prejudice due to its positive relationship with empathy (see Berry et al., 2018). Given that empathy has negatively predicted prejudice (Gutsell & Inzlicht, 2010), mindfulness may similarly reduce prejudice through strengthened empathic concern. Mindfulness practice may also reduce explicit racial prejudice by leading a person to become less reliant on automatic processes (Kang et al., 2013), which can limit the activation of negative stereotypes regarding a marginalized group (Lueke & Gibson, 2015).

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However, findings on mindfulness and prejudice have been somewhat inconclusive (Oyler et al., 2022). Across multiple studies, trait mindfulness failed to predict general explicit prejudice (Nicol & De France, 2018). In terms of implicit bias, brief mindfulness interventions can reduce implicit race and age bias among college students (Edwards et al., 2017; Kang et al., 2014; Lueke & Gibson, 2015). Yet, a mindfulness intervention failed to attenuate implicit racial bias among police officers (Hunsinger et al., 2019). Additionally, mindfulness also failed to close the gap in helping behavior between White and Black strangers that favored White individuals (Berry et al., 2021). Additionally, if mindfulness *is* linked to prejudice, this implies that it may influence policy support, given that prejudice may limit equitable policy support (Baranauskas, 2022).

Minimal research has examined the relationship between mindfulness and policy support. Much of this work has focused on mindfulness as a positive predictor of pro-environmental stances (Barbaro & Pickett, 2016; Panno et al., 2018). Outside of this context, trait mindfulness predicted greater support for progressive taxation (De Cristofaro et al., 2022). The goal of this chapter is to examine the relationship between a PABTM, prejudice, and racial policy support, using Monitor and Acceptance Theory as a guiding framework.

Monitor and Acceptance Theory

A new theory identifying the predominant mechanisms of meditation practice has been developed in clinical psychology. Monitor and Acceptance Theory, or MAT

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(Lindsay & Creswell, 2017), argues that attention monitoring and acceptance skills *in tandem* work to produce the overall benefits of mindfulness practice (see Lindsay et al., 2018; 2019; Rahl et al., 2017). Attention monitoring delineates an intentional focus on experiences as they occur, whereas acceptance reflects the processing of these experiences in a receptive and open manner (Lindsay & Creswell, 2017). Further, MAT also proposes that attention monitoring *alone* may enhance affective rumination (e.g., Pearson et al., 2015), reactivity (Manigault et al., 2021), and anxiety (Ainsworth et al., 2017), which predict greater prejudice (e.g., Steele et al., 2019). Conversely, attention monitoring and acceptance in combination, utilizing both trait and practice-based approaches, were associated with improved mental health (Ainsworth et al., 2017), and reduced emotion reactivity and rumination (Manigault et al., 2021; Pearson et al., 2015). This study tested whether the attention tenet of MAT can be applied to intergroup and political outcomes, by examining whether a PABTM predicts greater explicit prejudice and reduced levels of equitable racial policy support.

What is MAAS measuring?

Although trait mindfulness has many operationalizations in the literature, this paper focuses on MAAS. The creators of MAAS (a commonly used measure with approximately 15,000 citations as of December 2023, Brown & Ryan, 2003) operationalized trait mindfulness as a present-moment awareness of experience. The creators of MAAS have argued that those who achieve full present-moment awareness are expected to develop an implicit orientation of acceptance, which inspired the design

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of this measure (Brown & Ryan, 2003). MAAS items, therefore, primarily explicitly address awareness of experiences as they occur in the moment, but not explicitly measuring acceptance. Importantly, the scale relies on all reverse-coded items to capture mindful attention, with some critics suggesting that this scale may be capturing a lack of mindlessness rather than the presence of mindfulness (Höfling et al., 2011).

In validation studies, although initial factor analyses supported a two-factor model, that second factor was dropped because it accounted for a small proportion of variance (Brown & Ryan, 2003). Researchers replicated and confirmed the single-factor structure in student and community samples. It was modestly positively correlated with well-being, emotional intelligence, and a prior trait mindfulness measure (evidence for convergent validity). Further, MAAS is sensitive to individual differences in meditation experience, as those with more meditation experience tended to have higher MAAS scores.

Additional evidence has also emerged demonstrating that MAAS may primarily capture attention, but not acceptance. Trait MAAS did not predict prejudice across two studies (Nicol & De France, 2018), whereas measures of mindfulness that do explicitly capture attention and acceptance, on average, had a small negative relationship with intergroup conflict (Oyler et al., 2022). Additionally, a recent paper on the adaptive self-concept found that it independently predicted both trait present-moment awareness (as measured by MAAS) and acceptance (Jankowski, Bąk, & Miciuk, 2022), indicating that the content of MAAS differs from acceptance.

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A final critique is that certain MAAS items may be interpreted differently depending on one's level of meditation experience (see Goh et al., 2016; Van Dam et al., 2010). In a Rasch analysis of the full MAAS scale using samples of experienced meditators and those who have not meditated before, multiple MAAS items functioned differently between samples, also known as differential item functioning (DIF, Goh et al., 2016). Another possibility, then, is that MAAS items may be capturing attention only for those with no prior or minimal meditation experience, but then may capture attention and acceptance for individuals with ample meditation experience, which would be consistent with the argument that those who achieve a full present-moment awareness of experience (who would likely have substantial meditation experience) then develop an implicit accepting approach to experience (Brown & Ryan, 2003). In sum, there are conflicting perspectives and evidence regarding whether MAAS is measuring acceptance, however, many contemplative researchers agree that MAAS at least primarily captures attention (but see Grossman & Van Dam, 2011; Höfling et al., 2011).

Attention and Prejudice

If MAAS is a primarily attention-based measure of mindfulness, prior work conveys it might predict *greater* prejudice via greater rumination (Pearson et al., 2015). A PABTM is a trait measure of mindfulness that predominantly explicitly emphasizes its attentional facets (e.g., paying attention to experiences as they occur) but not the acceptance facet (e.g., approaching these experiences in a gentle way). Attention-based interventions and measures positively predict cognitive performance (Britton et al., 2018;

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Rahl et al., 2016; Yamaya et al., 2021) but tend to fail to predict or sometimes positively predict emotional processes (Manigault et al., 2021; Vago & Nakamura, 2011). Using a sample of patients with fibromyalgia, an attention-based intervention did not reduce early-stage threat reactivity (Vago & Nakamura, 2011). Further, an attention-based intervention improved attention regulation but did not reduce emotion reactivity (Britton et al., 2018). PABTMs, then, may positively predict explicit prejudice via enhanced reactivity.

Intergroup Emotions Theory (e.g., Mackie & Smith, 2017) notes that for each outgroup, there is a specific negative emotion (e.g., Black people and fear) associated with it that may be activated upon physically or psychologically engaging with them. Greater attention monitoring may produce an awareness of emotion but would fail to provide those individuals with the tools to regulate those emotions, leading to greater prejudice. These emotions may also be more likely to sway one's position on policy issues related to that outgroup, as outgroup-triggered negative emotions can be negatively associated with support for policies relevant to that group (e.g., Cottrell et al., 2010). Attention may also be positively related to prejudice via elevated threat awareness. Generally, perceivers view Black and transgender individuals as threatening (Broussard & Warner, 2019; Trawalter et al., 2008), and threat perceptions predict greater prejudice and discrimination (see Riek et al., 2006). A measure primarily capturing attention monitoring may be positively related to anxiety (e.g., Ainsworth et al., 2017), which could potentially elevate prejudice, as those with greater anxiety engage more with threat

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(MacLeod & Mathews, 1988; Mogg et al., 1994). Similarly, becoming more sensitive to threats could also shape one's policy support, as those who see immigrants as more threatening have stronger anti-immigrant views (Willis-Esqueda, Delgado, & Pedroza, 2017). In summary, a measure capturing attention monitoring primarily could be positively related to prejudice, and negatively associated with equitable racial policy support via greater affective rumination, reactivity, and anxiety.

Overview of Studies

PABTM may have a different relationship with explicit prejudice, discriminatory intent, and racial policy support than traditionally hypothesized, given that attention monitoring is associated with greater rumination (Pearson et al., 2015), greater emotion and stress reactivity (Manigault et al., 2021) and may also enhance threat awareness via anxiety (Ainsworth et al., 2017; Riek et al., 2006). Because prejudice and policy are linked (see Baranauskas, 2022), if PABTM predicts greater explicit prejudice, it should similarly influence policy support as well. If this were to be the case, these findings would connote a potentially complex mindfulness-prejudice relationship by suggesting that attention-based operationalizations of mindfulness may backfire in the intergroup and political areas.

The current studies explored the relationship between PABTM (e.g., MAAS), general prejudice, and racial policy support (**RQ1 and 2**), assessing whether racial feeling thermometers mediated the relationship between PABTM and racial policy support (**RQ3**). These studies included multiple measures of prejudice toward different

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target groups and used affective, cognitive, and intent-based measures of explicit prejudice, which allow for a more comprehensive examination of the relationship between MAAS and prejudice. Study 1, then, assessed whether MAAS predicted reduced affective explicit prejudice and prejudicial attitudes towards gay and transgender individuals (**H1**). Study 2 examined whether MAAS predicted affective explicit racial/ethnic prejudice, discriminatory intent, and racial/ethnic policy support, and whether affective racial prejudice mediated the relationship between PABTM and racial policy support (**H1-H3**).

Study 1

Study 1 probed the relationship between MAAS, a primarily attention-based measure of mindfulness, and explicit affective and attitudinal prejudice against gay and transgender individuals. This study hypothesized that MAAS, being attention-based, would predict greater explicit affective prejudice and prejudicial attitudes towards gay and transgender individuals (**H1**). In this survey, feeling thermometers (measuring affective prejudice), the Modern Homonegativity Scale (MHS, Morrison & Morrison, 2003), and the Transgender Prejudice Scale (TPS, Davidson, 2014) measured explicit sexual prejudice.

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Method

Participants

Two hundred and twelve psychology undergraduates from a southwestern university received course credit in exchange for participating¹. Ten participants were excluded due to missing data, leaving a final sample of 202 participants. The sample consisted of 156 (73.6 %) women, 45 (21.2 %) men, and 1 (.5 %) non-binary individual. Regarding race/ethnicity, 138 (65.1 %) participants identified as White, 52 (24.5 %) as Hispanic, 15 (7.1 %) as Native, 14 (6.6 %) as African-American, 12 (5.7 %) as Asian-American, 8 (3.8 %) as Pacific-Islander, and 5 (2.4 %) as other. In terms of sexual orientation, 167 (78.8 %) participants identified as heterosexual, 27 (12.7 %) as bisexual, and 8 (3.8 %) as homosexual. The sample contained primarily young adults, ($M = 18.75$ years old, $SD = 1.22$). In this sample, 95 (47.0 %) participants previously meditated, whereas 107 (50.5%) of participants have not.

Measures

Demographics

Participant race/ethnicity, gender, sexual orientation, age, political ideology, and religiosity were collected. Sexual orientation was used as a covariate for regression analyses using MHS an outcome.

¹ This dataset was collected by the Contemplative Psychophysiology Research Lab at Northern Arizona University to test unrelated hypotheses that were not examined here.

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Mindful Attention and Awareness Scale

MAAS consists of 15 reverse-coded items that captured the degree to which a person was aware of their present-moment experiences (Brown & Ryan, 2003), using a 1 (almost always) to 6 (almost never) scale, ($\alpha = .84$). Sample items included, "I could be experiencing some emotion and not be conscious of it until sometime later" (reversed), "I find it difficult to stay focused on what's happening in the present moment" (reversed), and "I drive places on 'automatic pilot' and then wonder why I went there" (reversed). This composite measure was reverse-coded prior to analyses, such that higher scores indicated primarily greater trait attention.

Prejudice Measures

Feeling Thermometers. Using a 0 (very cold) to 100 (very warm) scale, participants rated their feelings toward four different social groups: transgender individuals, gay men, homosexual individuals, and the "average" person (e.g., Burke et al., 2017). Warmth ratings towards gay men, homosexuals, and transgender individuals were averaged to create a composite warmth measure toward sexual minorities. Internal consistency was strong for this measure ($\alpha = .92$).

Modern Homonegativity Scale (MHS). The MHS is a 12-item measure (Morrison & Morrison, 2003) that assessed attitudinal prejudice against gay men, ($\alpha = .92$). Participants responded to each item using a 1 (strongly disagree) through 5 (strongly agree) scale. Sample items included: "Many gay men use their sexual

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orientation so that they can obtain special privileges," and "Gay men have all the rights they need."

Transgender Prejudice Scale (TPS). The TPS is a 25-item measure with two subscales: sex essentialism and discomfort (Davidson, 2014). The sex essentialism subscale measured the degree to which an individual believes that sex has a biologically inherent essence to it ($\alpha = .98$), whereas discomfort captured how much participants were unnerved by transgender individuals ($\alpha = .88$). A sample item for the sex essentialism subscale stated, "Transwomen were born as men, and will therefore always be men," and for the discomfort subscale included, "I don't think it is safe for the children to let transwomen have unsupervised access to children." Participants indicated the degree to which they aligned with each statement using 1 (strongly disagree) to 6 (strongly agree) scale.

Procedure

Upon consenting, participants completed a survey about various social attitudes. They first provided demographic information and responses to various attitudinal questionnaires, including MAAS, and then finished an image rating task unrelated to the current study (Plonski et al., in prep). In this task, participants rated neutral, pleasant, and unpleasant images that were unrelated to gay or transgender individuals or stereotypes regarding them (e.g., eraser, skiing, clouds), to not prime negative or positive gay and

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transgender associations (see Eberhardt et al., 2004)². Next, participants completed the prejudice measures relevant to the current study, including the MHS, the TPS, and feeling thermometers. Finally, participants were debriefed, dismissed, and compensated.

Results

Sensitivity Power Analyses

A sensitivity power analysis was administered using G*Power 3 to assess the minimum possible detectable effect for Study 1. For a standard linear regression with two predictors and a sample size of 202, the minimum detectable effect was $f^2 = .04$. In this study, there was power to detect a small to medium sized effect.

Preliminary Analyses

Means, standard deviations, and correlations are presented in Table 2.1. Warmth towards gay and transgender individuals was slightly lower than warmth towards the “average” person. MAAS was positively correlated with transgender prejudice and MHS, and negatively correlated with feelings of warmth.

Regression Analyses

To assess whether MAAS predicted greater prejudice (**H1**), three regressions were conducted, one for each outcome. These three regressions were conducted separately to assess the unique relationship between PABTM and the different types of prejudice. Binary-coded participant sexual orientation was included as covariate only for

² Analyses found no significant differences in any of the measures of prejudice across the different image rating conditions (see Supplemental Material).

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analyses using MHS, given that it significantly interacted with MAAS to predict that outcome, although this was not the case for any of the other outcomes (see Supplemental Material). Participant sexual orientation was coded as binary (heterosexual or all other sexual identities) due to small cell sizes.

Gay and Transgender Feeling Thermometers

As hypothesized (**H1**), MAAS was a marginally significant, negative predictor of warmth towards gay and transgender individuals, while controlling for warmth towards the “average” person, $B = -4.28$, $SE = 2.18$, $\beta = -.13$, $p = .051$, 95% CI [-8.59, .02]. That is, higher levels of MAAS marginally predicted greater affective prejudice against gay and transgender individuals.

Transgender Prejudice

Also as hypothesized, MAAS was a significant positive predictor of prejudicial attitudes towards Transgender individuals, $B = .29$, $SE = .12$, $\beta = .17$, $p = .017$, 95% CI [.05, .52]. Higher levels of MAAS positively predicted greater prejudicial attitudes towards Gay and Transgender individuals.

MHS

MAAS was not a significant predictor of prejudicial attitudes towards gay men, $B = .12$, $SE = .08$, $\beta = .10$, $p = .120$, 95% CI [-.04, .27], contrary to hypotheses.

Discussion

Overall, in Study 1, PABTM had a harmful relationship with explicit sexual prejudice. Study findings generally supported the hypothesis that a PABTM was

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associated with greater explicit sexual prejudice (**H1**). MAAS was positively associated with anti-transgender and marginally associated with prejudice against sexual minorities as captured by affective feeling thermometers but had no significant association with the MHS. Importantly, there were no *negative* relationships found between PABTM and explicit sexual prejudice. While mindfulness has sometimes been negatively associated with prejudice (e.g., Oyler et al., 2022), these results suggested that PABTM may instead be associated with more negative feelings and attitudes toward gay and transgender people.

As posited, this positive relationship between mindfulness and prejudice may be due to the attention-based nature of MAAS. Attention monitoring alone may be positively related to prejudice via heightened rumination (Pearson et al., 2015), which may positively predict prejudice (Steele et al., 2019). Additionally, given that attention has predicted greater anxiety and sensitivity to intergroup threat (Riek et al., 2006), it may heighten prejudice towards sexual minorities by enhancing awareness of outgroup threat.

Study 2

Does attention-based mindfulness similarly predict prejudice toward racial minorities, as it did toward sexual minorities in Study 1? Extending Study 1's findings, Study 2 evaluated whether there was a positive relationship between MAAS and explicit racial prejudice (**H1**) and tested the relationship between MAAS and racial policy support (**H2**). Finally, affective prejudice towards racial minorities was examined as a mediator

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of the MAAS-policy relationship (**H3**). Extending Study 1, this study targeted explicit racial prejudice against Black and Latinx individuals and added a measure of discriminatory intent using a resource allocation task. Finally, policy items (Craemer, 2015; Hughes & Tuch, 2003) were used to capture racial policy support.

Method

Participants

Four hundred and forty-eight undergraduates from a pacific northwestern university were recruited in exchange for course credit. In terms of gender, 282 (61.0 %) participants identified as women, 149 (32.3 %) as men, 16 (3.5 %) as non-binary, with 1 participant indicating “not listed.” Regarding race and ethnicity, 220 (47.6 %) participants identified as White, 66 (14.3 %) as Latinx, 64 (13.9 %) as East, South, or Southeast Asian, 44 (9.5 %) as multi-racial, 19 (4.1 %) as Middle Eastern, 12 (2.6 %) as Black, 10 (2.2 %) as Other, and 7 (1.5 %) as Hawaiian Native/Pacific Islander. This was a relatively young sample, ($M = 24.59$ years old, $SD = 6.99$). Regarding meditation practice, 250 (56.1 %) participants reported not having previously meditated and 196 (43.9 %) participants reported having previously engaged in meditation.

Measures

Demographics

Participant race/ethnicity, gender, sexual orientation, age, and political ideology were obtained, along with prior meditation experience.

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Mindful Attention and Awareness Scale

As in Study 1, MAAS measured trait mindfulness ($\alpha = .89$). Composite scores for this scale were computed in the same way as in Study 1.

Feeling Thermometers

Similar to Study 1, thermometers captured warmth towards three racial groups: Black, Latinx, and White individuals. Warmth towards Black and Latinx individuals was averaged and used as an aggregate measure of warmth towards racial minorities. The internal consistency for this measure was strong ($\alpha = .93$).

Discriminatory Resource Allocation Measure

A hypothetical resource allocation task measured discriminatory intent and has been used to estimate racially discriminatory behavior in prior work (adapted from Sidanius et al., 2007). Participants reviewed applications from two newly formed fictitious student organizations applying for funding from their university: the Robotics Club, and the Black-Latinx Association of Programmers. The two funding applications were nearly identical in content, aside from the demographics for each group (see Figure 2.1 for applications). Specifically, only the racial composition of the student organizations differed across applications, with one student group having a "current racial breakdown" that was "100% White", and the other student group having a "current racial breakdown" that was "55.2% African-American, 44.8% Latinx." Participants then encountered a Tajfel matrix with seven response options, with each option providing set funding amounts for each group (Turner et al., 1979). These matrices identified any

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preferences for White relative to Black/Latinx racial groups by tabulating how many resources were being shared with the ingroup relative to the outgroup (Turner et al., 1979), and have been used extensively as measures of discrimination (see Sidanius et al., 2007). selected one to allocate funding to each student group. Using this matrix, lower scores indicated more resources allocated to White relative to Black-Latinx organizations, whereas higher scores reflected more resources allocated to predominately Black-Latinx relative to White student organizations. Resource allocation was reverse-coded for analyses, such that higher scores indicated greater discriminatory intent against Black and Latino individuals.

Racial Policy Items

Five policy items (Craemer, 2015; Hughes & Tuch, 2003) were measured: reparations for slavery, support for a border wall on the Southern border, racial profiling in policing, affirmative action in college admissions and instituting racial quotas in hiring. Responses ranged from 1 (Strongly Agree) to 5 (Strongly Disagree), with a sixth "Don't Know" option. Sample items included: "I would support building a wall along the Southern border of the United States," and "The government should make a one-time cash payment to each African-American citizen as compensation for its past support of slavery." For reparations and affirmative action in schools and hiring, higher scores indicated more support for equitable racial policy, whereas for the border wall and racial profiling in policing, higher scores indicated more support for inequitable racial policy.

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Procedure

Participants completed the survey online using Qualtrics. After consenting, participants first completed demographic items. Next, they completed the PABTM measure, which was the MAAS. Then, participants finished the feeling thermometer and racial policy support items. Finally, participants engaged in the resource allocation task then were debriefed and compensated with course credit.

Results

A Priori Power Analyses

An a priori power analysis was administered to ascertain the sample size required for an adequately powered multiple linear regression analysis, using an effect size from a review on mindfulness and intergroup conflict ($f^2 = .02$, Oyler et al., 2022). For a standard linear regression with two predictors, a sample size of 395 was required to achieve a power of 80%. A second a priori power analysis was conducted for the mediation analysis using an app that performs power analyses for meditation models (Schoemann et al., 2017). Using effect sizes from the prior review ($r = .15$, Oyler et al., 2022), a sample size of approximately 430 was required to achieve a power of 80% for this mediation analysis. This study, with a sample size of 448, then, is well-powered for both analyses.

Preliminary Analyses

Overall, there was greater warmth towards racial minorities relative to White individuals (see Table 2.2). The average funding allocation rating was slightly above the

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midpoint, meaning that individuals tended to award similar amounts of funding to both groups. Finally, MAAS had negative correlations with each prejudicial outcome.

A CFA was administered in R using the lavaan package to determine if the five racial policy items loaded appropriately onto a single factor (see Supplemental Table 2.7). Due to poor model fit, two of the five policy items were dropped from analyses. As such, the following items were retained for policy analyses: instituting quotas in hiring, reparations for slavery, and support for the border wall.

Regression Analyses

To assess whether MAAS predicts affective prejudice, discriminatory intent, and racial policy support, six linear regressions were conducted. Participant race was not controlled in any analyses, because it did not significantly interact with MAAS to predict any measure of racial prejudice (see Supplemental Material). However, MAAS and participant race did interact for all policy items, so it is included as a covariate for all policy analyses (see Supplemental Material). Finally, warmth towards White people was controlled for in feeling thermometer analyses.

MAAS Positively Predicting Prejudice and Discrimination (H1)

Consistent with **H1**, MAAS marginally predicted less warmth towards racial minorities, $B = -1.65$, $SE = .95$, $\beta = -.08$, $p = .083$, 95% CI [-3.52, .22]. Also consistent with **H1**, MAAS significantly predicted more resources being allocated to White relative to Black-Latinx student organizations, $B = .18$, $SE = .09$, $\beta = .10$, $p = .049$, 95% CI [.00, .35]. These effects were generally small.

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MAAS Predicting Racial Policy Support (H2).

For racial policy support, regression analyses were administered using the three individual policy support items and the averaged overall racial policy support score. Consistent with **H2**, MAAS significantly negatively predicted overall racial policy support, $B = -.23$, $SE = .06$, $\beta = -.18$, $p < .001$, 95% CI [-.35, -.11]. For policy item regressions, note that reparations and racial quotas in hiring were reverse-coded (higher scores, more likely to agree), whereas support for building a border wall was not reverse-coded (higher scores, more likely to oppose).

First, MAAS was a significant negative predictor of support for reparations for slavery, $B = -.22$, $SE = .08$, $\beta = -.14$, $p = .009$, 95% CI [-.38, -.06]. Next, MAAS also negatively predicted support for using racial quotas in hiring, $B = -.22$, $SE = .07$, $\beta = -.15$, $p = .002$, 95% CI [-.37, -.08]. Finally, MAAS negatively predicted support for building a border wall on the U.S-Mexico border, $B = .16$, $SE = .06$, $\beta = -.12$, $p = .012$, 95% CI [-.29, -.04]. In short, consistent with **H2**, MAAS predicted less support for equitable racial policies and more support for building a wall along the Southern border, an inequitable racial policy. These effects were broadly in the small to medium range.

Mediation: Indirect Effect of Affective Prejudice on Racial Policy (H3).

The final analysis evaluated whether warmth towards racial minorities mediated the relationship between trait present-moment awareness (MAAS) and overall racial policy support (**H3**). Mediation analysis was performed using Hayes' PROCESS macro v. 4.0, using model 4 with 10,000 bootstrapped samples.

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A bootstrapped confidence interval found a significant indirect effect, $B = -.03$, 95% BCa $[-.06, -.00]$, see Figure 2.1. MAAS was a marginally significant negative predictor of warmth towards racial minorities, $B = -3.90$, $SE = 2.00$, $p = .052$, 95% CI $[-7.82, .03]$. Additionally, warmth towards racial minorities was a significant independent predictor of racial policy support, $B = .01$, $SE = .001$, $p < .001$, 95% CI $[.004, .01]$. Consistent with **H3**, the relationship between MAAS and racial policy support was mediated by warmth towards racial minorities.

Discussion

Building on and extending Study 1, a PABTM was related to greater racial prejudice, discriminatory intentions, and less support for equitable racial policy. Specifically, MAAS, a PABTM, predicted less warmth towards racial minorities, and marginally predicted more resources being allocated to White relative to Black-Latinx student organizations, largely consistent with prediction (**H1**). Further, MAAS predicted significantly less support for reparations for slavery and establishing racial quotas during hiring, and significantly greater support for building a border wall on the Southern border of the U.S., consistent with **H2**. Finally, warmth towards racial minorities mediated the relationship between PABTM and overall racial policy support. MAAS marginally predicted less warmth towards racial minorities, which then positively predicted overall racial policy support (**H3**).

Replicating and extending findings regarding attention and explicit prejudice against sexual minorities in Study 1, PABTM predicted greater explicit prejudice and

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discriminatory intent against racial minorities relatively consistently within this sample, conveying that attention without an explicit focus on acceptance as well may have a detrimental relationship with intergroup and political outcomes. Further, these findings apply MAT to intergroup and political outcomes by illustrating the potentially detrimental side effects of attention monitoring without acceptance. Second, this study added to the knowledge of the relationship between PABTM and racial policy support. Based on these findings, it may be that attention monitoring alone may promote more inequitable policy positions. Given that PABTM predicted greater prejudice in Study 2, it was not surprising, then, that it also predicted less support for equitable racial policy, and more support for the construction of the border wall, an inequitable anti-immigration policy. These results also extend prior work that has associated prejudice (e.g., Baranauskas, 2022; Cottrell et al., 2010) with policy support, by linking PABTM with racial policy support through explicit racial prejudice.

General Discussion

Across both studies, PABTM had a harmful relationship with explicit sexual and racial prejudice. This suggested that how trait mindfulness is operationalized in research, then, may shape its relationship with explicit prejudice, implying a potentially complex mindfulness-prejudice association. Across studies, MAAS generally predicted greater explicit affective and attitudinal prejudice and predicted greater discriminatory intentions in Study 2 (**H1**). Also in Study 2, MAAS, a measure of PABTM, predicted less support for equitable racial policy, and more support for building a wall on the Southern border,

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consistent with prediction (**H2**). Finally, warmth towards racial minorities served as a mechanism of the relationship between MAAS and racial policy support in Study 2 (**H3**). However, these effects were generally found to be in the small to medium range, suggesting that any harmful effects of attention on prejudice and policy may be modest in nature. The current results conveyed that attention-based interventions and measures may have a harmful relationship with prejudice and equitable racial policy, raising caution for organizations and policy makers considering using a mindfulness intervention.

Theoretically (**H1 & H2**), these studies applied the attention tenets of MAT to intergroup and political outcomes, such as prejudice and policy support. Specifically, these findings suggested that attention monitoring alone may have a positive relationship with prejudice. Further, these findings complicated our understanding of mindfulness and its relationship to prejudice. Researchers have consistently theorized that mindfulness may reduce prejudice, however, results have been mixed. These findings connoted, at least in the context of prejudice and policy, that certain operationalizations of mindfulness may have a harmful relationship with outcomes of interest.

These findings also provided indirect evidence (**H1 & H2**) that MAAS may not be fully capturing an orientation of acceptance. If attention and acceptance negatively predict intergroup conflict (see Oyler et al., 2022), a measure that purports to capture both aspects should produce a similar pattern, but this was not the case. An alternative explanation may be that MAAS is capturing acceptance towards the self, but not others (see Nicol & De France, 2018, 2022), therefore, those high in PABTM may be more

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accepting of their own biases. Another possibility is that implicit acceptance (said to be captured by the MAAS) may have a different relationship with prejudice than explicit acceptance.

The current findings (**H3**) also extended prior work where PABTM positively predicted support for environmental policy (e.g., Panno et al., 2018). These findings suggested that PABTM may predict support for other types of policies as well, implying that greater attention monitoring alone may have a detrimental relationship with equitable racial policy support. People may often employ a subjective, affect-laden approach when considering their position on political issues (e.g., Baranauskas, 2022). As such, *both* attention monitoring and acceptance may be needed to attenuate prejudicial feelings and, ultimately, promote support for racial policies that break down the status quo.

From an applied perspective (**H1 & H2**), this research also sheds light on the potential potency of mindfulness and attention-based interventions seeking to reduce prejudice and shape policy support. Although the current study did not test an intervention nor causal mechanisms, these results suggested that interventions that solely or primarily seek to boost one's attention monitoring skills may *increase* prejudice. With the rise of MAT, interventions that solely cultivate attention monitoring skills are being used more frequently (for a review, see Lindsay & Creswell, 2017; 2019). At best, these interventions tend to be less effective than interventions that cultivate attention and acceptance skills (Lindsay et al., 2018; 2019; Rahl et al., 2017), and at worst, they can

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produce negative consequences, such as bolstered stress reactivity and negativity

(Ainsworth et al., 2017; Manigault et al., 2021).

Attention-based interventions have also been deployed in applied contexts, although they are less common than attention and acceptance interventions (for a review see Lindsay & Creswell, 2017; 2019). Generally, attention-based interventions, consistent with MAT tenets, have improved cold, cognitive processes, such as attention control (Britton et al., 2018; Yamaya et al., 2021). However, attention-based interventions have failed to impact emotional outcomes (Britton et al., 2018; Desrosiers et al., 2014; Vago & Nakamura, 2011), and can make participants more reactive to emotional experiences (Manigault et al., 2021). In summary, these findings would also be useful for organizations to reduce explicit prejudice and bolster support for equitable racial policies, as these early results similarly convey that attention-based meditation may be a tool to avoid.

Currently, there is a push to integrate mindfulness meditation into society, as well (see Burgess et al., 2017; Ramstetter, 2021). These findings, then, could also help to improve the design of mindfulness content online. Cell phone apps such as Headspace make mindfulness accessible to the average person. However, these findings suggested that not all mindfulness interventions will be beneficial, as attention-based interventions may backfire depending on the context. Anyone considering bringing mindfulness to an applied context should do so with caution. However, future research should compare the

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effectiveness of an attention-based intervention to an attention plus acceptance

intervention to reduce prejudice and intergroup conflict.

Limitations

The current studies also have limitations that should be considered. First, both samples utilized college students, albeit from different universities. If MAAS does primarily capture attention for those with minimal meditation experience, using a college sample may have impacted results by placing a ceiling on one's possible meditation experience. Average MAAS scores were below the midpoint in Study 1 and just above the midpoint in Study 2. Those with no or minimal meditation experience may not be achieving full present-moment awareness and that subsequent implicit sense of acceptance. Including samples with more meditation experience could demonstrate this possibility.

A second limitation of this study was the single wave, correlational design, which precluded causal relationships from being established. This additionally limited the interpretation of mediation results (see Hayes, 2022). Future work should include longitudinal and experimental designs to assess causality. Further, MAAS theorizes that acceptance implicitly arises from full present-moment awareness (Brown & Ryan, 2003). Meditation novices may gradually cultivate present-moment awareness skills without seeing immediate gains in nonjudgment (Baer et al., 2012; Lindsay & Creswell, 2017). Utilizing a sample that assessed the relationship between trait mindfulness and acceptance over time could assist in addressing this possible explanation.

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A final limitation was the inability to test for differences in relationships by participant race in Study 2 or by participant sexual orientation or gender identity in Study 1. The small cell sizes in each study did not permit separate adequately powered regression analyses by race, gender identity, and sexual orientation. Future research could obtain larger and more diverse samples and explicitly confirm whether this is the case.

Future Research

Future research could build on this work by examining the effects of an attention-based intervention on prejudice and policy support. This would allow for causal claims to be made about the relationships between attention monitoring, prejudice, and policy support. Further, the efficacy of attention-based training could be compared to an attention monitoring and acceptance intervention, alongside a control condition. This would partially extend MAT to intergroup and political contexts by establishing that attention-based interventions can boost prejudice and reduce support for equitable racial policy. Practically, this would also imply that attention-based interventions may backfire for movements, organizations, and companies trying to reduce prejudice or influence racial policy.

Next, future research could also probe other types of equitable policies (e.g., defund the police, legalizing abortion) to assess whether findings from Study 2 generalize to other issues, such as positions on LGBTQ issues. Although mindfulness has predicted greater support for conserving the environment (e.g., Panno et al., 2018) and progressive taxation (De Cristofaro et al., 2022), additional research is needed to fully explore the

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mindfulness-policy relationship. This would help to further establish the relationship between mindfulness and policy, specifically, PABTM and support for equitable policy broadly.

Finally, future research may investigate whether the relationship between MAAS and prejudice/policy support depends on one's levels of meditation experience. In both samples, most participants had no prior experience with meditation. It's possible that experienced meditators may be more likely to see an implicit orientation of acceptance emerge following achieving full present-moment awareness. Given research indicating that more experienced meditators tend to display less prejudice, this is worth examining (e.g., Schimchowitsch & Rohmer, 2016).

Conclusion

This paper produced evidence of the complexity of the mindfulness-prejudice relationship. It also systematically explored the relationship between mindfulness and racial policy support, specifically between PABTM and racial prejudice. This paper provided two key takeaways. First, MAAS had a harmful relationship with explicit prejudice and equitable racial policy support. Second, PABTM predicted racial policy support via warmth towards racial minorities, suggesting that feelings towards racial minorities could shape policy support. Further, these findings could inform organizations seeking to reduce explicit prejudice and promote equitable racial policy by providing evidence posing that attention-based mindfulness interventions may backfire. For this

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reason, caution is recommended when utilizing mindfulness interventions in intergroup and political contexts to ensure that equitable outcomes are promoted.

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Table 2.1. Study 1, Descriptives and Correlations

	1	2	3	4	M (SD)
1. Mindful Attention and Awareness Scale	-				2.41 (.85)
2. Transgender Prejudice Scale	.17*	-			2.38 (1.01)
3. Modern Homonegativity Scale	.13 ⁺	.84***	-		2.41 (.85)
4. Warmth towards LGT people	-.10	-.72**	-.73**	-	72.83 (24.55)

N = 202; ⁺ *p* < .10; * *p* < .05; *** *p* < .001

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Table 2.2. Study 2, Descriptives and Correlations

	1	2	3	4	M (SD)
1. Mindful Attention and Awareness Scale	-				3.82 (.84)
2. Warmth towards Racial Minorities	-.02	-			85.69 (18.04)
3. Warmth towards White People	.16***	.41***	-		69.65 (25.38)
4. Resource Allocation	-.09 ⁺	-.08	.12*	-	3.25 (1.59)

N = 421-433; ⁺ *p* < .10; * *p* < .05; *** *p* < .001

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Figure 2.1. Resource Allocation Task

Application 1 (all-White):

Portland State University

Application for Student Organization Funding

Due Date: February 28th, 2021

Instructions: *This form should be completed by the president or chair of the organization. Fields with an asterisk (*) must be entered to receive funding.*

<i>BASIC INFORMATION</i>	
Name of Organization*: The Portland State University Robotics Club	Date*: January 4th, 2021
Name of President*: George Wright	Membership Fees?* No
Purpose of Organization*: To provide a space for PSU students who are excited about robotics to nerd out! No past experience needed to join. We plan on offering trainings, mentoring, and virtual social events.	
<i>DEMOGRAPHICS</i>	
How many members are currently in this organization?* 16	
What is the current gender breakdown of this organization? 75% Men & 25% Women	

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What is the current racial breakdown of this organization? 100% White
What percentage of members are first-generation college students? 19%
<i>FUNDRAISING</i>
How much money does the organization currently have on hand?* \$ 276
What is the organization doing to raise more money? Last week, we held our first fundraiser. We raised money with a virtual walk.
If funding is allocated, how will it be used? We're trying to expand recruitment. We also want to host mini-classes for our members.

Application 2 (Black-Latinx):

Portland State University

Application for Student Organization Funding

Due Date: February 28th, 2021

Instructions: This form should be completed by the president or chair of the organization. Fields with an asterisk (*) must be entered to receive funding.

<i>BASIC INFORMATION</i>	
Name of Organization*: Portland State University Black-Latinx Association of Programmers	Date*: January 7th, 2021

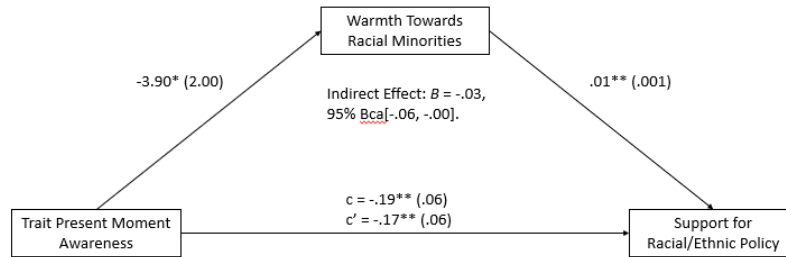
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Name of President*: Jason Simmons	Membership Fees?* No
Purpose of Organization*: We want to network with awesome PSU students who see Java as their second language. As we expand, we're gonna hold trainings, and bring mentors and students together! No past coding experience needed.	
DEMOGRAPHICS	
How many members are currently in this organization?* 18	
What is the current gender breakdown of this organization? 75% Men & 25% Women	
What is the current racial breakdown of this organization? 55.2% African-American, 44.8 % Latinx	
What percentage of members are first-generation college students? 22%	
FUNDRAISING	
How much money does the organization currently have on hand?* \$ 291	
What is the organization doing to raise more money? Last month, we had our first fundraiser. We held a day long coding marathon! During that marathon, we asked for donations from friends and family.	

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If funding is allocated, how will it be used? We want to bring in more people. We're also want to connect with programmers in the community. Our dream is to set up mentorship opportunities to our members.

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Figure 2.2. Mediation Model



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Preliminary Analysis for Study 1

Differences in prejudice by image rating condition

Four one-way ANOVAs assessed whether each measure of prejudice differed by image rating condition. The first ANCOVA analysis examined warmth towards sexual minorities, controlling for warmth towards the average person. Results indicated no significant main effect of condition on warmth towards sexual minorities, $F(13, 187) = 1.07, p = .386$. The second ANOVA analysis examined modern homonegativity as an outcome. Similar to the analysis above, there was no significant main effect of condition on MHS scores, $F(13, 188) = .99, p = .466$. The third and fourth ANOVA analyses used the transgender prejudice subscales, looking at both discomfort and essentialism. There was no significant main effect of condition on sex essentialism, $F(13, 188) = 1.10, p = .399$, or on discomfort, $F(13, 187) = 1.35, p = .189$. In summary, the image rating conditions did not differentially affect prejudice.

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Covariate Analyses: MAAS interacting with Sexual Orientation

MAAS predicting warmth. For warmth towards gay men and transgender individuals, multi-categorical sexual orientation did not moderate the relationship between the MAAS and prejudice in Study 1.

MAAS predicting Modern Homonegativity. For MHS ratings, participant sexual orientation did marginally interact with the MAAS to predict MHS scores. Specifically, for heterosexual individuals, MAAS predicted greater prejudice but did not predict prejudice for gays and lesbians or bisexuals in tandem.

MAAS predicting Transgender Prejudice Scale. For TPS ratings, participant sexual orientation did not significantly interact with the MAAS to predict TPS. Therefore, participant sexual orientation was not controlled for in this analysis.

Preliminary Analysis for Study 2 (CFA)

Racial Policy Items: Factor Analysis

A CFA was conducted in R using the lavaan package to determine if the five racial policy items loaded appropriately onto a single factor (see Supplemental Table 2.9). The affirmative action in schools, racial quotas in hiring, and reparations for slavery items were reverse-coded prior to analysis. This model did not have an adequate fit, RMSEA = .141, CFI = .869, $\chi^2(10) = 249.94$, $p < .001$. All fit indices presented indicated an ill-fitting model. Examining standardized item loadings suggested that the racial profiling and affirmative action items did not load onto the single factor (see Table 2.9). A second CFA was performed with racial profiling and affirmative action items dropped

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from the model. Fit indices for this new model were substantially improved, RMSEA $< .001$, CFI $> .999$, $\chi^2(3) = 211.27$, $p < .001$. The chi-square test remained significant, an indicator of poor fit. However, when the sample size is large, the chi-square may be able to detect small, meaningless differences in misfit (West et al., 2012). Thus, this model was retained for future analyses, which included the following items: instituting quotas in hiring, reparations for slavery, and support for the border wall. These three items were averaged to create an aggregate racial policy support measure.

Covariate Analysis: MAAS Interacting with Participant Race

MAAS Predicting Warmth. Binary participant race did not moderate the relationship between MAAS and warmth towards racial minorities (see Table 2.3).

MAAS Predicting Resource Allocation. Binary participant race also did not moderate the relationship between MAAS and resource allocation (see Table 2.4).

MAAS Predicting Racial Policy. However, participant race moderated the effect of MAAS on each of the three racial policy items, with MAAS predicting less support for equitable policies and more support for border wall construction for White people (see Tables S2.5, S2.6). In all policy analyses, participant race was added as a control.

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Table 2.3. Sexual Orientation as a Moderator of the MAAS-Warmth Relationship

	<i>B</i> (SE)	95% LLCI	95% ULCI
Model S1: MAAS and Warmth			
MAAS	-4.02 (2.47)	-8.90	.86
Heterosexual v. Other	7.95 (17.04)	-25.66	41.56
Orientation-MAAS	2.31 (4.86)	-7.27	11.89
Warmth towards the average person	.45*** (.08)	.28	.62

*** $p < .001$, ** $p < .01$, * $p < .05$, + $p < .10$ ($N = 202$)

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Table 2.4. Sexual Orientation as a Moderator of MAAS-MHS

	<i>B</i> (SE)	95% LLCI	95% ULCI
Model S2: MAAS and MHS			
MAAS	.28* (.11)	.07	.49
Sexual Orientation Dummy	.58 (.73)	-.86	2.02
Orientation-MAAS	-.38+ (.21)	-.79	.03

*** $p < .001$, ** $p < .01$, * $p < .05$, + $p < .10$ ($N = 202$)

Simple Slopes (Model S2)

	<i>B</i> (SE)	95% LLCI	95% ULCI
Model S2: MAAS and MHS			
Heterosexuals	.28* (.11)	.07	.49
Other	-.10 (.18)	-.45	.25

*** $p < .001$, ** $p < .01$, * $p < .05$, + $p < .10$ ($N = 202$)

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Table 2.5. Participant race as a control; MAAS predicting Warmth

	<i>B</i> (SE)	95%	95%
		LLCI	ULCI
Model S3: MAAS and Warmth			
MAAS	-1.69 (.95)	-3.56	.18
Race (racial minorities v. Whites)	2.14 (1.61)	-1.02	5.29
MAAS-Race	2.23 (1.88)	-1.46	5.93
Warmth towards White people	.29 (.03)	.23	.36

*** $p < .001$, ** $p < .01$, * $p < .05$, + $p < .10$ ($N = 409$)

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Table 2.6. Participant race as a moderator of MAAS

	<i>B</i> (SE)	95%	95%
		LLCI	ULCI
Model S4: MAAS and Resource Allocation			
MAAS	.17 ⁺ (.09)	-.00	.35
Race (racial minorities v. Whites)	.12 (.15)	-.42	.18
MAAS-Race	-.02 (.18)	-.37	.33

*** $p < .001$, ** $p < .01$, * $p < .05$, + $p < .10$ ($N = 409$)

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Table 2.7. MAAS and Racial Policy Support

	<i>B</i> (SE)	95% LLCI	95% ULCI
Model S5: Reparations			
MAAS	-.22** (.08)	-.38	-.06
Race (racial minorities v. Whites)	.06 (.15)	-.22	.35
MAAS-Race	.38* (.17)	.05	.71
Model S6: Quotas			
MAAS	-.22* (.07)	-.36	-.08
Race (racial minorities v. Whites)	-.10 (.12)	-.35	.14
MAAS-Race	.31* (.15)	.02	.59
Model S7: Border Wall			
MAAS	.16* (.06)	.03	.28
Race (racial minorities v. White)	-.16 (.11)	-.37	.05
MAAS-Race	-.38** (.13)	-.63	-.14

*** $p < .001$, ** $p < .01$, * $p < .05$, + $p < .10$ ($N = 409$)

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Table 2.8. Simple Slopes (Models S5-S7)

	<i>B</i> (SE)	95% LLCI	95% ULCI
Model S5: Reparations			
Racial Minorities	-.03 (.12)	-.26	.20
Whites	-.41*** (.12)	-.64	-.18
Model S6: Quotas			
Racial Minorities	-.07 (.10)	-.28	.13
Whites	-.38*** (.10)	-.58	-.17
Model S7: Border Wall			
Racial Minorities	-.03 (.09)	-.20	.15
Whites	.36*** (.09)	.18	.53

*** $p < .001$, ** $p < .01$, * $p < .05$, + $p < .10$ ($N = 409$)

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Table 2.9. Standardized Factor Loadings

Items	Factor 1, Analysis 1	Factor 1, Analysis 2
Affirmative Action	.27	-
Hiring	.87*	.78*
Reparations	.65*	.71*
Wall	.50*	.53*
Racial Profiling	.04	-

*Exceeds cutoff of .30.

Abstract

The lack of a shared definition and operationalization of mindfulness may be underlying the mixed relationship between mindfulness and prejudice (Oyler et al., 2022; Van Dam et al., 2018). Two key dimensions of mindfulness are attention monitoring and acceptance (Lindsay & Creswell, 2017). For those low in acceptance, attention monitoring may positively predict implicit prejudice by being positively related to rumination and reactivity (Pearson et al., 2015), which are positively linked to prejudice (Steele et al., 2019). On the other hand, attention may negatively predict implicit prejudice for those high in acceptance via a negative relationship with rumination. Indeed, attention alone predicted greater explicit prejudice (Chapter II). In this study ($N = 215$), participants completed a survey that included a race Implicit Association Test (IAT, Greenwald et al., 1998) and two mindfulness subscales capturing state attention monitoring and acceptance. Results indicated that state attention predicted greater implicit racial prejudice for those low in state acceptance and did not significantly predict implicit racial prejudice for those high in state acceptance, suggesting that state acceptance may buffer the negative effects of attention on implicit racial prejudice. These findings highlight the negative role that mindfulness facets of attention monitoring

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without acceptance may play in the intergroup context and suggest that mindfulness

interventions that focus primarily on attention may backfire in goals to reduce inequality.

Keywords: mindfulness; prejudice; intergroup relations; race

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Introduction

The U.S. has a long history of racial prejudice, discrimination, and inequity (Lett et al., 2021). Specifically, these inequities have consistently privileged White people over people of color (e.g., Lett et al., 2021; William & Cooper, 2019). Further, the subtle nature of modern racial prejudice allows for prejudice, discrimination, and inequality to persist in any field or organization in American life, being less conscious in nature (Lett et al., 2021; William & Cooper, 2019). By extension, implicit racial prejudice, also known as a form of modern racial prejudice, entails automatically activated associations between racial minorities and some negative evaluation of them (Greenwald et al., 1998).

Mindfulness meditation may be helpful in this context, as it has reduced implicit racial prejudice in some prior studies (e.g., Lueke & Gibson, 2015); however, projects have produced competing results (see Oyler et al., 2022). Traditionally, researchers have speculated that mindfulness may be negatively associated with implicit racial prejudice by making one less automatically reactive to emotion (Hadash et al., 2016; Kang et al., 2013) and also by generally making one less likely to utilize subtle processes, such as racial stereotype activation (Lueke & Gibson, 2015). However, minimal work, to our knowledge, has tested the relationship between the two critical mindful skills, attention monitoring and acceptance together, and implicit racial prejudice (Lindsay & Creswell, 2017). In Chapter II, attention-based trait mindfulness positively predicted explicit prejudice across two studies. As such, it should not be assumed that mindfulness will always have beneficial relationships with intergroup bias.

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Monitoring and Acceptance Theory proposes that attention monitoring and acceptance are the fundamental components of mindfulness (MAT, Lindsay & Creswell, 2017). Proponents of MAT have argued that those high in attention and acceptance receive substantial benefits, whereas those high in attention alone may be more ruminative (e.g., Pearson et al., 2015). Based on this those high in attention and acceptance may have lower levels of implicit racial prejudice, whereas people high in attention only may have greater implicit racial prejudice, given that rumination and prejudice are linked (see Chapter II, Steele et al., 2019).

Often times, psychological research, interventions, and constructs are less familiar to the general public (Cialdini, 1997). However, mindfulness is an exception and very popular among the general public (Van Dam et al., 2018). Given the potential benefits mindfulness can bring, particularly attention and acceptance, it is understandable that some are working to make mindfulness more accessible to American society. However, because attention alone may produce harmful emotional consequences (see Lindsay & Creswell, 2017), better understanding the potential negative consequences of the attention facet of mindfulness is critical. This study, then, tests whether state attention monitoring is associated with greater implicit racial prejudice for those low in acceptance, and whether state attention predicts reduced implicit racial prejudice for those high in acceptance, hypotheses grounded in MAT.

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Implicit Racial Prejudice

Prejudice broadly captures a negative feeling and/or view of a person or group based on their identity (Paluck et al., 2021), and comes in two types: implicit and explicit. Explicit prejudice reflects a consciously held negative orientation targeting some person or group (Dovidio et al., 2002). However, implicit prejudice can influence a person's perceptions and behavior without their knowledge or conscious awareness (e.g., Dovidio et al., 2002). Implicit racial prejudice typically delineates automatically triggered negative judgments that are linked with a marginalized group identity (Dovidio et al., 2002; Greenwald & Banaji, 1995). Historically, blatant racial prejudice has decreased, yet implicit racial prejudice and the racial inequities associated with it remain (Devine et al., 2012). However, multi-faceted interventions can attenuate implicit prejudice in a lasting way, although it is typically very difficult to do so (see Devine et al, 2012; Kahn & Martin, 2020).

The current study examined implicit prejudice to test whether the findings from Chapter II, which used explicit prejudice, would generalize to implicit racial prejudice. In Chapter II, across two studies, primarily attention-based trait mindfulness (PABTM) positively predicted affective and cognitive explicit prejudice as well as discriminatory intent and negatively predicted equitable racial policy support. Further, in Study 2, explicit affective racial prejudice mediated the relationship between PABTM and equitable racial policy support. Based in part on these findings, it was hypothesized that state attention monitoring should predict greater implicit racial prejudice for those low in

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acceptance. Attention alone, without acceptance developed alongside, then, may *enhance* racial inequities rather than attenuate them.

Different social systems in the U.S. contain structural racial inequities, including in public education (e.g., Gillborn, 2006), the criminal justice system (Carvalho et al., 2022; Kahn & Martin, 2020), and in healthcare as well (e.g., Chapman et al., 2013; Williams et al., 2019). By closing these racial inequities, then, racial minorities and marginalized groups in the U.S. would see ample benefits, as these inequities can worsen life for racial minorities in the U.S. and are partially shaped by implicit racial prejudice and discrimination (e.g., Knowles et al., 2010; Quillian et al., 2019). A better understanding of the constructs that are associated with implicit racial prejudice could play a role in closing these inequities. Mindfulness may be one of those correlates of interest to facilitate more equitable outcomes, but only in certain situations.

Mindfulness and its Facets

Many mindfulness researchers have noted that mindfulness is challenging to define and has no shared definition in the literature (Bishop et al., 2004; Van Dam et al., 2018). Across definitions, two common components have been identified (Bishop et al., 2004). Namely, mindfulness is a nonjudgmental type of attention that tracks experiences as they occur (Kabat-Zinn, 2003; Lindsay & Creswell, 2017). However, other programs of research have defined mindfulness as a present-moment attention and awareness of experience (Brown & Ryan, 2003). Mindfulness and meditation originated in early Buddhist literature and have not yet been perfectly translated from the religious to the

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Western secular context (see Silbersweig & Vago, 2012). These early Buddhist texts often present mindfulness as a state of present-moment attention and awareness but do not emphasize its nonjudgmental components (Anālayo, 2004), whereas Western sources often emphasize both components (Bishop et al., 2004).

Given that attention in the presence and absence of acceptance may have differing relationships with psychological outcomes (Lindsay & Creswell, 2017), it is useful to understand the facets of mindfulness better. The Five Facet Mindfulness Questionnaire (FFMQ, Baer et al., 2008) separates mindfulness into five skills: acceptance, present-moment awareness, non-reactivity, describing experience, and attention towards experience. Non-reactivity gauges being less impulsively responsive to feelings and events as they arise (Baer et al., 2008). Acceptance captures one's ability to approach experiences in a gentle way, whereas present-moment awareness involves remaining attentive to experiences (Baer et al., 2008). Describing is being able to communicate about one's sensations, whereas observing experience involves one's ability to notice any external or internal occurrences as they emerge (Baer et al., 2008).

In college student and community samples, both nonjudgment and emotion nonreactivity were negatively associated with anxiety, depressive symptoms, and stress (Medvedev et al., 2018). Additionally, attention alone was related to greater depressive symptoms, yet the remaining facets predicted fewer depressive symptoms, and all these relationships were mediated by emotion rumination (Royuela-Colomer & Calvete, 2016). Next, both attention and acceptance positively predicted reporting being more likely to

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help an anonymous stranger. Attention also predicted more positive emotion following action, but acceptance predicted less negative emotion following the behavior (Cameron & Fredrickson, 2015). In a study on workplace civility, both acceptance and present-moment awareness mitigated the effects of workplace incivility on workplace stress and negative affect (Tarraf et al., 2019). Overall, acceptance generally predicted positive outcomes, whereas attention, along with the other mindful facets, did not have a clear relationship with psychological outcomes.

As mindfulness practice has many benefits, researchers have recently begun to study it in the context of implicit prejudice, although results have been somewhat inconsistent (e.g., Oyler et al., 2022). Mindfulness is thought to address implicit biases by encouraging people to be less likely to rely on harmful subtle stereotypes (Kang et al., 2013; Leuke & Gibson, 2015), and by reducing one's affective sensitivity to outside stimuli (Burgess et al., 2017). One drawback to mindfulness not having a universal definition is that these mixed findings involving mindfulness may be due, in part, to differences in how it has been operationalized across studies.

Attention monitoring without acceptance predicts greater rumination (Pearson et al., 2015), whereas attention and acceptance mitigate rumination (Pearson et al., 2015). Emotion rumination has been positively linked to prejudice (Steele et al., 2019). As such, attention for those low in acceptance may positively predict implicit racial prejudice, but attention and acceptance together may reduce it. Mindfulness has become a prominent construct both in the popular media and in the literature (see Van Dam et al., 2018). For

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these reasons, it would be valuable to better understand, for activists, interventionists, and the public, in which situations mindfulness may be detrimental versus beneficial regarding prejudice. According to Monitor and Acceptance Theory, meditations that cultivate attention monitoring, but not acceptance may have affective consequences for practitioners (Lindsay & Creswell, 2017).

Monitor and Acceptance Theory

Monitor and Acceptance Theory (MAT, Lindsay & Creswell, 2017) is a mindfulness framework that elevates attention monitoring and acceptance as the mechanisms of meditation practice that are required to achieve mindfulness' full benefits. On the other hand, MAT suggests that attention monitoring without acceptance can be emotionally harmful, as it can strengthen emotion rumination and reactivity (e.g., Manigault et al., 2021; Pearson et al., 2015). Attention monitoring and acceptance in tandem produces positive psychological benefits by reducing emotion rumination and reactivity (e.g., Manigault et al., 2021; Pearson et al., 2015) and cultivating a receptive perspective toward experiences (Lindsay & Creswell, 2017).

Relatedly, the differential effectiveness of attention-based (ABM) relative to attention monitoring and acceptance meditations (AAM) has been investigated. Consistent with MAT tenets, attention monitoring, and acceptance together, utilizing both trait and intervention-based designs, are associated with reduced mind-wandering and loneliness (Lindsay et al., 2019; Rahl et al., 2017), as well as improved mental health (Ainsworth et al., 2017). Conversely, ABMs are often weaker than AAMs (Lindsay et al.,

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2018, 2019; Rahl et al., 2017) and can boost emotion rumination and reactivity (e.g., Pearson et al., 2015). For these reasons, trait attention monitoring alone may positively predict implicit racial prejudice for those low in acceptance but may negatively predict implicit racial prejudice for those high in acceptance.

Attention Monitoring, Acceptance, and Implicit Racial Prejudice

According to Intergroup Emotions Theory (Mackie & Smith, 2017), different social outgroups have some unique negative feelings linked with them that could be triggered once one mentally or physically encounters that outgroup. If trait attention monitoring and acceptance in combination are related to reduced emotion rumination, then individuals high in state attention monitoring and acceptance may experience the negative emotion that is activated at the moment upon encountering an outgroup member. However, they should be able to prevent that emotion from influencing their responding. Conversely, those with high in-state attention monitoring but low in acceptance may be made more aware of the automatically activated negative emotion upon encountering outgroup members, but without acceptance, may react more strongly to those emotions. Attention monitoring and acceptance *together* may predict *reduced* implicit racial prejudice by reducing emotion rumination and reactivity towards outgroup triggered emotions, whereas attention for those with *poor* acceptance may predict *greater* implicit racial prejudice by being positively related with rumination.

Anxiety may also be relevant in this context. People who are more anxious tend to be more attentive to threatening stimuli (MacLeod & Mathews, 1988; Mogg et al., 1994).

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Given that threat perceptions have predicted greater prejudice towards outgroups (Riek et al., 2006), those with greater attention monitoring but low acceptance may find it difficult to avoid feeling threatened (and the automatic response that comes with it) when engaging with an outgroup member. Conversely, given that attention monitoring and acceptance in tandem have predicted reduced anxiety (Ainsworth et al., 2017), these individuals may experience fewer intergroup threats and be better able to handle them when they emerge. To summarize, attention monitoring may positively predict implicit racial prejudice for those with poor levels of acceptance by being positively related to emotional rumination and anxiety, whereas attention and acceptance may predict attenuated implicit racial prejudice by being negatively related to rumination and anxiety.

Present Study

It is hypothesized that state attention monitoring will positively predict implicit racial prejudice for those low in acceptance but negatively predict implicit racial prejudice for those high in acceptance. In this survey study, state attention monitoring and acceptance were measured using the nonjudgmental acceptance and present-moment attention subscales from the Multidimensional State Mindfulness Questionnaire Short-Form (MSMQ, Blanke & Brose, 2021) and a race Implicit Association Test (IAT, Xu et al., 2014) measured implicit racial prejudice.

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Method

Participants

One hundred and fifty-six participants from a Pacific Northwestern university were recruited via flyers posted around campus and digital advertisements sent to course instructors³. Participants chose to receive either extra credit in a participating course or a \$5 Amazon gift card as compensation for completing the study. This study received grant funding from the Society of Psychology and Social Issues' Grants and Aid award (SPSSI). Participants were excluded based on a priori quality control measures: 14 participants were dropped from the final analyses because they reported falling asleep during the study. Of those participants who did not fall asleep, 2 participants were excluded for reporting not being engaged during the study, including completing other assignments and the use of electronic devices. Following exclusions, this study had a sample size of 140.

In terms of racial demographics, 49 (35.0 %) participants identified as White, European, 35 (25.0%) identified as Latin-o/a/x, 20 (14.3 %) identified as multi-racial, 18 (12.9%) identified as East, South, or Southeast Asian, 6 (4.3%) participants identified as Middle Eastern/Arab, 4 (2.9 %) participants identified as Black/African, 3 (2.1 %) identified as Other, 3 (2.1 %) identified as Hawaiian Native/Pacific Islander, and 1 (.7 %)

³ The original goal of this study was to examine the effects of a mindfulness intervention, relative to a control audio, on implicit prejudice. However, the mindfulness intervention failed to increase state attention and acceptance relative to the control. Analyses for this paper, then, were restricted to the control condition.

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identified as Native American. Moving to gender, 70 (50.0 %) participants identified as a woman, 60 (42.8 %) identified as a man, 3 (2.1 %) participants identified as non-binary, and 1 (.7 %) participant said their identity was not listed. For meditation practice, 43 (30.7 %) of respondents indicated never having meditated, 11 (7.9 %) meditated less than once a year, 22 (15.7 %) meditated a few times per year, 25 (17.9 %) participants meditated once or twice a month, 19 (13.6 %) meditated once or twice a week, 14 (10.0%) meditated almost every day, and 6 (4.3 %) meditated at least once a day. Finally, the average participant was a younger adult ($M = 27.53$, $SD = 8.68$) who leaned liberal politically ($M = 4.51$, $SD = 1.69$).

Measures

The full survey can be found in Appendix A.

Demographics

Items on participant race, ethnicity, gender, age, political ideology, prior meditation experience, current year at university and intended major were asked in the survey. Race was coded as a binary variable, with White participants coded as 1, and racial minorities were coded as 0, and was included as a covariate in all primary analyses

Multidimensional State Mindfulness Questionnaire

The Multidimensional State Mindfulness Questionnaire short-form (MSMQ, Blanke & Brose, 2022) is a nine-item measure with three distinct subscales: acting with awareness, nonjudgmental acceptance, and present-moment attention. Acting with awareness is defined as behaving in a way that integrates one's knowledge of experiences

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and events occurring in the present (Blanke & Brose, 2017; 2022). Nonjudgmental acceptance gauges viewing experiences without trying to evaluate them (Blanke & Brose, 2017). Finally, present-moment awareness reflects paying attention to events and experiences as they happen (Blanke & Brose, 2017).

Of those three, two subscales (nonjudgmental acceptance, present-moment attention) were included in this study, because they most closely aligned with attention monitoring (present-moment attention) and acceptance (nonjudgmental acceptance) as conceptualized by MAT, providing a stronger test of the study's hypothesis. Further, this measure was heavily inspired by a validated trait measure of mindfulness (Five Facet Mindfulness Questionnaire, Baer et al., 2008), whose subscales have been used to measure trait attention monitoring and acceptance. These subscales, then, were included to capture fluctuating states of attention monitoring and acceptance. Participants responded to the six items (three for each subscale) using a 0 "Strongly Disagree" to 5 "Strongly Agree" scale. A sample item for the present-moment attention subscale included: "I opened myself up to what was happening." A sample item for the nonjudgmental acceptance subscale included: "I thought some of my thoughts/feelings were slightly off (reversed)." Higher scores indicated higher levels of state attention and acceptance. The internal consistencies for the state attention ($\alpha = .70$) and state acceptance subscales ($\alpha = .82$) were acceptable to good.

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Race Implicit Association Test

The race Implicit Association Test in this study (IAT) was structured identically to the one hosted on the Project Implicit website (Xu et al, 2014). In this seven-block task, participants categorized positive and negative words, and African American and European American male faces as quickly and correctly as possible. There were eight unique positive and negative words and six unique African American and European American facial images. In this task, participants pressed different keys to categorize stimuli, depending on the current content and arrangement of response labels. In Block 1, participants categorized European American and African American male faces as either "African American" or "European American." In Blocks 2 and 5, participants then categorized words as either "pleasant" or "unpleasant". Blocks 3 and 6 were practice blocks, where participants categorized both words and African American/ European American facial images at the same time. Response labels were merged in these blocks; for instance, a participant pressed the "E" key if a stimulus was pleasant or African American and pressed the "I" key if the stimulus was bad or European American. Pleasant-European American/Unpleasant-African American responses were considered stereotype consistent, and Unpleasant-African American/Pleasant-European American was considered a stereotype inconsistent response label pairing.

Finally, Blocks 4 and 7 were the critical blocks measuring the implicit attitude, which were structured similarly to the preceding practice block but with more trials. Additionally, Blocks 5, 6, and 7 had opposite response labels from Blocks 2, 3, and 4,

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and the order of response label presentation was randomized. The outcome of interest in this task was the response time. If a person implicitly preferred European American relative to African Americans, they categorized European American stimuli more quickly and African American stimuli more slowly in stereotype consistent blocks, and vice versa in stereotype inconsistent blocks.

Processing IAT responses involves calculating a d score, which is the outcome of an IAT. These scores capture differences in average response times for a participant during stereotype consistent relative to inconsistent blocks. D scores were calculated using the IATgen package in R (Carpenter et al., 2017), which follows previously established protocol (e.g., drop a participant who responds in under 300 ms in greater than 10% of trials, see Greenwald et al., 2003) to clean IAT responses and ultimately a d score. Negative d scores indicated that a participant implicitly preferred Black relative to White people, whereas a positive d score indicated that a participant implicitly preferred White relative to Black people, with a d score of 0 indicating neutrality or no implicit preference.

Procedure

Upon consenting to complete this online study, participants were first asked to provide their demographic information. Next, they completed the MSMQ, along with measures of engagement, whether they fell asleep, and the attention check item. Then, participants read instructions for the race IAT and then completed it. Upon IAT completion, participants were debriefed and compensated.

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Analysis

This study originally examined the effects of a brief mindfulness intervention on implicit racial prejudice relative to a control condition (see Supplemental Material for this chapter). However, the mindfulness intervention failed to increase state attention or state acceptance relative to the control condition. As such, analyses for the present study were conducted using state mindfulness scores from participants in the control condition.

In the control condition, both state attention and state acceptance, on average, were above the midpoint for the full sample (see Table 3.1). Further, implicit racial prejudice was not correlated significantly with state attention and state acceptance (see Table 3.2).

Sensitivity Power Analysis

A sensitivity power analysis was performed using G*Power 3 to calculate the minimum detectable effect size for an interaction term in a multiple linear regression. Given a sample size of 140, with a power of .80, the minimum detectable effect size was $f^2 = .07$. This effect was approximately small to medium in size.

State Attention and Acceptance

The following analyses investigated whether state attention and acceptance interacted to predict implicit racial prejudice. A moderation (Model 1 in Hayes PROCESS macro) analysis was performed, with state attention predicting implicit racial prejudice and state acceptance included as a moderator (see Figure 3.1). All predictors and moderators were grand-mean centered prior to analysis, and 10,000 bootstrapped

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samples were drawn. State attention monitoring did not significantly predict greater levels of implicit racial prejudice, $B = .05$, $SE = .04$, $p = .221$, 95% BCI[-.03, .13]. State acceptance was also not a significant independent predictor of implicit prejudice, $B = .03$, $SE = .04$, $p = .498$, 95% BCI[-.05, .10].

Consistent with prediction, the attention-acceptance interaction was a significant predictor of implicit racial prejudice, $B = -.09$, $SE = .04$, $p = .022$, 95% BCI[-.16, -.01]. Simple slopes analysis followed up on the significant two-way interaction (see Figure 3.2). For those low in nonjudgment, state attention monitoring predicted greater levels of implicit racial prejudice, $B = .14$, $\beta = .33$, $SE = .06$, $p = .027$, 95% BCI[.02, .25]. State attention marginally positively predicted greater implicit racial prejudice for those with average nonjudgment, $B = .08$, $\beta = .19$, $SE = .05$, $p = .083$, 95% BCI[-.01, .16], but did not significantly predict implicit racial prejudice for those with high nonjudgment, $B = -.04$, $\beta = -.10$, $SE = .05$, $p = .389$, 95% BCI[-.14, .05]. Effects were generally medium in size.

Discussion

The current study found that state attention monitoring without acceptance had a harmful relationship with implicit racial prejudice, whereas acceptance buffered the effects of attention on implicit racial prejudice. State acceptance may have mitigated the effect of attention monitoring on increasing implicit racial prejudice by producing an emotionally nonreactive state or by attenuating reliance on prejudicial automatic associations (Hadash et al., 2016; Kang et al., 2013). Combined with prior work in this

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dissertation (Chapter II), this study helps to clarify a nuanced mindfulness-prejudice relationship, specifically, by considering how different facets and operationalizations of mindfulness may have distinct relationships with prejudice. Across chapters, attention-based mindfulness had a damaging relationship with implicit and explicit prejudice, connoting that attention-based measures of mindfulness may be associated with negative intergroup outcomes. Further, current findings regarding attention and acceptance imply that acceptance may attenuate the negative influence of attention on implicit intergroup outcomes. Additionally, the current results also extended prior findings from Chapter II of this dissertation, as results regarding explicit prejudice generalized to implicit prejudice. As such, Chapters II and III provided evidence for a dual process model of attention and prejudice. This suggests that attention monitoring, a foundational facet of mindfulness (Lindsay & Creswell, 2017), may serve as a mechanism of *both* the mindfulness-explicit prejudice and mindfulness-implicit prejudice relationships.

High levels of acceptance and attention did have a somewhat beneficial relationship with implicit racial prejudice, but attention did not have the projected relationship with implicit racial prejudice for those high in acceptance. One reason for the null relationship between attention and implicit racial prejudice at high levels of acceptance may involve the target of acceptance (see Nicol & De France, 2018, 2022). Acceptance of others predicted reduced general prejudice, whereas self-acceptance did not significantly predict prejudice (Nicol & De France, 2018, 2022). Mindfulness scales tend to focus on acceptance of the self (see Nicol & De France, 2018). As such, the state

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acceptance subscale in this study likely also captured self-acceptance. By extension, state attention monitoring may predict reduced implicit racial prejudice for those high in acceptance of others, but not for those high in self-acceptance.

These findings also provided useful information for applied interventionists seeking to reduce implicit racial biases. Given the rising popularity of mindfulness (Van Dam et al., 2018), it is important to understand under what circumstances mindfulness interventions may be helpful and harmful. These findings, along with prior results in this dissertation (see Chapter II), conveyed that attention-based training to reduce explicit and implicit racial prejudice may backfire, particularly for those low in trait acceptance. Conversely, interventions that cultivate *attention monitoring and acceptance skills may be protective, even if they do not necessarily reduce bias*. Attention-based training has been applied in clinical and other contexts with mixed results (Lindsay et al., 2018; 2019; Rahl et al., 2016). As suggested here, prejudice reduction interventionists should avoid attention-based meditations, as they may be harmful to those low in acceptance. However, given that both chapters (II & III) did not employ a causal design, these implications should be drawn with caution and investigated directly in future research (see Chapter IV).

Similarly, these findings also have implications for the creation and use of brief mindfulness digital content. One mindfulness phone app, Headspace, hosts both attention-based and attention monitoring and acceptance meditation audios. These results, along with prior findings (Chapter II) suggest that engaging in these attention-based

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trainings may have negative intergroup consequences, such as enhancing explicit and implicit prejudice, especially for those low in trait acceptance. It may be valuable for developers of mindfulness apps and other meditation content creators to provide information and resources to help practitioners better understand and navigate these negative consequences.

These results were relatively consistent with and supported MAT (Lindsay & Creswell, 2017). Results regarding state attention without acceptance aligned with MAT, consistent with the argument that attention monitoring without acceptance often leads to harmful affective outcomes. Findings from Chapters II and III regarding state attention alone extend this portion of MAT to the intergroup context. However, the null relationship regarding attention monitoring and implicit prejudice for those high in acceptance was somewhat inconsistent with MAT, as it was projected that attention would have a negative relationship with implicit racial prejudice for those high in acceptance, but in this case, acceptance attenuated the attention-prejudice association, and thus still had a positive effect.

One possible explanation is that, for acceptance, buffering the effect of attention monitoring on implicit prejudice is the most that mindfulness can potentially achieve. From that perspective, attention monitoring failing to significantly predict reduced implicit racial prejudice for those high in acceptance would be consistent with MAT. Another possibility is that the relationship between attention monitoring and acceptance in tandem may depend on individual-level factors that moderate this relationship. For

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example, political ideology may be one factor that sways these relationships. Given that conservatives and liberals endorse diverging sets of values (Caprara et al., 2006), and that mindfulness may strengthen current value awareness (e.g., Chen & Jordan, 2020; Ridderinkhof et al., 2018), attention monitoring and acceptance skills in tandem may be used differently by those with different goals and worldviews.

Finally, it should be considered why the brief mindfulness intervention from the experimental portion of the study failed. One reason may be the brief length of the training. It takes multiple weeks of practice to develop acceptance skills, and although attention skills tend to emerge sooner than acceptance, they may take more than a single session to develop (Baer et al., 2012). A second reason why the manipulation may have failed may be that it was administered entirely online. In-person published mindfulness programs often have smaller sample sizes than online mindfulness courses (Chen & Jordan, 2020, $N > 800$), so it may be that online brief interventions are less effective than in-person. Third, the audio used in this study was a general mindfulness intervention, meaning that the content of the intervention itself was not focused enough on building attention and acceptance to affect those states relative to the control condition. A final issue may have been the content of the control condition. It may be that a lecture-based control condition on the history of England could be priming certain prejudicial or colonialist thoughts that could be influencing responding. In brief, the length and mode of the intervention may have impacted its ability to be effective. In Chapter IV, these issues are addressed by testing interventions specifically designed to boost either attention alone

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or attention and acceptance (Ainsworth et al., 2017), and by employing a mind-

wandering control condition that may reduce state attention (Edwards et al., 2017).

Limitations

This study also has limitations that should be noted when interpreting the results. First, as previously noted, this study did not employ a causal design, although it would be valuable to be able to make causal claims in this context. Similarly, Chapter II of this dissertation also employed a correlational design. Future research, then, should compare the effectiveness of an attention-based relative to an attention and acceptance intervention to influence racial prejudice (see Chapter IV).

A second limitation was that this study targeted specifically implicit racial prejudice, rather than implicit prejudice against other marginalized groups. It may be that the relationship between state attention monitoring and acceptance in tandem and implicit prejudice could differ by the target of said prejudice (e.g., Nicol & De France, 2018). Future research should rectify this issue by including measures of implicit prejudice targeting multiple groups, which could be achieved across multiple studies.

Another limitation of this study was the lack of behavioral measures, including measures of racial discrimination. On one hand, including behavioral measurement in research often is costly. However, given that attitudes are not perfect predictors of behavior (Ajzen & Fishbein, 2000), including relevant measures of discriminatory behavior would help illustrate whether state attention monitoring and acceptance in tandem predict racially discriminatory behavior. If state attention monitoring, for

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instance, predicts greater implicit racial prejudice for those low in acceptance, but is not related to racially discriminatory behavior for those individuals, that would limit interpretation accordingly.

Future Research

Given the current findings, there are many potential avenues for future research. First, it would be practically useful to establish whether state attention monitoring and acceptance in tandem are related to racial policy support, as suggested in Chapter II. Given that implicit racial prejudice serves as a barrier to support for equitable racial policy (Knowles et al., 2010), it may be that state attention monitoring may similarly reduce support for equitable racial policy for those low in acceptance. In short, future research should seek to apply these findings to the political context (see Chapter IV).

Future research could also examine individual-level moderators of attention monitoring, acceptance, and implicit racial prejudice (see Chapter IV). Studies on the mindfulness-prejudice relationship have had inconsistent results (Oyler et al., 2022), suggesting the potential presence of moderators to help explain the inconsistent findings. Value awareness and alignment could be one such moderator. Given that one's values endorsed are predictive of racial prejudice (e.g., Feather & McKee, 2008), it may be that those who embrace extrinsic values may see heightened implicit racial prejudice following the mindful breathing condition, whereas those who embrace intrinsic values may see reductions in implicit racial prejudice. If mindfulness primarily makes one more aware of their existing values (Chen & Jordan, 2020), then mindfulness may help those

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who embrace extrinsic values be better able to act in line with those values, leading to greater racial prejudice, and vice versa for those with intrinsic values. This idea should be examined in future work.

Additionally, it was previously discussed that the facets of mindfulness may be related to implicit racial prejudice through differing relationships with emotion rumination, nonreactivity, and anxiety (Mogg et al., 1994; Riek et al., 2006; Steele et al., 2019). However, this study did not measure these three potential mediators and, as such, was unable to test whether these three factors served as mechanisms of the mindful facet-implicit racial prejudice relationship. For those low in acceptance, attention should predict greater anxiety, rumination, and less emotion nonreactivity, yet for those high in acceptance, attention may have a negative relationship with rumination and anxiety and a positive association with emotion nonreactivity. This should be tested in future research.

Finally, future research should examine whether current study findings generalize to an experimental design on brief attention-based versus attention and acceptance interventions. According to MAT, attention monitoring and acceptance skills are the two foundational facets of mindfulness that are required to achieve the full benefits of mindfulness practice (Lindsay & Creswell, 2017). MAT-inspired research has subsequently applied attention monitoring and acceptance skills and training to psychological outcomes, including emotional well-being (Lindsay et al., 2019). Future research should apply attention-based and attention and acceptance interventions to prejudice (see Chapter IV).

Conclusion

Research on mindfulness and prejudice has produced mixed findings on the direction of the relationship (Oyler et al., 2022), which may be due to differences in how mindfulness is operationalized. This study, along with prior findings in this dissertation (Chapter II), helps to illuminate the complex mindfulness-prejudice relationship. Specifically, this study shows that state attention monitoring may have a harmful relationship with implicit racial prejudice for those low in acceptance. Acceptance buffered the relationship between attention and implicit racial prejudice. The findings linking attention monitoring without acceptance to implicit prejudice help to extend MAT to intergroup context. They also provide useful information for prejudice reduction interventionists and creators of digital mindfulness content, suggesting that attention-based meditation may be harmful, whereas attention and acceptance may not serve as a tool to reduce implicit racial prejudice.

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Table 3.1. Descriptives in the Control

	M (SD)
State Attention	3.75 (.98)
State Acceptance	3.35 (.99)
Implicit Racial Prejudice	.16 (.44)

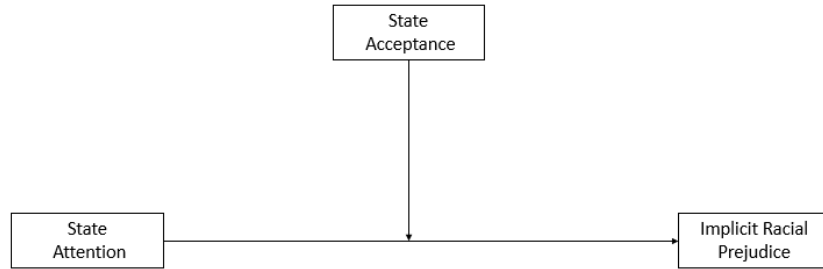
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Table 3.2. Correlations in the Control Condition

	1	2	3
1. State Attention	-		
2. State Acceptance	.03	-	
3. Race IAT	.07	.05	-

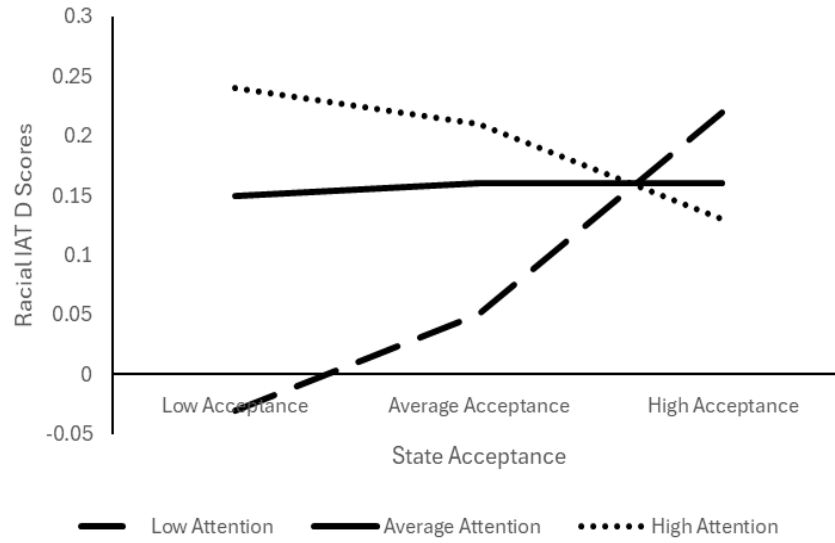
Note: *** $p < .001$; ** $p < .01$; * $p < .05$; + $p < .10$

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Figure 3.1. Acceptance moderating Attention-Implicit Racial Prejudice



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Figure 3.2. Simple Slopes



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Demographics

- What is your age? (open-ended response)
- With which racial/ethnic group do you identify?
 - White, European
 - Black, African
 - Native American, First Nations
 - Latin-o/a/x
 - East, South, or Southeast Asian
 - Middle Eastern, Arab
 - Hawaiian Native, Pacific Islander
 - Multi-racial (open-ended response)
 - Other (open-ended response)
- Gender
 - Woman
 - Man
 - Non-binary
 - Not listed (open-ended response)
 - Decline to answer
- Do you identify as transgender?
 - Yes

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- No
- Decline to answer
- Which of the following best describes your political ideology? (1 “Very Conservative” - 7 “Very Liberal”, 8 "Other")

Meditation Experience

Meditation practice is a mental exercise or technique that focuses and builds a nonjudgmental attention and awareness of one's current experiences and perspectives.

(see GSS 2021)

-How often do you meditate?

-Scale: 1 (at least once a day), 2 (almost every day), 3 (once or twice a week), 4 (once or twice a month), 5 (a few times per year), 6 (Once a year or less), 7 (Never)

Social Dominance Orientation short-form (SDO7; Ho et al., 2015). *reverse

Please indicate how much you agree or disagree with each statement below by selecting a number from 1 to 7 on the scale below. You can work quickly; your first feeling is generally best: 1 (strongly disagree) - 7 (strongly agree).

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- An ideal society requires some groups to be on top and others to be on the bottom.
- Some groups of people are simply inferior to other groups.
- Groups at the bottom are just as deserving as groups at the top.*
- No one group should dominate in society.*
- It is unjust to try to make groups equal.
- Group equality should not be our primary goal.
- We should work to give all groups an equal chance to succeed.*
- We should do what we can to equalize conditions for different groups.*

AUDIO

Conditions: Lueke & Gibson (2015) mindful breathing, or natural history of England control.

Post-meditation Measures

1. Did you fall asleep during the audio?
 - a. Yes
 - b. No
2. How engaged were you when listening to the audio?
 - a. Very engaged
 - b. Engaged

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- c. Somewhat engaged
 - d. Somewhat disengaged
 - e. Disengaged
 - f. Very disengaged
3. Did you experience any distractions while listening to the audio? If so, briefly describe them below.
4. What was the audio you just listened to about?
- a. Natural History of England
 - b. Focused Breathing
 - c. Tips for Grilling Steak
 - d. Best Dog Parks in Oregon
 - e. Recent News Report

5. MSMQ

When responding to these statements, please consider what you are feeling, thinking, and doing right now, after listening to the audio. (Strongly disagree – Strongly agree)

- f. I think some of my thoughts/feelings are slightly off.
- g. Things are going through my mind that I should not really be engaging with myself.
- h. I think I could have acted more appropriately at a certain time.

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- i. I am focusing my attention on the present-moment.
- j. I am opening myself up to what was happening.
- k. I am concentrating on what I am doing in the moment.

Racial Policy Support

In the following section, we're interested in your opinion on various public policies.

Various policy statements will be presented. Please indicate the extent to which you agree to disagree with the following policy positions.

(1 = Strongly Agree, 3 = Neutral, 5 = Strongly Disagree, 6 = Don't Know)

1. Reducing the budget of police departments and shifting the money to social programs.
2. Government making cash payments to Black Americans who are the descendants of slaves.
3. Building a wall along the entire U.S.-Mexico border.
4. Police officers stopping motorists of certain racial/ethnic groups because members of these groups are more likely than others to commit crimes.
5. The United States should rejoin the Paris Climate agreement to address climate change.
6. I believe abortion for any reason should be illegal in the United States.

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Race IAT

Next, you will use the 'E' and 'I' computer keys to categorize items into groups as fast as you can. These are the four groups and the items that belong to each:

-Standard Project Implicit Race IAT

-Target categories: six images of Black men, six images of White men.

-Adjective categories:

-Pleasant: Cheerful, delight, magnificent, excellent, enjoy, glad, delightful, terrific

-Unpleasant: nasty, horrific, angry, failure, gross, hatred, dirty, hate, hatred.

African-American or Unpleasant	European-American or Pleasant
+	
<p>Now the four categories you saw separately will appear together. Remember, each word/image fits in only one of the four categories. The label/item colors may help you identify the appropriate category.</p> <p>Use the E key for the two categories on the left and the I key for the two categories on the right. Again, try to go as fast as possible without making mistakes. Correct errors by hitting the other key. Practice this combination now.</p> <p>When you are ready, please press the "s" key to begin.</p> <p style="text-align: center;">Part 3 of 7</p>	

Mindfulness Intervention)

Method

Intervention

Participants were randomly assigned to engage with one of two ten-minute audios. They either listened to an audio about mindful breathing, or to a brief telling of the natural history of ancient England. These audios were taken from prior work (e.g., Lueke & Gibson, 2015), and the mindful breathing audio successfully reduced implicit race and age bias in those studies. Upon completing the audio, participants were asked whether they fell asleep and how engaged they were while listening, and as an attention check, they are also asked what the audio was about. Finally, participants also completed the MSMQ short-form immediately following the intervention.

Mindful Breathing

In the mindful breathing condition (Lueke & Gibson, 2015), participants were told to become aware of bodily experiences (both the heartbeat and the breath) as they occurred. Equally important, participants were instructed to approach these experiences in a gentle and nonjudgmental way. Further, participants were told to return their attention to their breath and body when they become distracted.

Control

In the natural history control condition (Lueke & Gibson, 2015), participants were asked to listen to a brief lecture regarding the history and culture of ancient Britain. In

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this condition, neither attention monitoring nor acceptance skills were intentionally developed.

Procedure

Upon consenting to complete this online study, participants were first asked to provide their demographic information and complete the SDO-7 scale. Next, participants then engaged either with the control or the mindful breathing audio and, post-intervention, completed the MSMQ, along with measures of engagement, sleep, and the attention check item. Then, participants read instructions for the race IAT, and then completed it. Upon IAT completion, participants next completed the racial policy support items. Finally, participants were debriefed, and were provided a link to a separate Google form to receive compensation.

Results

Supplemental Analyses

To begin, it was tested whether state attention and state acceptance were greater following the mindfulness intervention, relative to the control. Given that attention and acceptance in tandem might produce the full benefits of mindfulness (see Lindsay & Creswell, 2017), it was important to check for differences in both states across mindfulness conditions. Two independent samples *t*-tests were performed to assess whether attention monitoring and acceptance skills, respectively, were higher in the mindful breathing condition than in the natural history control condition. For state attention, it was expected that this brief mindfulness intervention should boost state

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attention relative to the control. Unexpectedly, state attention monitoring was somewhat lower, on average, in the mindfulness condition ($M = 3.41$, $SD = .92$) relative to the control ($M = 3.69$ $SD = .98$). Building on this, there was a significant difference in state attention across meditation conditions, $t(317) = -2.66$, $p = .008$, $d = -.30$. Moving to state acceptance, it was similarly predicted to be greater for those in the mindfulness condition. Contradicting prediction, on average, state acceptance was similar in the condition ($M = 3.28$, $SD = .98$) compared to the mindfulness condition ($M = 3.25$, $SD = .99$).

Unsurprisingly, t -test results indicated that there was no significant difference in state acceptance across conditions, $t(326) = .31$, $p = .758$, $d = .03$. In summary, state attention and acceptance were not higher post-intervention for those in the mindfulness condition (and indeed, state attention monitoring was lower post-intervention in the mindfulness condition), suggesting that the mindfulness manipulation likely failed to induce the intended states. For these reasons, all analyses moving forward are correlational, using the state attention and acceptance subscales from the MSMQ. Specifically, these analyses were conducted using participants from the control condition, given that there was a difference in state attention, post-intervention, across conditions. For the full originally hypothesized analyses using the brief mindfulness interventions, see the Supplemental Material for this chapter.

Primary Analyses

H1

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Four linear regressions were conducted to assess whether mindfulness affected implicit racial prejudice and each racial policy item (see Table 3.3). Across analyses, mindfulness did not significantly affect implicit racial prejudice, nor did it affect support for any of the racial policy items. These findings contradict prediction.

H2

Four moderated mediation analyses were conducted, using model 7 from the PROCESS macro (see Figures 3.3 – 3.6). SDO was tested as a moderator for each analysis, with mindfulness as the predictor and racial policy as the outcome. However, the index of moderated mediation was not significant for all analyses.

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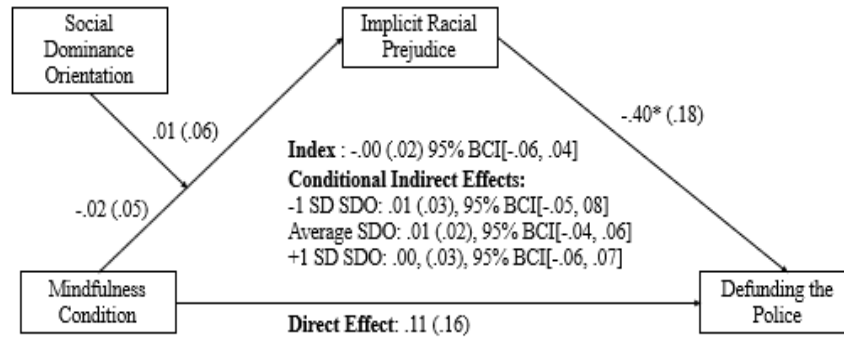
Table 3.3. Linear Regressions: Meditation Predicting Implicit Prejudice, Racial Policy Support

Predictors	B (SE)/R ²	B	95% CI
<hr/>			
Model 1: IAT	.031		
Condition	-.03 (.05)	-.03	-.13, .07
Race	.18*** (.05)	.20	.08, .27
Model 2: Defund	.003		
Condition	.13 (.15)	.05	-.18, .43
Race	-.10 (.16)	-.03	-.40, .21
Model 3: Reparations	.001		
Condition	.15 (.16)	.05	-.16, .45
Race	-.21 (.16)	-.07	-.52, .11
Model 4: Border Wall	.001		
Condition	-.06 (.13)	-.02	-.31, .20
Race	.04 (.13)	.02	-.22, .29

Note: *** p < .001; ** p < .01; * p < .05; + p < .10

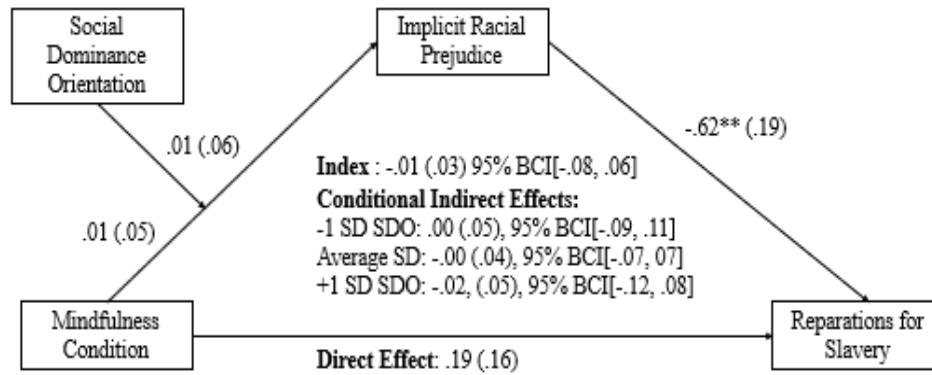
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Figure 3.3. Moderated-Mediation (Defund)



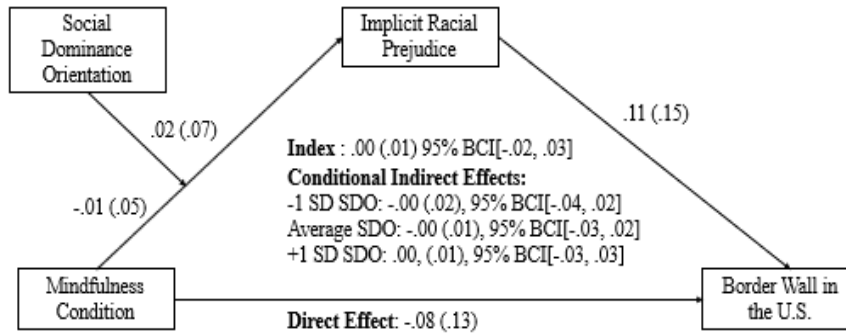
MINDFULNESS, RACIAL PREJUDICE, AND POLICY

Figure 3.4. Moderated-Mediation: Reparations

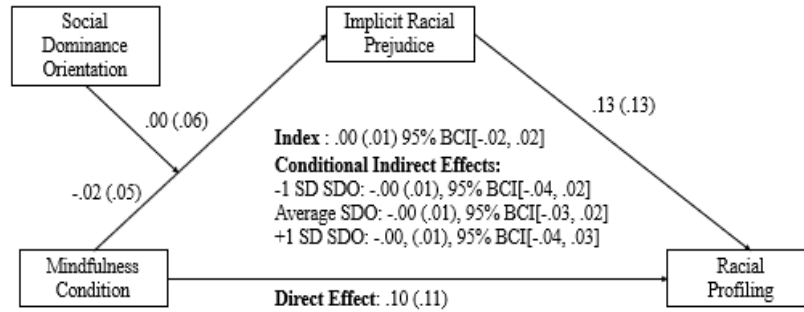


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Figure 3.5. Moderated-Mediation: Border Wall Construction



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Figure 3.6. Moderated-Mediation (Racial Profiling)



Chapter IV The nuanced effects of attention and acceptance based mindfulness on explicit racial prejudice: Individual ideologies as a moderator

Abstract

Research on mindfulness and prejudice has at times produced null findings (Oyler et al., 2022), which may be due to somewhat contrasting content in mindfulness courses and differences in participant-endorsed worldviews. Due to their differing relationships with emotion rumination (Pearson et al., 2015), attention monitoring alone may predict greater explicit prejudice, whereas attention and acceptance jointly may predict less explicit prejudice. As explicit prejudice and policy are linked (Baranauskas, 2022), attention monitoring alone or in tandem with acceptance may shape racial policy support by affecting explicit prejudice. In an online experimental study, 415 college students engaged in either a brief attention-based meditation (ABM), an attention and acceptance meditation (AAM), or a mind wandering control audio. ABM was predicted to boost explicit racial prejudice and reduce equitable and enhance inequitable racial policy support. In contrast, AAM should reduce explicit racial prejudice, and elevate equitable and decrease inequitable racial policy support (**H1a & H1b**). Further, explicit racial prejudice was expected to mediate the meditation-policy and meditation-discrimination relationships. Finally, social dominance orientation (SDO) and political ideology were predicted to moderate the meditation-prejudice relationship, given that political conservatives and high in SDO tend to embrace values related to prejudice (Feather & McKee, 2008, **H2, H3**). Results found that both ABM and AAM increased

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state attention relative to the control condition, but failed to increase state acceptance, and thus both mindfulness conditions were primarily attention-based. Although ABM and AAM did not significantly influence explicit racial prejudice, discriminatory intent, and policy support directly (**H1a & H1b**), SDO moderated the effect of meditation condition on explicit racial prejudice, with meditation increasing prejudice for those high in SDO and reducing it for those low in SDO. Explicit racial prejudice subsequently positively predicted policy support and negatively predicted discriminatory intent (**H2**). Moderated mediation analyses using political ideology were not significant (**H3**). These results illustrated a nuanced mindfulness-prejudice relationship, specifically, attention-based practice may be harmful, especially for those high in SDO, suggesting that individual-level ideologies may also shape the condition-prejudice relationship. Finally, this study established a detrimental causal relationship between meditations that enhance attention alone and intergroup and political outcomes, with SDO serving as a moderator.

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Introduction

Racial inequities are ever-present in American society (e.g., Quillian et al., 2019), and racial prejudice and discrimination exacerbate these disparities (e.g., Nance, 2016; Williams & Cooper, 2019). Mindfulness practice may be one road to potentially reduce explicit racial bias (e.g., Oyler et al., 2022). Given the rising acclaim of meditation in society (Van Dam et al., 2018), additional information on the boundary conditions of mindfulness and prejudice could educate the public and interventionists on how to maximize the benefits and limit the harms of meditation moving forward. Indeed, the association between mindfulness and prejudice is somewhat conflicted (see Oyler et al., 2022), implying the existence of boundary conditions for mindfulness, including the structure of meditation practice and practitioner ideologies.

Specifically, attention-based meditation (ABM) may boost explicit racial prejudice and discrimination by increasing emotion rumination (Pearson et al., 2015), which is related to greater explicit prejudice (Steele et al., 2019). Yet, attention and acceptance meditation (AAM) may reduce explicit racial prejudice and discrimination via reductions in emotion rumination (e.g., Pearson et al., 2015). Further, given that racial discrimination and policy support have been associated with racial prejudice (e.g., Baranauskas, 2022), these mindfulness interventions may shape discrimination and policy support via explicit racial prejudice (see Figure 4.1). This experiment compared the efficacy of an ABM to an AAM to reduce explicit racial prejudice, discrimination, and policy support (**H1a & H1b**).

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Some research indicates that one product of meditation practice may be helping individuals to become more aware of their currently held values (Chen & Jordan, 2020). Given that social dominance orientation (SDO, Pratto et al., 1994) and political ideology are associated with greater endorsement of tradition and power-related values (Caprara et al., 2006; Feather & McKee, 2012), both an ABM and AAM may heighten explicit racial prejudice for political conservatives and those high in SDO. This study, then, examined political ideology and SDO as moderators of the meditation interventions seeking to influence explicit racial prejudice (**H2 & H3**), which may subsequently affect racial discrimination and policy support (see Figure 4.1). In brief, this experimental study illustrated a potentially nuanced causal relationship between mindfulness and explicit racial prejudice and its implications for racial policy support and discriminatory intent, to inform prejudice reduction interventionists and mindfulness content creators. Although prior chapters adopted a correlational approach, this study seeks to establish a negative causal relationship between meditations that build attention and explicit racial prejudice for those high in SDO, with implications for discriminatory intent, and racial policy support.

Mindfulness

Defining mindfulness can be a challenging task (e.g., Van Dam et al., 2018), given the lack of a conceptualization of the construct that unifies the literature. Across papers, there are some commonalities (Bishop et al., 2004), and mindfulness can be considered a gentle focus on sensations that occur in the moment. Some operationalize

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mindfulness simply in terms of the present-moment attention component, whereas other secular perspectives emphasize both the attention, but also the acceptance facets that have been previously said to be produced by mindfulness practice (Bishop et al., 2004; Brown & Ryan, 2003; Lindsay & Creswell, 2017). Mindfulness has also been defined somewhat differently in early Buddhist texts, where meditation as a construct originated. Buddhist sources typically discuss mindfulness primarily in terms of its attention-based components (Anālayo, 2004).

Much research has worked to highlight the benefits of mindfulness practice. Broadly, mindfulness practice can improve one's concentration, help one become less automatically responsive to emotions and less evaluative of experiences, and be better able to talk about one's experiences (Baer et al., 2012). Intensive mindfulness interventions can help to establish regular meditation practice (e.g., Jha et al., 2010), and have been created to improve the lives of practitioners by teaching a range of meditation practices (Kabat-Zinn, 1989; Teasdale et al., 2000). For instance, two early mindfulness interventions, Mindfulness-Based Cognitive Therapy (MBCT, Segal et al., 2002) and Mindfulness-Based Stress Reduction (MBSR, Kabat-Zinn, 1982), were developed to improve psychological health and alleviate pain symptoms (see Hofmann & Gomez, 2017). These interventions served as the foundation of future mindfulness interventions (e.g., Roeser et al., 2022). Unsurprisingly, mindfulness interventions have benefitted both teachers and students in the education system, with both seeing improved health status and being more productive in the classroom as well (Braun et al., 2019; Poulin et al.,

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2008; Mejklejohn et al., 2012; Roeser et al., 2022). As mindfulness has derived benefits in ranging contexts, researchers have hypothesized that mindfulness may be able to influence intergroup outcomes, including explicit prejudice (Oyler et al., 2022).

Mindfulness and Prejudice

Specifically, mindfulness may be able to attenuate explicit racial prejudice by enhancing nonjudgment and emotion nonreactivity (Baer et al., 2012; Hadash et al., 2016), as being less responsive to prejudicial feelings as they are activated may lead to reductions in explicit prejudice (Mackie & Smith, 2017). Importantly, mindfulness may similarly reduce explicit prejudice by cultivating a receptive and empathetic state (Berry et al., 2018; Kang et al., 2013; Nicol & De France, 2022). Doing so could lead practitioners to engage outgroup members with an open mind, leading to reductions in explicit general prejudice.

A recent review reported that mindfulness has a small negative relationship with intergroup conflict, with many null findings included (Oyler et al., 2022). Regarding brief mindfulness interventions, studies on mindfulness and prejudice have produced mixed findings. A brief mindfulness intervention reduced implicit race and age bias (Edwards et al., 2017; Lueke & Gibson, 2015), and reduced racial discrimination (Lueke & Gibson, 2016). Additionally, a brief loving-kindness intervention reduced implicit race bias; however, it was unable to reduce implicit bias toward homeless people (Kang et al., 2014). Finally, mindfulness reduces linguistic intergroup bias (Tincher et al., 2016). However, there have also been null results found between mindfulness and prejudice.

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Mindfulness failed to close the gap in helping behavior towards White and Black confederates (Berry et al., 2021), failed to reduce implicit racial and Muslim bias (Cox, 2018; Korsmo, 2009; Stell & Farsides, 2015), and failed to reduce social distancing when sitting with a racial outgroup member (Hessler-Smith, 2001). These competing results suggest a complex mindfulness-prejudice relationship; in some scenarios, it can help reduce prejudice and in others, it does not. This study proposes that this relationship may be informed by the content of meditation interventions.

Explicit Racial Prejudice and Racial Policy Support

Prejudice is a negative feeling directed towards another due to their group membership (e.g., Banaji & Heiphetz, 2010), whereas discrimination involves treating members of one group more poorly than another due to their group identity (e.g., Pager & Shepherd, 2008). Explicit racial prejudice, a consciously controlled negativity directed towards another due to their group identity (Banaji & Heiphetz, 2010), has generally been on the decline in the U.S. (Sears et al., 2000), but the recent emergence of inflammatory racial language in the political space has made explicit racial prejudice relatively more prevalent (Newman et al., 2021).

Over time, recurrent racial prejudice and discrimination have contributed to persistent structural racial inequities in access to resources, well-being, health, and other important outcomes (e.g., Quillian et al., 2019). Further, substantial evidence demonstrates the presence of racial discrimination in housing (e.g., Thomas et al., 2018;

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Yinger, 1987), in policing, and in the criminal justice system (e.g., Carvalho et al., 2022; Kahn & Martin, 2016), and in public schools (e.g., Quintana & Mahgoub, 2016).

Explicit racial prejudice was investigated in this chapter due to its strong and consistent link to racial policy support. Explicit racial prejudice predicts less support for defunding the police (Baranauskas, 2022, see Chapter II), less support for racial profiling by police (Weitzer & Tuch, 2006), less support for affirmative action in education (Feldman & Huddy, 2005), and more support for police use of force (Carter & Corra, 2016). This suggests that explicit racial prejudice can discourage endorsement of equitable racial policy. However, if mindfulness can affect explicit racial prejudice, it may similarly influence policy support.

Monitor and Acceptance Theory

Attention monitoring and acceptance are two facets of mindfulness that, according to a novel mindfulness model, Monitor and Acceptance Theory (MAT; Lindsay & Creswell, 2017), must be developed to achieve the full benefits of mindfulness practice. Attention monitoring is the ability to concentrate one's attention on experiences as they arise (Lindsay & Creswell, 2017). Acceptance reflects the ability to attend to these experiences while maintaining a gentle view of them (Lindsay & Creswell, 2017). AAMs, then, reduce loneliness (Lindsay et al., 2019) and mind-wandering (Rahl et al., 2017), boost positive affect and reduce negative affect (Lindsay et al., 2018), and reduce stress reactivity (Manigault et al., 2021). Further, those who achieve greater attention

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monitoring and acceptance skills are also hypothesized to experience reduced emotion reactivity (Kang et al., 2013).

Conversely, MAT has argued that attention monitoring alone can be harmful by increasing emotion rumination and reactivity (Manigault et al., 2021; Pearson et al., 2015). By extension, ABMs are also less effective than AAMs (see Lindsay et al., 2018; 2019; Rahl et al., 2017), and occasionally have harmful emotional consequences (Ainsworth et al., 2017; Manigault et al., 2021). Following the proposal of MAT, studies comparing ABM and AAM have become more frequent, with the goal to test and broaden MAT using different situations and outcomes. Before MAT, though, academic papers on ABMs were rarer than AAMs, although still relatively common (Lindsay & Creswell, 2017). ABMs often were not consistently effective, particularly when investigating affective outcomes (for a review, see Lindsay & Creswell, 2017). For instance, ABMs were less effective at reducing mind-wandering and loneliness than AAMs (Lindsay et al., 2019; Rahl et al., 2016), and ABMs were also unable to one's improve emotion regulation skills (Britton et al., 2018).

In this dissertation, a primarily attention-based measure of trait mindfulness, known as the Mindful Attention and Awareness Scale (MAAS, Brown & Ryan, 2003), predicted greater explicit racial and sexual prejudice, greater discriminatory intent, and less support for equitable racial policy (Chapter II). Building on this finding, state attention monitoring predicted greater explicit racial prejudice for those low in state

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acceptance (Chapter III). Based on these prior findings, ABMs may boost explicit racial prejudice and discriminatory intentions, and influence support for racial policy.

Comparing Attention Monitoring Alone to Attention Monitoring and Acceptance

In contrast, AAMs may reduce explicit racial prejudice and discrimination and promote equitable policy support via reduced emotion reactivity. Given that each outgroup has a negative emotion that is activated upon imagining or encountering one of its members (Mackie & Smith, 2017), emotion reactivity may be particularly relevant. These emotions can bolster prejudice against those outgroups (e.g., Berg, 2015), and shape support for policies relevant to those outgroups (e.g., Brader et al., 2008). Those who are more emotionally nonreactive may be better able to experience negative emotions linked to outgroups without allowing those emotions to sway their judgment or behavior (see Hadash et al., 2016). Conversely, ABMs may predict greater prejudice due to their positive relationship with emotion reactivity (Manigault et al., 2021; Mor & Winquist, 2002). Further, outgroup-generated negative emotions are more likely to influence the judgment and behavior of emotionally reactive individuals (see Intergroup Emotions Theory, Mackie & Smith, 2017).

AAMs may also reduce explicit racial prejudice by reducing emotion rumination (Pearson et al., 2015). Emotion rumination is positively related to prejudice (Steele et al., 2019), as such, if AAMs do reduce rumination, they may also be expected to reduce implicit racial prejudice, which would similarly affect its relationship with discrimination and racial policy support. Consistent with this, those high in attention and acceptance

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may become more aware of a negative event, but when paired with acceptance, would not get stuck on the experience, but instead, would allow it to arise and pass away (Pearson et al., 2015). Conversely, given that attention monitoring is positively associated with rumination (Pearson et al., 2015) and that rumination predicts prejudice (Steele et al., 2019), ABMs may boost explicit racial prejudice and discriminatory intent and influence policy support by increasing rumination.

Focused Attention as an Attention-Based Meditation

Focused attention meditation (Lippelt et al., 2014) is similar to mindful breathing, where practitioners hone their concentration on the breath. Mindful breathing techniques have been used in ABM interventions (Lindsay et al., 2018; 2019; Rahl et al., 2017). In focused attention meditation, practitioners focus on their breath or some body part. If they become distracted, they are instructed to refocus their attention as needed (Lippelt et al., 2014). Novice meditators often do focused attention (FA) meditation to build initial attention skills (Lutz et al., 2008).

Research on FA meditation, particularly following the emergence of MAT, has been somewhat common. An eight-week FA intervention enhanced one's ability to control their attention but did not reduce emotion reactivity (Britton et al., 2018), suggesting that FA meditation is an ABM but not an AAM. An intensive FA program improves one's ability to redirect attention following distraction (Ainsworth et al., 2013). A brief FA meditation also boosts working memory capacity (Yamaya et al., 2021). Yet, among older adults, FA meditation failed to improve emotion regulation (Polsinelli et al.,

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2020). Consistent with MAT tenets on ABMs (Lindsay & Creswell, 2017), FA meditation improves performance on non-affective tasks (see Ainsworth et al., 2013; Yamaya et al., 2021). However, FA meditation does not positively affect emotional outcomes (Britton et al., 2018; Polsinelli et al., 2020), suggesting that FA meditation is an ABM.

Open Monitoring as an Attention and Acceptance Meditation

In open monitoring meditation (OM, Lippelt et al., 2014), practitioners hone their attention on any experience that they encounter and are instructed to acknowledge that experience without directly reacting to or engaging with it. OM practitioners become more aware of their experiences (attention monitoring) without evaluating them (acceptance). Open monitoring meditation is a late-stage training often administered to novices after attention skills have developed (Ainsworth et al., 2017), further suggesting this type of meditation may build both attention monitoring and acceptance skills (see Lutz et al., 2008).

Similarly, research on OM meditation is also relatively common, particularly following the emergence of MAT. OM meditation, compared to FA, elevated emotion nonreactivity, a facet of acceptance (Britton et al., 2018; Lindsay & Creswell, 2017), and reduced cortisol levels (Ooishi et al., 2021). Further, in a sample of experienced meditators, OM (but not FA) reduced the unpleasantness of a painful continuous sensory experience (Pearlman et al., 2010). Consistent with MAT tenets on AAM (Lindsay & Creswell, 2017), OM meditation has improved affective outcomes such as stress and

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unpleasantness, suggesting that it may be cultivating both attention monitoring and acceptance skills (Lutz et al., 2008).

Social Dominance Orientation and Political Ideology as a Moderator of Mindfulness

Given that meditation may strengthen value awareness and alignment (Chen & Jordan, 2020), SDO and political ideology may influence the effects of meditation on explicit prejudice due to differences in underlying values. Social dominance orientation, or SDO (Pratto et al., 1994), is an ideology that captures the degree to which one favors social systems that promote group dominance. SDO was originally developed in tandem with Social Dominance Theory (SDT, Pratto et al., 1994). According to SDT, inequality, and intergroup conflict exist in all societies, and hierarchy-legitimizing ideologies, like the Protestant Work Ethic, serve to maintain stability within unequal, hierarchically structured societies where one group dominates over the others (Pratto et al., 1994). However, hierarchy-attenuating myths, such as feminism, counter structurally unequal societies, and work to bring groups together (Pratto et al., 1994). Relatedly, SDT argues that those high in SDO are more likely to endorse hierarchy-enhancing myths and join hierarchy-enhancing careers, such as policing (Pratto et al., 1994; Sidanius et al., 1994). Conversely, those low in SDO are more likely to endorse hierarchy-attenuating ideologies and take up hierarchy-attenuating careers and roles.

Unsurprisingly, SDO is related to many of the constructs of interest in this chapter. SDO predicts greater prejudice (Sibley & Duckitt, 2008) and discriminatory intent (Sidanius et al., 2007), reduced levels of acceptance (Nicol & De France, 2018),

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and greater endorsement of extrinsic values (e.g., power, Feather & McKee, 2012).

Further, SDO is generally unrelated to trait mindfulness (Nicol & De France, 2018), although it is positively linked to political conservatism (Pratto et al., 1994).

Additionally, SDO is also consistent with SDT, associated with political policies related to intergroup inequality and group dominance. For instance, SDO predicts less support for the civil rights of LGBTQ individuals (Poteat & Mereish, 2012), greater support for taxing rich and poor individuals in a country at the same rate (Perry & Sibley, 2013), greater support for immigration restrictions (Craig & Richeson, 2014), greater support for color-blind policies, including no longer measuring race in the U.S. Census (Chow & Knowles, 2016), and less support for affirmative action in the context of University admissions (Gutierrez & Unzueta, 2013).

To summarize, SDO is an anti-equity, pro-dominance ideology that is positively related to racial prejudice, discriminatory intent, and support for hierarchy-legitimizing policies, but negatively related to support for hierarchy-legitimizing policies (Chow & Knowles, 2016; Perry & Sibley, 2013; Pratto et al., 1994; Sidanius et al., 2007). Further, it is also negatively associated with acceptance (Nicol & De France, 2018), a key facet of mindfulness, and positively associated with extrinsic values (Feather & McKee, 2012), meaning it could moderate the effects of mindfulness on explicit racial prejudice.

Political ideology is another individual ideology that could moderate the effects of mindfulness on explicit prejudice. It captures a person's views of how they believe the world should work, and how those beliefs can create a better society (Jost et al., 2009). In

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the U.S., political liberalism and conservatism are the most common ideologies and, therefore, will be the political ideologies of interest in this study (Feldman & Huddy, 2014). In this current space and time, political conservatives prefer stability and are less sensitive to systemic inequality, whereas political liberals seek to change the system to achieve greater equity and are less concerned regarding societal stability (Jost et al., 2003; 2009). Relevant to this project, political conservatives tend to hold greater prejudice towards racial minorities (Brandt et al., 2014), tend to value power and tradition (Caprara et al., 2006), and are less likely to endorse equitable racial policy, such as defunding the police (Baranauskas, 2022). It's possible, then, that political ideology may moderate the relationship between meditation and explicit racial prejudice.

It may be that an AAM may shift one's underlying values, whereas an ABM may simply enhance awareness of one's current values. If that is the case, then an ABM may especially heighten racial prejudice, reduce equitable and elevate inequitable policy support for conservatives and those high in SDO, whereas an AAM might be at least moderately effective at reducing racial prejudice, increasing equitable and decreasing inequitable racial policy support regardless of one's SDO levels and political ideology. Conversely, both ABM and AAM may boost awareness of one's currently endorsed values, meaning political ideology and SDO would influence an AAM to reduce explicit racial prejudice, as well as an ABM. To our knowledge, no research has linked mindfulness or meditation with political ideology, as is tested in the current study.

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Present Study

This experiment compared the efficacy of two (ABM and AAM) brief meditation trainings along with a third control audio to reduce explicit prejudice and discriminatory intentions, enhance equitable and reduce inequitable racial policy support. This project extends research from prior chapters in the dissertation by establishing a causal relationship between meditations that enhanced state attention and intergroup and policy outcomes. Three specific hypotheses are tested:

H1a. An AAM will reduce explicit racial prejudice and discriminatory intent, boost support for equitable racial policy, and reduce support for inequitable racial policy.

H1b. An ABM will increase explicit racial prejudice and discriminatory intent, reduce support for equitable racial policy, and boost support for inequitable racial policy.

H2. SDO will moderate the indirect effects of meditation conditions on policy and discriminatory intentions. SDO will moderate both ABM and AAM effectiveness, with increases in explicit racial prejudice for those high in SDO and decreases in racial prejudice for those low in SDO (see Figures 4.1, 4.2, 4.3, 4.4, and 4.5).

H3. Political ideology will moderate the indirect effects of meditation conditions on policy support and discriminatory intentions. Political ideology will moderate ABM and AAM, with boosts in explicit racial bias expected for conservatives, and reductions in explicit racial bias expected for liberals (see Figures 4.6, 4.7, 4.8, and 4.9).

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Method

Participants

Four hundred fifteen students were recruited to participate in this study in exchange for either extra credit in a course or a \$5 Amazon Gift Card. Grant funding to pay 98 participants was received from the Society for the Psychological Study of Social Issues Grants and Aid Award. Participants needed to be able to read, hear, and understand English to participate, as they were required to listen and respond to an audio recording in English. The goal was to obtain a sample of students with various majors to gain a sample with diverse backgrounds. As such, students were recruited from all departments on the Portland State University campus.

For participant recruitment, at the beginning of the Winter term, the research team compiled a list of instructors from all departments teaching at least one course with an enrollment cap of at least 25 students by copying information from the course list for Winter. Course instructors were emailed requests to consider offering extra credit in their course to students as an incentive to participate in this study. If instructors were unwilling to offer extra credit, they were requested to share a flyer with their students advertising the study, and students received a \$5 Amazon gift card for participating. If the instructor agreed to offer credit, they were asked to post an announcement about the study for their students. When requested by instructors, a member of the research team attended classes to promote the study to students.

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In addition, the research team reached out to access the SONA pool for the Portland State University School of Business. Using this SONA pool, students taking courses through the School of Business received extra credit for participating in this study. Finally, flyers were posted around campus, including in the library, dormitories, and the student union. These flyers provided general information on the study, including how to participate and receive compensation.

In terms of exclusion criteria, participants were removed if they failed the post-manipulation attention check item, which asked content of the audio, if they reported not fully engaging in the task (e.g., completing homework, texting, watching shows during meditation), or if they fell asleep during the meditation. In terms of the attention check, five different response options were included, with two options reflecting content not related to meditation ("Best Dog Parks in Portland" or "Natural History of England") and three related to meditation ("Allowing your mind to wander" or "Focusing on the Breath" or "Accepting your experiences"). Given the flexible nature of the meditation scripts, it was possible, for instance, that some in the mind wandering or AAM condition may have focused on the breath. For these reasons, for the attention check, participants were only excluded if they selected the two response options not related to meditation.

Moving next to the exclusion numbers, 28 participants were excluded for falling asleep, with 13 participants falling asleep in the control condition, 6 participants falling asleep in the ABM condition, and 9 participants falling asleep in the AAM. Next, 9 participants were excluded for reporting being distracted during meditation, with 1

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participant excluded from the control condition, 6 from the ABM, and 2 from AAM.

Finally, no participants failed the attention check. This left a final sample of approximately 379 for final analyses.

Power Analyses

For **H1a** and **H1b**, an a priori power analysis, performed in G*Power, using a small to medium effect ($f = .20$), reflected that an overall sample of 244 participants was required to achieve a power of .80 using a two-tailed test to detect a significant main effect in an ANCOVA with one covariate. This study was adequately powered for these analyses.

For **H2** and **H3**, simulation would be required to estimate the sample size needed for an adequately powered moderated mediation. The effect sizes for the interactions between SDO and political ideology and prejudice were expected to range from small to medium in size ($f^2 = .05$, Chen & Jordan, 2020), and meditation was predicted to have a small-to-medium effect on explicit prejudice ($f^2 = .05$, see above). Explicit prejudice was expected to have a similar-sized relationship with racial policy support ($f^2 = .04$, Knowles et al., 2010). Given that effects were largely in the small to medium range, a sample of 400-600 is likely required to be adequately powered (Preacher et al., 2007). These analyses were slightly underpowered in this study.

Regarding participant demographics, 244 (52.4 %) participants in the sample identified as White, European, 85 (18.2 %) participants identified as Latin-o/a/x, 48 (10.3 %) identified as multi-racial, 46 (9.9 %) identified as East, South, or Southeast

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Asian, 15 (3.2 %) identified as African American, Black, 12 (2.6 %) participants

identified as Middle Eastern, Arab, 10 (2.1 %) identified as Other, 5 (1.1 %) identified as

Native American, First Nations, and 1 (.2 %) participant identified as a Hawaiian Native.

In terms of participant gender, 311 (66.7 %) participants identified as women, 108

(23.2 %) participants identified as men, 38 (8.2 %) participants identified as non-binary,

and 9 (1.9 %) participants stated that their identity was not listed. The average participant

was a politically liberal ($M = 5.55$, $SD = 1.52$), young adult ($M = 25.87$, $SD = 8.93$) who

meditated relatively infrequently ($M = 4.82$, $SD = 1.93$).

Measures

The full survey is provided in Appendix A.

Demographics

Demographic items captured the participants' race/ethnicity, gender, age, sexual orientation, meditation experience, current year at PSU, and intended major.

Political Ideology

Political ideology was measured using a single item worded as: "Which of the following best describes your political ideology?" Participants chose from one of seven response options, ranging from 1= Very Conservative to 7= Very Liberal. Political ideology has been measured this way in prior research (Shook & Fazio, 2009).

Racial Feeling Thermometers

Using a 0 (very cold) to 100 (very warm) scale, participants rated feelings toward eight different social groups: Black, White, Asian, and Latinx people, men, women,

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police officers, and health care workers. Warmth towards Black and Latinx people was composited and used to measure explicit affective racial prejudice, consistent with prior work (Burke et al., 2017; see also Chapter II). The other warmth items were included as distractors. This measure had strong internal consistency, $\alpha = .87$.

Social Dominance Orientation

The eight item SDO short-form (Ho et al., 2015) contains two subscales (anti-egalitarianism and dominance). The anti-egalitarian subscale captures opposition to equitably organized social structure, whereas the dominance subscale captures support for group-based hierarchies. Each subscale contains four items, with each item responded to using a 7-point scale, ranging from 1, "Strongly Disagree" to 7 "Strongly Agree." In this study, the overall SDO short-form had an adequate internal consistency, $\alpha = .80$. A sample item for the dominance subscale includes: "No one group should dominate in society (reversed)." A sample item for the anti-egalitarian subscale includes: "We should do what we can to equalize conditions for different groups" (reversed).

Discriminatory Resource Allocation Measure

A resource allocation task measured discriminatory intentions (adapted from Sidanius et al., 2007; see also Chapter II). Participants were asked to review applications from two fictitious student organizations seeking funding from their university: the Robotics Club, and the Black-Latinx Association of Programmers. The applications were nearly identical (see Figure 4.10), with only the racial composition of the organizations differing across applications. One student group had a "current racial breakdown" that

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was "100% White", while the other student group had a "current racial breakdown" that was "55.2% African-American, 44.8% Latinx." After reviewing the applications, participants used a Tajfel matrix with seven response options to allocate funding for each group (Turner et al., 1979). For this matrix, lower scores indicated more resources allocated to White relative to Black-Latinx organizations, whereas higher scores reflected more resources allocated to predominately Black-Latinx relative to White student organizations.

Racial Policy Support

Four racial policy support items were included, with two items capturing policies that sought to alleviate racial/ethnic inequities (defunding the police, reparations for slavery), and two items capturing policies that sought to enhance racial/ethnic disparities (building a border wall to the South, racial profiling in policing). Participants indicated the extent to which they supported or opposed each policy, ranging from 1 "Strongly Oppose" to 5 "Strongly Favor."

The first item ("Reducing the budget of police departments and shifting the money to social programs.") measured support for defunding the police. The second item gauged support for government-provided reparations and was worded as follows: "Government making cash payments to Black Americans who are descendants of slaves." The third item assessed support for "Building a wall along the entire U.S.-Mexico border." The final item asked about support for racial profiling by police: "Police officers stopping motorists of certain racial/ethnic groups because members of these groups are

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more likely than others to commit crimes." The wording for the first three items came from a series of Gallup polls administered to American citizens (McCarthy, 2022).

Wording for the racial profiling item came from prior published literature (Hughes & Tuch, 2003). Preliminary CFA findings indicated that a one-factor model was a poor fit for the full four item scale. Dropping racial profiling in policing improved Cronbach's alpha for the overall scale. Cronbach's alpha for this revised three-item scale indicated an adequate internal consistency, $\alpha = .77$.

Multidimensional State Mindfulness Questionnaire

The Multidimensional State Mindfulness Questionnaire, short-form (MSMQ, Blanke & Brose, 2022) is a nine-item measure of state mindfulness that contains three subscales, including acting with awareness, acceptance, and present-moment attention. Acting with awareness captures behavior that is informed by a focus on present-moment experiences. Acceptance reflects engaging with experiences in a non-evaluative way, and present-moment attention is an awareness of experiences as they occur. This is a new measure that is relatively unknown (cited 66 times) but is the only multidimensional state mindfulness scale that includes attention and acceptance to our knowledge.

Two subscales of the three were used in this study: nonjudgmental acceptance and present-moment attention. These two subscales were included to capture states of attention monitoring and acceptance immediately following the training. Given the importance of both attention monitoring and acceptance under MAT, it was imperative to track both states. Subscales from the MSMQ (nonjudgment and observing experience,

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Blanke & Brose, 2021) were included in the survey pre and post intervention to measure trait acceptance and attention monitoring, respectively. The MSMQ was heavily inspired by the FFMQ and, as such, was a relevant measure for capturing state attention, monitoring, and acceptance. Given that this brief training was unlikely to alter trait outcomes (e.g., Rowland et al., 2019), a state scale was utilized instead.

Participants responded to six items using a 0 "Does not apply to me at all" to 6 "Applies Strongly" scale. Sample items for the present-moment attention subscale include the following: "I opened myself up to what was happening" and "I am focusing my attention on the present-moment." Sample items for the acceptance subscale include: "I thought one of my thoughts/feelings were slightly off (reversed)" and "I think I could have acted more appropriately at a certain time (reversed)." The baseline state attention ($\alpha = .71$) and acceptance MSMQ ($\alpha = .74$) subscales had acceptable internal consistencies. Post-meditation state attention ($\alpha = .73$) and acceptance ($\alpha = .75$) also had acceptable internal consistencies. Higher scores indicated higher levels of present-moment attention and acceptance.

Mindfulness Interventions

Participants were randomly assigned to one of three ten-minute audio conditions: the mind-wandering control condition, an ABM, and an AAM. Brief mindfulness interventions, including AAM, affect relevant outcomes, including explicit prejudice and stress (Ainsworth et al., 2017; Edwards et al., 2017). Additionally, shorter interventions lead to fewer issues with fatigue and participant dropout (Quinn & Pallin, 2017).

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The ABM and AAM recordings were utilized in prior clinical studies examining the differential effects of attention monitoring and acceptance on anxiety and worry (Ainsworth et al., 2017), whereas the control recording was taken from prior work examining brief mindfulness and explicit attitudes (Edwards et al., 2017, see Appendix B for transcripts). Finally, post-intervention, participants were asked a series of questions regarding their engagement, whether they fell asleep or not, and as an attention check, they were asked about the content of the audio.

Attention-Based Training

For the ABM, participants were asked to complete FA meditation (see Appendix B). In this specific exercise, participants targeted their attention and awareness on their breath and sought to “regain this focus when the mind wanders from the breath.” They were told explicitly in the instructions that the goal of the practice was “to help you develop your skill of focusing your attention.” To start, practitioners were instructed to “become aware of the physical sensations of breathing,” including the throat, chest, and abdomen. They focused their attention on one of those sensations “for the duration of the exercise.” They continued paying attention to each breath and were told to “notice in detail the sensations of the body as you breathe in and out.” Following each block of instructions, participants sat silently, focusing on their breath. This audio did not include explicit statements referencing the acceptance of one's experience, as the goal of this audio was to establish a frame of attention on a specific entity (Lutz et al., 2008).

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Attention Monitoring and Acceptance

In the AAM condition, participants completed an OM meditation (see Appendix B). To begin, participants were told that the goal of the training was to “help you develop the skill of accepting your thoughts and feelings.” Practitioners then were told to sit in a “comfortable, upright position”, and “direct their attention inwardly, so you can notice any thoughts, emotions, physical sensations” or other experiences as they emerge. For each of these sensations, participants were instructed to “acknowledge it, maybe label it,” and to ultimately “let things be as they are.” They were told to “let each experience come and go in your awareness without” trying to avoid it. Similar to the ABM condition, following each section, participants have about thirty seconds of silent, unguided time for meditation. Also, this meditation requested participants return their attention to the task when distracted. This audio aimed to explicitly develop both attention monitoring and acceptance skills (see Lutz et al., 2008).

Control Condition

In this ten-minute mind-wandering control condition adapted from prior work (Edwards et al., 2017, see Appendix B), participants were instructed, like in the other conditions, to sit upright to prepare for practice. Next, they were told "to allow their mind to wander" and "think about whatever comes to mind." About halfway through the meditation, participants were reminded to continue to let their minds wander freely. At the eight-minute mark, participants were told "to continue to let their mind wander until the final instruction." Finally, after ten minutes, a bell was rung, and participants moved

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to the next portion of the study. The goal of this audio was to distract participants and decrease their focus. This control audio was selected, then, to maximize effects and boost statistical power.

Procedure

The study was administered to all participants online via Qualtrics and took about 15-20 minutes to complete. Upon consenting, participants responded to a brief series of demographic questions. Next, participants completed the SDO-7 and the pre-intervention MSMQ subscales. Following this, participants then engaged with their assigned mental exercise. Post-intervention, participants completed the MSMQ regarding their post-meditation state. Next, participants proceeded to the feeling thermometers and the resource allocation task. Finally, they ended with an attention check and measures of their engagement while listening to the audio, and then were debriefed and compensated for their participation.

Analyses

Linear regression analyses were used to test **H1a** and **H1b**. Moderated mediation analyses were used for **H2** and **H3**. Participant race was included as a covariate in all primary analyses, and analyses were also conducted separately for each racial group when cell sizes were large enough to do so (see Appendix C, First Analysis). Cell sizes were large enough (> 20) to analyze the data separately for White participants, as such, primary analyses were conducted for the overall sample and for White participants only.

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Data Cleaning

Statistical assumptions were appropriately assessed prior to each analysis (see Cohen et al., 2003). Assumptions for linear regression included linearity, whether residuals were normally distributed, whether residuals were independently distributed, and whether the distribution of residuals was relatively equal across all values of the independent variables. Scatterplots were created to assess whether there was a linear relationship between each independent variable and dependent variable to check for linearity. Next, normality was assessed by creating and examining histograms and QQ plots for the dependent variables and evaluating skewness and kurtosis values.

Additionally, homoskedasticity was evaluated by creating and viewing residual plots for each analysis and independent variable. Given the large sample, these analyses were robust to moderate deviations from normality and homoskedasticity (Cohen et al., 2003).

Regarding outliers, Mahalanobis Distances, studentized deleted residuals, and Cook's Distances were calculated to assess the degree to which each point can be characterized as an extreme point on the dependent variable, the independent variable, or both. Studentized deleted residuals that were more than three studentized deviation units from the mean were labeled as outliers on the dependent variable (Neter, Wasserman, & Kutner, 1989), Mahalanobis Distances that exceeded the Chi-square critical value for that specific analysis were labeled as outliers on the independent variable (Tabachnick & Fidell, 2007), and Cooks' Distances that exceeded one were labeled as outliers on the independent variable and the dependent variable (Bollen & Jackman, 1985). In terms of

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analyses, if any outliers were identified, analyses were run once with outliers included, and once with outliers excluded (see Appendix C, Second Analysis). Generally, analyses with outliers excluded produced identical findings to those with them included, and no analysis had greater than 8 outliers based on these criteria.

Preliminary Analyses

If the mindfulness interventions were successful as designed, states of attention monitoring should increase post-meditation in the ABM and AAM conditions relative to the control condition. Further, states of acceptance should increase post-meditation in the AAM relative to both the ABM and control conditions. Two one-way ANOVAs were conducted, with the meditation condition (ABM, AAM, control) as the independent variable in both analyses.

In the first ANOVA, state attention monitoring was the dependent variable, testing for differences in state attention monitoring across meditation conditions. On average, post-meditation state attention was higher in the ABM and AAM conditions than control (see Table 4.1). There was a significant main effect of the meditation condition on state attention, $F(2, 376) = 6.07, p = .003, \eta^2 = .03$. Follow-up pairwise comparisons found, first, that state attention was significantly higher in the ABM condition relative to the control, $M_{\text{DIFF}} = -.33, p < .001$, and marginally higher in the AAM condition relative to the control, $M_{\text{DIFF}} = -.18, p = .067$. State attention did not differ across the ABM and AAM conditions, $M_{\text{DIFF}} = .15, p = .115$. Thus, both ABM and AAM successfully increased state attention, as anticipated.

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The second ANOVA used state acceptance as the dependent variable. State acceptance, on average, was higher in the ABM condition relative to control and AAM (see Table 4.1). However, there was no significant time-condition interaction, $F(2, 376) = 2.01, p = .135, \eta^2 = .01$, which means that the mindfulness manipulation did not increase state acceptance as was anticipated. In summary, ABM and AAM boosted state attention but not state acceptance relative to control. As such, both mindfulness manipulations primarily increased attention but not acceptance and can be theoretically viewed as more similar to each other: enhancing attention but not acceptance. While the goal was to compare an ABM to an AAM, both mindfulness manipulations primarily functioned to increase attention as an ABM. More information about this is provided in the discussion section.

Additional preliminary analyses were conducted to test for potential baseline differences in state attention and acceptance, along with participant demographics, including race, gender, age, and political ideology. For our continuous measures (state attention, acceptance, age, and political ideology), one-way ANOVAs were conducted to assess whether there were baseline differences in these outcomes across conditions. For the categorical demographic variables (gender and race), Chi-square tests [3 (condition) x 4 for gender, 3 (condition) x 9 for race] were conducted to assess for potential baseline differences in these categorical demographics across conditions.

The first one-way ANOVA examined whether state attention differed by meditation condition at baseline. Baseline state attention was, on average, slightly lower

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in ABM condition relative to the other conditions (see Table 4.1). However, there was no significant main effect of condition on state attention, $F(2, 453) = 1.00, p = .368, \eta^2 = .011$. A second one-way ANOVA was conducted to assess whether state acceptance differed by condition at baseline. On average, state acceptance was slightly higher in the control condition relative to the ABM and AAM conditions. There was no significant omnibus ANOVA, $F(2, 453) = .75, p = .473, \eta^2 = .00$. These results suggest no baseline differences in state attention or acceptance by condition.

A third one-way ANOVA was conducted to evaluate whether participant age differed across meditation conditions (see Table 4.1). Results indicated no significant differences in age across meditation conditions, $F(2, 459) = 1.66, p = .093, \eta^2 = .00$. A final one-way ANOVA assessed whether political ideology significantly differed across meditation conditions. However, results indicated no significant differences in political ideology by meditation condition, $F(2, 462) = .08, p = .921, \eta^2 = .00$.

Finally, three additional Chi-square analyses were conducted to evaluate if there were any differences in participant race or gender by meditation condition. First, a 3 (condition) x 9 (participant race) Chi-Square was conducted. The Pearson Chi-square test was not significant, $\chi^2(16) = 15.41, p = .495, Cramer's V = .129$. However, given the small cell sizes for some of the racial categories, a follow-up Chi-Square test [3 (condition) x 2 (Race)] was conducted with a binary race variable that compared White people to racial minorities. The Pearson Chi-square test was not significant in this case, $\chi^2(2) = .32, p = .85, Cramer's V = .03$. Additionally, a 3 (condition) x 4 (gender) Chi-

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square test was conducted to test for differences in participant gender across conditions.

The Pearson's Chi-square test, however, was not significant, $\chi^2(6) = 7.31, p = .293$,

Cramer's V = .09. In short, there were no baseline differences by condition in participant age, gender, race, political ideology, or state attention and acceptance.

Finally, confirmatory factor analysis (CFA) was performed using the four racial policy support items, to confirm that these items capture a single factor. Prior to this CFA, all participant responses for the two items (border wall, racial profiling) capturing support for inequitable racial policy were reverse-coded, such that higher scores reflected less support for those policies. Model fit was evaluated using a Chi-square test of independence, as well as checking fit indices such as SRMR, RMSEA and CFI. For this single-factor model with all policy items included, fit indices generally indicated poor model fit, with one out of three indices meeting their cutoffs, RMSEA = .20, CFI = .920, SRMR = .060. Additionally, the Chi-square test produced significant results, $\chi^2(6) = 385.37, p < .001$. Although items did have standardized factor loadings exceeding .30, the racial profiling in police item only barely exceeded that cutoff and was dropped from the measure to improve fit and internal consistency.

H1a & H1b: ABM and AAM predicting explicit racial prejudice, discriminatory intent, and policy

Three one-way ANCOVAs were used to test whether the meditation conditions that boosted state attention relative to control influenced discriminatory intent, warmth towards racial minorities, and racial policy support after controlling for participant race.

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The first analysis used discriminatory intent as the outcome. However, there was no significant main effect of condition, $F(2, 369) = .04, p = .957, \eta^2 = .00$. Additionally, analyses with the ABM and AAM conditions combined similarly did not produce significant results, $F(1, 368) = .00, p = .972, \eta^2 = .00$.

The second analysis examined warmth towards racial minorities as the outcome. Here, warmth toward White people was included as an additional covariate. Contrary to prediction, there were no significant differences in warmth by condition, $F(2, 366) = .08, p = .923, \eta^2 = .00$. Further, findings with the ABM and AAM conditions merged also were not significant, $F(1, 368) = .02, p = .901, \eta^2 = .00$. The final analysis utilized racial policy support as the dependent variable. Similarly, there was no significant main effect of condition on policy support, $F(2, 373) = .30, p = .739, \eta^2 = .00$. Finally, analyses that merged the ABM and AAM conditions were not significant for racial policy support, $F(1, 375) = .15, p = .698, \eta^2 = .00$. In summary, the ABM and AAM conditions did not significantly influence any of the three hypothesized outcomes.

H2: Moderated mediation using SDO, with policy support and discriminatory intent as outcomes

Two moderated mediation analyses were conducted using the PROCESS macro for SPSS, to examine whether SDO moderated the relationship between meditation condition and explicit racial prejudice (see Figures 4.1, 4.2, 4.3, 4.4, 4.5), which then predict discriminatory intent or racial policy support. 10,000 bootstrapped samples were drawn, and all predictors were centered prior to analyses. Participant race was included as

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a covariate in all analyses, along with warmth towards White people. For each moderated mediation, Helmert (X1: comparing control to combined meditation; X2 comparing ABM to AAM) and simple (X1: comparing control to ABM; X2: comparing control to AAM) contrast coding was used.

The first moderated mediation analysis employed racial policy support as the dependent variable and SDO as the moderator (see Figure 4.1). To start, results were reported for Helmert coded analyses. Combined meditation conditions did not significantly shift warmth towards racial minorities, $B = -.94$, $SE = 1.68$, $p = .578$, 95% BCI[-4.26, 2.38]. Similarly, the X2 contrast code also did not significantly predict warmth towards racial minorities, $B = .35$, $SE = 1.89$, $p = .854$, 95% BCI[-3.37, 4.07]. However, there was a significant X1-SDO interaction, $B = -4.79$, $SE = 1.52$, $p = .002$, 95% BCI[-7.77, -1.81], although the X2-SDO interaction was not a significant predictor of warmth towards racial minorities, $B = -.48$, $SE = 1.74$, $p = .782$, 95% BCI[-3.91, 2.94]. Follow up simple slopes analyses to probe the significant X1-SDO interaction (see Figure 4.3) indicated that, for those low in SDO, the combined meditation conditions marginally significantly enhanced warmth towards racial minorities, $B = 4.66$, $\beta = .27$, $SE = 2.45$, $p = .058$, 95% BCI[1.56, 11.79], yet reduced warmth for those high in SDO, $B = -6.72$, $\beta = -.37$, $SE = 2.48$, $p = .007$, 95% BCI[-11.60, -1.83]. Next, warmth towards racial minorities significantly positively predicted policy, $B = .02$, $SE = .003$, $p < .001$, 95% BCI[.02, .03]. The index of moderated mediation for X1 was significant, $B = -.12$, 95% BCI[-.21, -.04], and the index of moderated mediation for the contrast code X2 was not

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significant, $B = -.01$, 95% BCI[-.10, .07], For X1, conditional indirect effects were significant for participants low in SDO, $B = .12$, 95% BCI[.00, .23], and high in SDO, $B = -.17$, 95% BCI[-.33, -.03]. To summarize, SDO moderated the effect of combined meditation conditions on warmth towards racial minorities, marginally enhancing warmth for those low in SDO and reducing it for those high in SDO. Then, warmth towards racial minorities positively correlated with racial policy support.

Next, these same analyses used simple contrast codes (X1: comparing control to ABM; X2: comparing control to AAM, see Figure 4.2). ABM did not significantly impact warmth towards racial minorities, $B = -1.11$, $SE = 1.89$, $p = .555$, 95% BCI[-4.83, 2.60]. Similarly, AAM also did not significantly influence warmth towards racial minorities, $B = -.77$, $SE = 1.98$, $p = .699$, 95% BCI[-4.66, 3.13]. However, the X1-SDO interaction was a significant predictor of warmth, $B = -4.55$, $SE = 1.71$, $p = .008$, 95% BCI[-7.92, -1.18], along with the X2-SDO interaction, $B = -5.03$, $SE = 1.78$, $p = .005$, 95% BCI[-8.54, -1.53]. Simple slopes analyses were conducted to follow up this X1-SDO interaction (see Figure 4.3). These results found that, for those low in SDO, ABM did not significantly change warmth towards racial minorities, $B = 4.21$, $\beta = .25$, $SE = 2.76$, $p = .128$, 95% BCI[-1.22, 9.63], whereas ABM reduced warmth for those high in SDO, $B = -6.60$, $\beta = -.37$, $SE = 2.79$, $p = .019$, 95% BCI[-12.09, -1.11]. Next, simple slopes analyses were performed to explore the X2-SDO interaction further (see Figure 4.3). Results indicated that, for those low in SDO, AAM marginally enhanced warmth, $B = 5.12$, $\beta = .29$, $SE = 2.87$, $p = .075$, 95% BCI[-.52, 10.76], whereas AAM significantly reduced

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warmth towards racial minorities for those high in SDO, $B = -6.83$, $\beta = -.37$, $SE = 2.93$, $p = .020$, 95% BCI[-12.60, -1.07]. These effects were approximately medium in size.

Following that, warmth towards racial minorities was significantly positively associated with racial policy support, $B = .02$, $SE = .003$, $p < .001$, 95% BCI[.02, .03]. Next, the index of moderated mediation for X1 was significant, $B = -.11$, 95% BCI[-.21, -.03], as well as the index of moderated mediation for X2, $B = -.12$, 95% BCI[-.24, -.03]. For X1, conditional indirect effects were not significant for those low in SDO, $B = .10$, 95% BCI[-.02, .23], but were for those high in SDO, $B = -.16$, 95% BCI[-.33, -.01]. Similarly, for the contrast code X2, the conditional indirect effect for participants low in SDO was not significant, $B = .13$, 95% BCI[-.00, .27], but the conditional indirect effect was significant for participants high in SDO, $B = -.17$, 95% BCI[-.37, -.00]. In summary, the condition-SDO interaction was significant for both contrasts. AAM and ABM decreased warmth towards racial minorities for those high in SDO, and AAM increased warmth for those low in SDO. Finally, warmth towards racial minorities positively predicted racial policy support, and overall moderated mediations were significant for both meditation conditions individually.

Continuing, a moderated mediation analysis was conducted with discriminatory intent as an outcome measure (see Figure 4.4). For this analysis, Helmert coded results were presented first (X1: comparing control to combined meditation; X2 comparing ABM to AAM). The combined meditation conditions did not significantly change warmth towards racial minorities, $B = -1.20$, $SE = 1.69$, $p = .477$, 95% BCI[-4.52, 2.12].

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Similarly, the X2 contrast code also failed to significantly predict warmth towards racial minorities, $B = .45$, $SE = 1.88$, $p = .813$, 95% BCI[-3.26, 4.15]. However, there was a significant X1-SDO interaction, $B = -5.38$, $SE = 1.53$, $p < .001$, 95% BCI[-8.38, -2.37], while the X2-SDO interaction was not significant, $B = -.77$, $SE = 1.73$, $p = .656$, 95% BCI[-4.17, 2.63]. Simple slopes analyses were conducted to better understand the nature of the X1-SDO interaction (see Figure 4.3). For those low in SDO, combined meditation condition significantly boosted warmth, $B = 4.99$, $\beta = .29$, $SE = 2.43$, $p = .041$, 95% BCI[.20, 9.79], whereas it significantly dampened warmth for those high in SDO, $B = -7.78$, $\beta = -.44$, $SE = 2.52$, $p = .002$, 95% BCI[-12.73, -2.83]. For the b-path, warmth towards racial minorities significantly negatively predicted discriminatory intent, $B = -.03$, $SE = .006$, $p < .001$, 95% BCI[-.04, -.01]. Next, the index of moderated mediation for X1 was significant, $B = .14$, 95% BCI[.05, .25], while the index of moderated mediation for the contrast code X2 was not significant, $B = .02$, 95% BCI[-.07, .11]. Consistent with prediction, for X1, conditional indirect effects were significant for those low in SDO, $B = -.13$, 95% BCI[-.27, -.01], and for participants high in SDO, $B = .20$, 95% BCI[.05, .39]. For this model, SDO moderated the effect of combined meditation on warmth, with combined meditation enhancing warmth towards racial minorities for those low in SDO but reducing it for those high in SDO. Then, warmth towards racial minorities negatively predicted discriminatory intent.

Finally, moderated mediation analyses were conducted and reported using the simple contrast coded analysis with discriminatory intent as the outcome of interest (see

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Figure 4.5). ABM did not significantly influence warmth towards racial minorities, $B = -1.42$, $SE = 1.89$, $p = .452$, 95% BCI[-5.14, 2.29]. Similarly, AAM also failed to shift warmth towards racial minorities, $B = -.98$, $SE = 1.97$, $p = .621$, 95% BCI[-4.86, 2.90]. However, there was a significant X1-SDO interaction, $B = -4.99$, $SE = 1.73$, $p = .004$, 95% BCI[-8.38, -1.60], and X2-SDO interaction, $B = -5.76$, $SE = 1.78$, $p = .001$, 95% BCI[-9.27, -2.26]. Two sets of simple slopes analyses were conducted to explore the nature of the X1-SDO and X2-SDO interactions. First, simple slopes analyses for X1 (see Figure 4.3) have shown that, for those low in SDO, ABM did not impact warmth towards racial minorities, $B = 4.33$, $\beta = .25$, $SE = 2.75$, $p = .116$, 95% BCI[-1.07, 9.73], whereas ABM decreased warmth for those high in SDO, $B = -7.53$, $\beta = -.43$, $SE = 2.83$, $p = .008$, 95% BCI[-13.10, -1.96]. Next, simple slopes analyses for the X2-SDO interaction (see Figure 4.3) found that AAM reduced, warmth for those high in SDO, $B = -8.02$, $\beta = .32$, $SE = 2.95$, $p = .007$, 95% BCI[-13.82, -2.23], but significantly increased warmth for those high in SDO, $B = 5.66$, $\beta = -.43$, $SE = 2.84$, $p = .047$, 95% BCI[.08, 11.25]. These effects were generally medium in size. Then, warmth towards racial minorities was significantly negatively related to discriminatory intent, $B = -.03$, $SE = .006$, $p < .001$, 95% BCI[-.04, -.01]. Next, the index of moderated mediation for X2 was significant, $B = .14$, 95% BCI[.04, .27], along with the index of moderated mediation for X1, $B = .13$, 95% BCI[.03, .24]. Somewhat consistent with prediction, for X1, conditional indirect effects were not significant for those low in SDO, $B = -.11$, 95% BCI[-.26, .02], but were significant for those high in SDO, $B = .19$, 95% BCI[.04, .38]. However, for X2,

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conditional indirect effects were significant for those low in SDO, $B = -.14$, 95%

BCi[-.31, -.01], and those high in SDO, $B = .20$, 95% BCi[.03, .42], confirming

prediction. In summary, SDO moderated both the ABM and AAM conditions, with ABM and AAM predicting less warmth towards racial minorities for those high in SDO, and AAM predicting greater warmth. Finally, warmth towards racial minorities predicted less discriminatory intent.

Overall, analyses generally supported prediction. Given that state attention and acceptance did not differ across meditation conditions, findings regarding the combined meditation condition were most relevant when considering the two conditions similarly as primarily attention-based meditations. Helmert coded analyses for racial policy support and discriminatory intent indicated that combined condition enhanced warmth for those low in SDO, and reduced it for those high in SDO, consistent with prediction. Additionally, overall indices of moderated mediation were significant for the combined meditation conditions for both outcomes, and conditional indirect effects were significant and producing coefficients in competing directions for those low and high in SDO, also confirming prediction, and these effects were generally medium in magnitude. Simple-coded analyses for both racial policy support and discriminatory intent were also generally consistent with prediction, although ABMs did not significantly enhance warmth towards racial minorities for those low in SDO in both analyses. In general, **H2** was confirmed.

H3

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Two moderated mediation analyses were performed using the PROCESS macro for SPSS, which was structured similarly to the models detailed above, with political ideology as the moderator for these analyses. Here, it was predicted that political ideology would moderate the relationship between meditation and explicit racial prejudice, with meditation expected to enhance explicit racial prejudice for conservatives but reduce it for liberals. Explicit racial prejudice was then expected to predict either racial policy support or discriminatory intent, depending on the analysis. The first analysis employed racial policy support as the dependent measure (see Figures 4.6, 4.7, 4.8, and 4.9). To start, analyses conducted using Helmert contrast codes were reported (X1: comparing control to combined meditation; X2 comparing ABM to AAM, see Figure 4.6). Combined meditation conditions did not significantly influence warmth towards racial minorities, $B = -.91$, $SE = 1.77$, $p = .606$, 95% BCI[-4.41, 2.58]. Similarly, the X2 contrast code also did not significantly predict warmth towards racial minorities, $B = 1.01$, $SE = 1.99$, $p = .612$, 95% BCI[-2.90, 4.92]. Inconsistent with prediction, the X1-political ideology interaction was not a significant predictor of warmth, $B = 1.02$, $SE = 1.37$, $p = .457$, 95% BCI[-1.67, 3.71], and neither was the X2-political ideology interaction, $B = -.92$, $SE = 1.44$, $p = .523$, 95% BCI[-3.75, 1.91]. However, the b-path in this moderated mediation was significant, with warmth towards racial minorities positively predicting policy, $B = .02$, $SE = .003$, $p < .001$, 95% BCI[.02, .03]. Unsurprisingly, the index of moderated mediation for X1 was not significant, $B = .03$, 95% BCI[-.04, .10], and was also not significant for X2 contrast code, $B = -.03$, 95%

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BCi[-.10, .05]. To summarize, political ideology failed to significantly moderate the effect of combined meditation conditions on explicit racial prejudice, and overall, the moderated mediation was not significant.

Moving forward, simple contrast-coded analyses were conducted using racial policy support as the outcome (X1: comparing control to ABM; X2: comparing control to AAM, see Figure 4.7). The ABM condition did not significantly change warmth towards racial minorities, $B = -1.42$, $SE = 1.98$, $p = .473$, 95% BCi[-5.31, 2.47]. Similarly, the AAM condition did not significantly shift warmth towards racial minorities, $B = -.41$, $SE = 2.09$, $p = .843$, 95% BCi[-4.52, 3.70]. Additionally, the X1-political ideology interaction was not significant, $B = 1.48$, $SE = 1.49$, $p = .322$, 95% BCi[-1.46, 4.41]. Similarly, the X2-political ideology interaction did not significantly predict warmth towards racial minorities, $B = .56$, $SE = 1.60$, $p = .350$, 95% BCi[-2.59, 3.71]. However, warmth towards racial minorities did significantly positively predict policy, $B = .02$, $SE = .003$, $p < .001$, 95% BCi[.02, .03]. Finally, the index of moderated mediation for X1, $B = .04$, 95% BCi[-.03, .12], and for X2 was not significant, $B = .02$, 95% BCi[-.07, .11]. In short, the overall moderated mediation analysis produced non-significant results. Further, political ideology consistently failed to moderate the effects of ABM and AAM on warmth towards racial minorities.

The second series of analyses utilized discriminatory intent as the dependent measure (see Figure 4.8). To begin, Helmert coded contrast analyses were performed. The combined meditation conditions did not significantly shift warmth towards racial

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minorities, $B = -1.09$, $SE = 1.77$, $p = .539$, 95% BCI[-4.57, 2.39]. Relatedly, the X2 contrast code also was not a significant predictor of warmth towards racial minorities, $B = .98$, $SE = 1.97$, $p = .618$, 95% BCI[-2.89, 4.86]. By extension, the X1-political ideology interaction was also not found to significantly predict warmth towards racial minorities, $B = 1.54$, $SE = 1.37$, $p = .261$, 95% BCI[-1.15, 4.24], and this was also the case for the X2-political ideology interaction, $B = -.91$, $SE = 1.42$, $p = .523$, 95% BCI[-3.71, 1.89]. However, warmth towards racial minorities was a significant negative predictor of discriminatory intent, $B = -.03$, $SE = .006$, $p < .001$, 95% BCI[-.04, -.01]. Finally, the index of moderated mediation for the combined meditation conditions (X1) was not significant, $B = -.04$, 95% BCI[-.12, .03], as well as the index of moderated mediation for X2, $B = .03$, 95% BCI[-.06, .11]. Findings suggested that this moderated mediation analysis with political orientation failed overall.

Finally, for the moderated mediation analysis employing discriminatory intent as the dependent variable, simple contrast findings were conducted and presented (see Figure 4.9). ABM did not significantly change warmth towards racial minorities, $B = -1.58$, $SE = 1.98$, $p = .425$, 95% BCI[-5.47, 2.31]. Similarly, AAM did not significantly influence warmth towards racial minorities, $B = -.60$, $SE = 2.07$, $p = .774$, 95% BCI[-4.67, 3.48]. Then, the X1-political ideology interaction was not significant, $B = 2.00$, $SE = 1.50$, $p = .182$, 95% BCI[-.94, 4.94]. Relatedly, the X2-political ideology interaction also failed to significantly predict warmth, $B = 1.09$, $SE = 1.59$, $p = .494$, 95% BCI[-2.04, 4.22]. Yet, warmth towards racial minorities did significantly negatively predict

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discriminatory intent, $B = -.03$, $SE = .006$, $p < .001$, 95% BCI[-.04, -.01]. However, the index of moderated mediation for X1 was not significant, $B = -.06$, 95% BCI[-.14, .02]. Unsurprisingly, the index of moderated mediation for X2 was also not significant, $B = -.03$, 95% BCI[-.13, .06].

To summarize, overall, political ideology consistently failed to moderate the effect of meditation on explicit racial prejudice, although in general, regression coefficients for political conservatives and liberals were consistent with prediction, albeit, not significant. Additionally, overall, none of the moderated mediation analyses were significant, failing to confirm the prediction. The implications of these findings were considered in the following section.

Discussion

In this experiment, meditations that primarily increased state attention increased explicit racial prejudice for those who preferred unequal societies pre-meditation, suggesting that ABMs may be harmful to these individuals at baseline. Both the ABM and AAM conditions increased state attention, not state acceptance. As such, they were, for analysis and interpretation purposes, both treated as attention-based meditations. Meditations that increased state attention, but not acceptance did not directly influence affective racial prejudice, discriminatory intent, or equitable racial policy support relative to the control condition (**H1a & H1b**). However, SDO moderated the effect of both meditation conditions together on warmth towards racial minorities, with meditations that improved state attention enhancing warmth towards racial minorities for those low in

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SDO but reducing it for those high in SDO, with effects that were approximately medium in size (**H2**). Warmth then positively predicted equitable racial policy support and negatively predicted discriminatory intent. However, political ideology failed to moderate the condition-explicit racial prejudice relationship (**H3**), although regression coefficients were generally in the predicted directions for political liberals and conservatives.

This study also established that the causal relationship between meditation, particularly ABMs, and explicit prejudice may depend on individual-level factors, such as SDO. Further, this project, along with prior chapters (Chapters II & III), suggests that the distinct components and operationalizations of mindfulness may also alter its relationship with racial prejudice. Attention monitoring may have a potentially harmful relationship with prejudice, particularly for those with poor acceptance skills and who are high in SDO. This study also, alongside findings from Chapter II, provides evidence for an indirect relationship between mindfulness, specifically, attention, and support for racial policy, particularly for those high and low in SDO. This project also builds on prior correlational findings in this dissertation (see Chapters II & III) by establishing a causal relationship between meditations that enhance attention and explicit racial prejudice, discriminatory intent, and racial policy support, particularly for those low and high in SDO. In short, this study helps to elucidate the nuanced relationship between mindfulness and explicit racial prejudice.

MINDFULNESS, RACIAL PREJUDICE, AND POLICY **Theoretical Implications**

Although prior studies in this dissertation have shown a direct effect between attention-based trait mindfulness and racial prejudice (see Chapter II), there are multiple reasons why the causal direct effects of ABM and AAM were not found in the current study (**H1a & H1b**). First, given that SDO moderated the meditation-warmth relationship in competing directions, these effects likely canceled each other out, leading to the current null findings for the main effects, consistent with prior research on mindfulness and prejudice (Hunsinger et al., 2019; Nicol & De France, 2018). Additionally, given that state acceptance was not increased by the AAM, it was unsurprising that the AAM condition failed to reduce explicit racial prejudice and discriminatory intent and influence policy support. The current findings suggest that the relationship between ABMs and intergroup/political outcomes may depend on one's endorsed social ideologies.

Individual-level factors, such as SDO (**H2**, see also Chapter III), can shape the effectiveness of ABMs to reduce explicit racial prejudice and ultimately affect discriminatory intent and racial policy support. These findings suggest that attention monitoring skills alone may be harmful in the context of intergroup bias, particularly for those high in SDO, but can also be beneficial for those low in SDO. In short, attention monitoring may function as a resource to be used by diverging individuals to achieve goals consistent with their values, aligning with prior work finding that a mindfulness intervention reduced prosocial behavior for those with poor trait empathy at baseline (Chen & Jordan, 2020; Ridderinkhof et al., 2017).

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Similarly, given that mindfulness interventions have been successful in potentially ethically challenging contexts (see Monteiro et al., 2014), such as preparing elite combat soldiers to be better able to focus their attention on the battlefield (Zanesco et al., 2020) it was unsurprising that meditations that increased state attention in this study produced both equitable and inequitable outcomes, depending on the person. Attention, in this specific combat context, was used, in part, as a tool to be better able to defeat the enemy (Zanesco et al., 2020), and in our study, was used by those who value equity to reduce explicit racial prejudice, and by those who prefer unequal societies to increase it. This suggests that attention skills and meditation may be used to achieve any goal the practitioner wishes.

However, political ideology consistently failed to influence the effect of meditation on explicit racial prejudice (**H3**), although simple slopes regression coefficients for political liberals and conservatives, while not significant, were in opposing directions that were largely consistent with prediction. Following exclusions, all moderated mediation analyses were slightly underpowered, which may be one reason political ideology failed to moderate as predicted. Additionally, SDO, as a measure of one's desire for social hierarchy and group dominance (Pratto et al., 1994; Sibley & Duckitt, 2008), may be a more focused and context-relevant ideological measure than political ideology, a general ideological measure that is correlated with racial prejudice (Brandt et al., 2014), but also with a range of policy positions. As such, SDO may be expected to serve as a stronger and more consistent moderator than political ideology in

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this context, and being slightly underpowered may have been most influential for the weaker moderator, political ideology. Future research should seek to replicate the current study with a larger sample to test whether political ideology would moderate similarly to SDO.

Importantly, it should be noted that moderated mediation analyses using political ideology and SDO did not find, inconsistent with prior perspectives on meditation and intergroup bias (e.g., Burgess et al., 2017), that meditation reduced explicit racial prejudice for all individuals equally. Indeed, in only two analyses across all chapters, meditation has a beneficial relationship with intergroup bias: the SDO moderated mediation analyses in this chapter found that meditation increased state attention and reduced explicit racial prejudice only for those low in SDO. In short, moderated mediation findings from this chapter did not align with some approaches to meditation and intergroup bias, arguing that meditation reduces prejudice. This may be partly due to the AAM condition failing to develop acceptance.

These results also had implications for the meditation-values relationship. Some researchers argue that mindfulness predicts greater intrinsic value alignment and reduced extrinsic value alignment, suggesting that mindfulness may be able to *shift* our underlying values (e.g., Warren & Wray-Lake, 2018). However, other findings express that mindfulness may enhance one's awareness of their pre-existing values (e.g., Chen & Jordan, 2020; Ridderinkhof et al., 2017). Overall, moderated mediation analyses using SDO provided indirect evidence that ABM increased awareness of one's currently held

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values. In short, this study provided evidence that ABM may enhance current value awareness, although this should be directly tested in future research.

Next, this study, along with other projects in this dissertation (see Chapter II), helped to clarify but also provided some nuance regarding, the mindfulness-policy relationship. Calls for additional research linking mindfulness and policy exist (e.g., Ramstetter, 2021). Mindfulness interventions often operate at the individual level of analysis (e.g., Oyler et al., 2022). However, as meditations that enhanced state attention indirectly swayed an individual's support for policy, particularly for those low in SDO (see Ramstetter, 2021), this finding suggested that meditation may have an effect at the individual and policy levels.

In the current study, the failure of the AAM condition to cultivate state acceptance could be understood from multiple perspectives. First, the brief nature of the AAM intervention may be one reason why it did not increase state acceptance. Although this is still poorly understood at this point, prior work using intensive mindfulness interventions has shown that state attention develops before acceptance and that acceptance may take approximately four weeks to build, while attention develops almost immediately (Baer et al., 2012). It may be that, then, that brief AAM interventions generally do not increase acceptance. Another explanation may be due to the relatively inexperienced sample, with the average participant reporting meditating relatively infrequently. In particular, acceptance skills take longer to develop for meditation novices (Baer et al., 2012;

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Lindsay & Creswell, 2017), which also may explain why the AAM failed to develop acceptance in the current study.

Finally, this study built on prior correlational projects in this dissertation (see Chapters II & III) by utilizing an experimental design to establish a causal relationship between meditations that enhanced state attention, and explicit racial prejudice for those high and low in SDO. Theoretically, this experimental design also provided more powerful evidence for attention monitoring as a harmful potential causal mechanism of the mindfulness-prejudice and mindfulness-policy relationships, particularly for those high in SDO. In terms of applied implications, establishing a causal relationship (relative to an association) provided stronger and more relevant evidence for the detrimental role that ABM may play in enhancing racial prejudice and influencing policy support for stakeholders, creators of mindfulness apps, interventionists and policy makers seeking to achieve a more racially equitable society. ABM may be particularly harmful to individuals who desire unequal societies where a single group dominates over others.

Applied Implications

The current findings urge that a degree of caution may be required in applied contexts when considering whether meditation, particularly ABMs, is an appropriate tool to reduce explicit racial prejudice and discrimination and promote support for equitable racial policy. Thinking first about mindfulness apps, such as Headspace, these apps provide access to brief ABMs to paying customers. The most commonly used mindfulness phone apps include Headspace (70 million downloads) and Calm (150

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million), which have both been downloaded by millions of individuals. These apps, then, are quite popular and growing in acclaim. Hosting brief ABMs on mindfulness platforms may be beneficial for certain people, such as those low in SDO, but may also be harmful for others, particularly those high in SDO. As such, it may be valuable for these apps to provide additional information (e.g., pamphlets) for prospective meditators prior to becoming a customer on the potential limited benefits and especially the harms of brief ABMs.

Additionally, for those individuals practicing mindfulness in society, these findings were also informative. First, for interventionists and those who desire to reduce their racial prejudice and discrimination, this study (see also Chapters II & III) provides evidence about who ABMs may be effective for in this context. Brief ABMs, then, should be utilized with caution and, specifically, may be valuable when targeted at those who already desire racial equity. Building on this, certain interventions may have different effects for those with minimal versus ample levels of meditation experience (see Lindsay & Creswell, 2017). Although this is not currently well understood, some initial evidence demonstrates that novice meditators tend to develop attention monitoring skills before acceptance skills (Baer et al., 2012). As such, these brief AAMs may only cultivate attention skills for non-meditators but may cultivate both attention and acceptance for more experienced meditators. A takeaway here, then, in line with prior work, is that meditation can have some initial negative consequences for novices as they work to grow their skills (Lindsay & Creswell, 2017; Lomas et al., 2015).

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This manuscript used college student samples in both studies, who engaged largely for compensation and may not have been motivated to practice meditation. However, many meditation intervention studies used samples of participants needing assistance and actively volunteering for the study to improve their lives (Baer et al., 2012). As such, when thinking about the potential applied implications for this chapter, it is possible that the current pattern of results may not hold for individuals who are motivated to engage in the practice. However, given the existence of some required Diversity, Equity, and Inclusion interventions in organizations, which can include meditation practice (e.g., Lai et al., 2023), these results may be specifically applicable to people in these contexts who may not be motivated to engage in the practice or intervention broadly.

Limitations

Various limitations should be considered when interpreting the study findings. One limitation was the failure of the AAM condition to increase state acceptance relative to the control condition as expected. Due to the brief length of the intervention, the large proportion of meditation novices in the sample, and the fact that it takes longer for acceptance than attention to develop (Baer et al., 2012), this may explain why the AAM failed to increase acceptance. The original study where the AAM audio was developed did not measure state acceptance (Ainsworth et al., 2017), so it is unknown whether the audio increased state acceptance in that study. Future research could address this limitation by utilizing or creating a different AAM audio.

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The next limitation was the reliance on self-report measures. Indeed, all measures included in this study were measures where an individual directly reported in the moment what they think their true feelings or views towards a social group or political issue were. Similarly, via the state attention and acceptance measures, they also indicated their own experiences in the moment. Self-report measures have two relevant limitations in this context: respondents being unable or unwilling to share their true views with researchers (Nisbett & Wilson, 1977). In terms of racial prejudice, some participants may not have been willing to report racially prejudiced views, given that they have become socially undesirable in the U.S. (e.g., Greenwald et al., 2009). Despite this limitation, meditations that enhanced attention still increased explicit racial prejudice for those high, and decreased it for those low in SDO, boosting one's confidence in the study findings. However, in terms of state acceptance, it may be that a sample of mostly inexperienced practitioners may be unable to accurately report nuanced changes in their levels of acceptance post-meditation, in line with some critiques of self-report trait and state mindfulness measures (see Baer, 2019; Grossman & Van Dam, 2013). Future research could potentially address this limitation by including implicit, behavioral, task, and psychophysiological measures of prejudice and acceptance in a future study.

Another limitation was the small effect sizes. In the mindfulness and intergroup conflict literature, effects, on average, were in the small to medium range (Oyler et al., 2022). In Chapters II and III, along with the current study findings, primarily attention-based trait mindfulness, state attention, and meditation conditions that enhanced state

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attention also generally had small to medium positive relationships with prejudice ($\beta = .10 - .17$). In short, any role that a brief ABM may have to play in the intergroup context may produce small effects both in a beneficial and detrimental direction.

Future Research

There are also many potential avenues for future research. Given that values predict racial prejudice and policy support (e.g., Feather & McKee, 2008), future work could directly test intrinsic and extrinsic value alignment as mediators of the relationships between meditation and policy and between meditation and explicit racial prejudice. It may be that an ABM may enhance alignment with their most strongly endorsed values. Current findings supported the notion that ABM may enhance currently endorsed values and could be further tested in future research.

Next, future work could extend the current moderated mediation findings (and other findings from Chapter II) using other non-racial policies. For instance, how does ABM differentially influence support for affirmative action for women, abortion, or the right to marriage for those low versus high in SDO? These potential study findings would raise the question of whether mindfulness, as a trait and a practice, can indirectly influence support for equitable policies generally, particularly for those who endorse and reject group hierarchies. Similarly, ABM may influence support for those other policies for certain individuals if results confirm prediction. Confirming this to be the case might benefit policy makers and organizers.

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Importantly, given that this brief AAM failed to significantly increase state acceptance, future research should seek to replicate these findings with a larger sample or potentially a different AAM. This would allow researchers to compare the differential effects of an ABM relative to an AAM on intergroup and political outcomes, and how SDO and political ideology may influence an AAM, the original hypotheses of this paper. Given that attention and acceptance are linked to reduced rumination (Manigault et al., 2021), which was positively linked to prejudice (Steele et al., 2019), and acceptance served as a buffer of the attention-implicit prejudice relationship (see Chapter III), AAM may have successfully reduced explicit racial prejudice, discriminatory intent, and enhanced support for equitable racial policy. Enhancing statistical power would also have increased the likelihood of finding that AAM increased acceptance.

Finally, potential mediators of the mindfulness-racial prejudice and mindfulness-policy support relationship could be examined. For instance, emotion rumination has been positively linked with prejudice (Steele et al., 2019). Further, AAMs reduce emotion rumination, whereas ABMs enhance emotion rumination (Ainsworth et al., 2017). It may be that ABMs may enhance explicit racial prejudice by increasing emotion rumination, but that AAMs may reduce explicit racial prejudice by reducing emotion rumination. To test this, a follow up study could replicate the current study design but then add a measure of rumination. This measure would need to be included in the post-meditation surveys, but before the outcome measures (prejudice/policy) to be analyzed as a mediator. Another set of mediators could be state attention and acceptance. ABMs may

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enhance explicit racial prejudice by increasing state attention, whereas AAMs may reduce this by increasing state attention and acceptance. These mediations could be tested in future research.

Conclusion

This project, along with prior chapters in this dissertation, ultimately shed light on the nuanced relationship between mindfulness and prejudice and is the first to successfully employ a causal design. Specifically, this relationship may depend on how mindfulness is operationalized and on SDO, an individual-level ideology. It also provides evidence that ABMs to reduce prejudice and discrimination may backfire for those high in SDO, but function as intended for those low in SDO. Finally, this study also provided causal evidence for the harms and benefits of ABM in the context of explicit racial prejudice and policy. In combination, these findings may connote, for interventionists and creators and consumers of mindfulness content, that ABMs may be harmful for certain individuals, but beneficial for others, and this information should be shared with potential practitioners and customers.

This study also established attention monitoring as a primary mechanism of meditation in intergroup and political contexts, extending the attention tenet of MAT to these areas. It highlights explicit racial prejudice as an additional mechanism of the meditation-policy relationship. This suggests that explicit racial prejudice may be a possible target for those seeking to alter racial policy support. To conclude, these experimental findings, along with results from Chapters II & III, suggest that it should

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not be assumed that any type of mindfulness practice will reduce prejudice for all individuals. Brief ABMs have a damaging effect on prejudice, particularly for those who value power, and may be avoided. However, focused usage of ABMs with individuals who reject unequal societies at baseline may be beneficial.

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Table 4.1. Descriptives

	Control	Attention-Based	Attention and Acceptance	Combined Meditation Conditions
Participant Age	26.21 (8.53)	24.74 (8.49)	26.86 (9.72)	25.71 (9.12)
Political Ideology	5.30 (1.30)	5.36 (1.43)	5.29 (1.39)	5.33 (1.41)
Post-Meditation State Attention	3.90 (.89)	4.16 (.76)	4.06 (.91)	4.09 (.81)
Post-Meditation State Acceptance	3.20 (.96)	3.31 (.98)	3.16 (1.00)	3.24 (.99)
Warmth towards Racial Minorities	83.87 (17.04)	84.34 (15.91)	84.39 (19.70)	84.36 (17.69)
Resource Allocation	3.21 (1.76)	3.24 (1.71)	3.17 (1.83)	3.21 (1.77)
Racial Policy Support	3.88 (.96)	3.94 (.97)	3.88 (1.02)	3.91 (.99)
Social Dominance	1.96 (1.10)	1.91 (1.09)	1.87 (1.11)	1.90 (1.09)
Orientation				
Pre-Meditation State Attention	3.71 (.84)	3.61 (.93)	3.74 (.84)	3.67 (.89)
Pre-Meditation State Acceptance	2.94 (.96)	2.83 (1.05)	2.80 (.99)	4.12 (.83)

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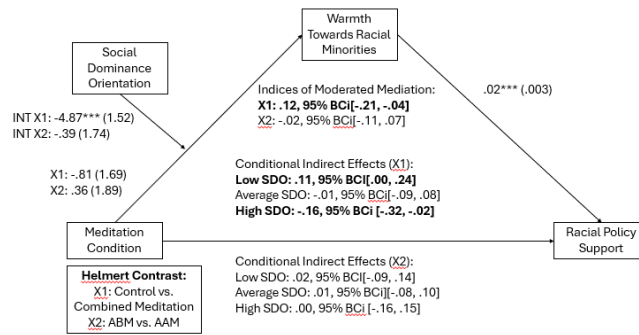
Table 4.2. Correlations

	1	2	3	4	5	6	7	8	9	10
1. Age	-									
2. Ideology	.10*	-								
3. Post Attention	-.03	-.01	-							
4. Post Acceptance	.09 ⁺	-.06	.21***	-						
5. Warmth	.04	.26***	.16**	.11*	-					
6. Resource Allocation	-.17***	-.27***	-.06	-.04	-.20***	-				
7. Racial Policy	-.04	.65***	.11*	-.07*	.35***	-.36***	-			
8. SDO	-.12*	-.44***	-.01	.02	-.31***	.33***	-.50***	-		
9. Pre Attention	.04	-.04	.42***	.17***	.21***	-.09 ⁺	.08	-.09 ⁺	-	
10. Pre Acceptance	.19***	-.18***	.02	.60***	.05	.01	-.22**	.13**	.24***	-

*** $p < .001$; ** $p < .01$, * $p < .05$, + $p < .10$

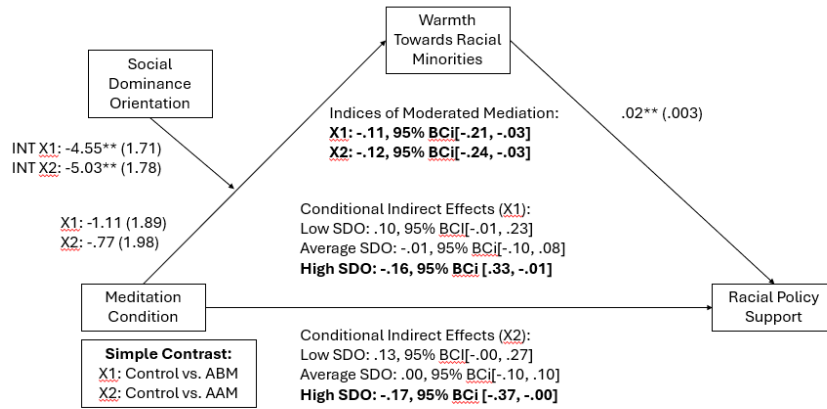
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Figure 4.1. Moderated Mediation: SDO and Racial Policy (Helmert)

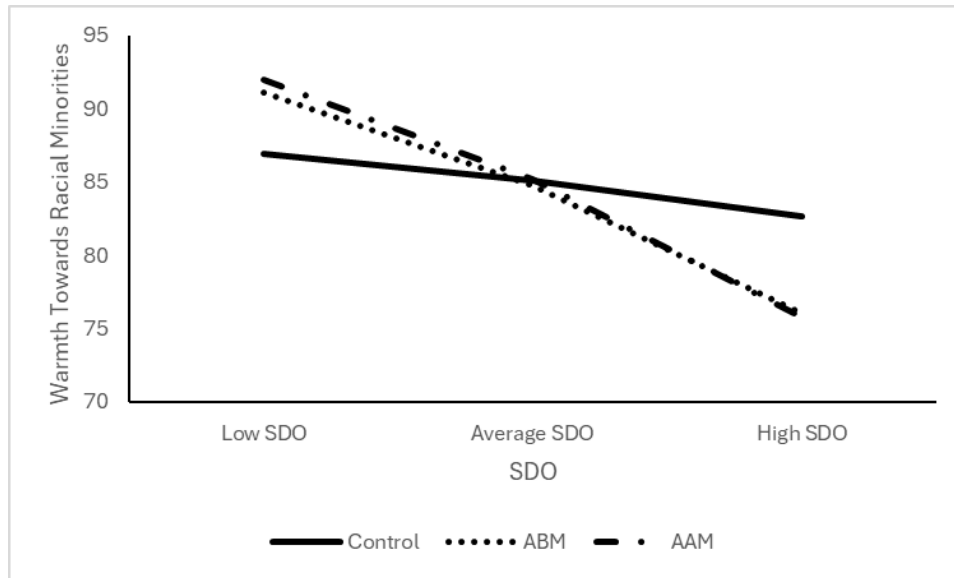


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Figure 4.2. Moderated mediation: SDO and Racial Policy (Simple)

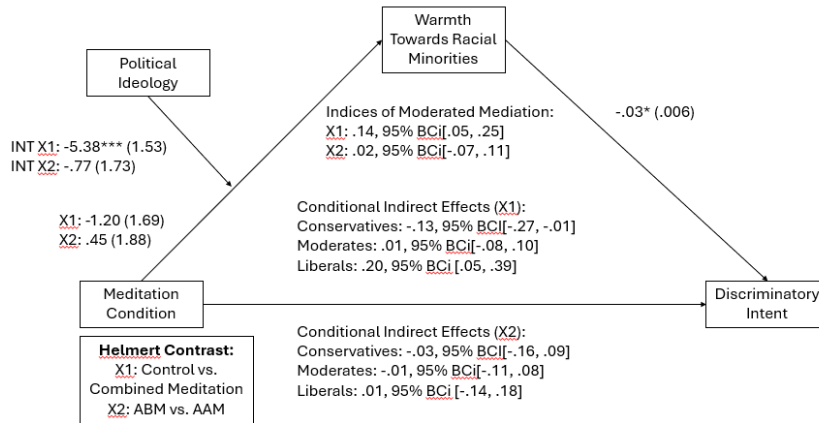


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Figure 4.3. Simple Slopes



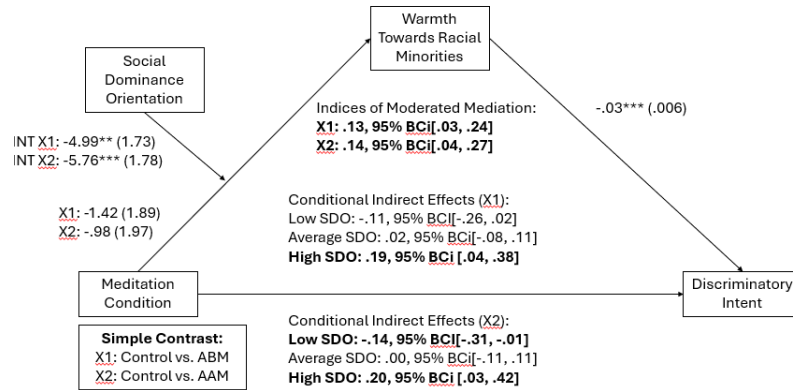
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Figure 4.4. Moderated Mediation and Discriminatory Intent (Helmert)



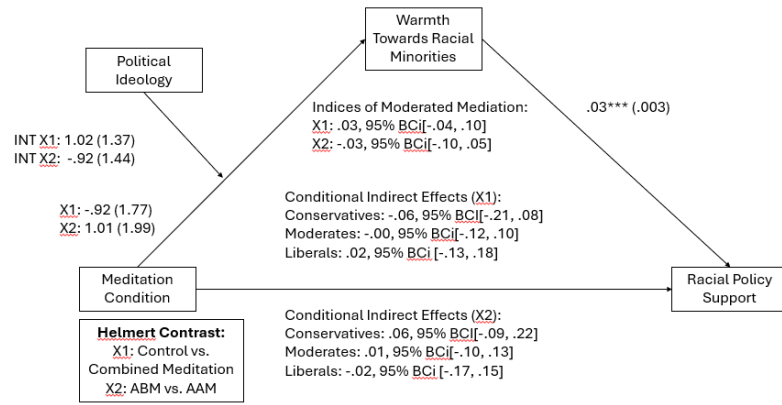
MINDFULNESS, RACIAL PREJUDICE, AND POLICY

Figure 4.5. Moderated Mediation: SDO and Discriminatory Intent (Simple)



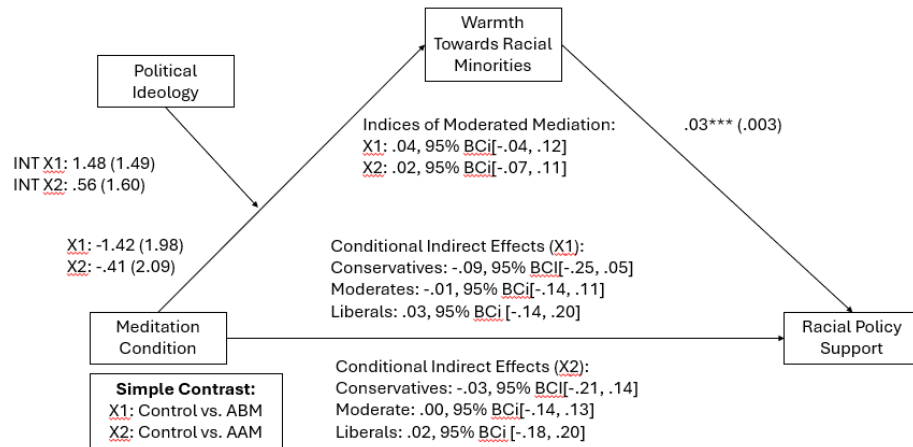
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Figure 4.6. Moderated Mediation: Political Ideology and Racial Policy (Helmert)



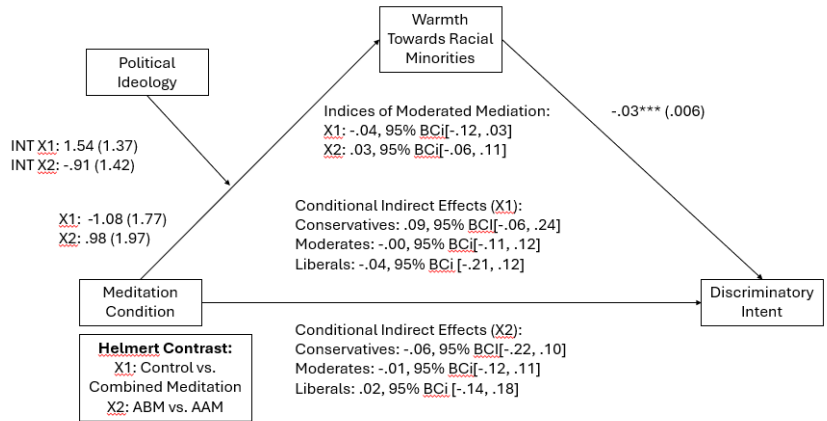
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Figure 4.7. Moderated Mediation: Political Ideology, Racial Policy Support (Simple)



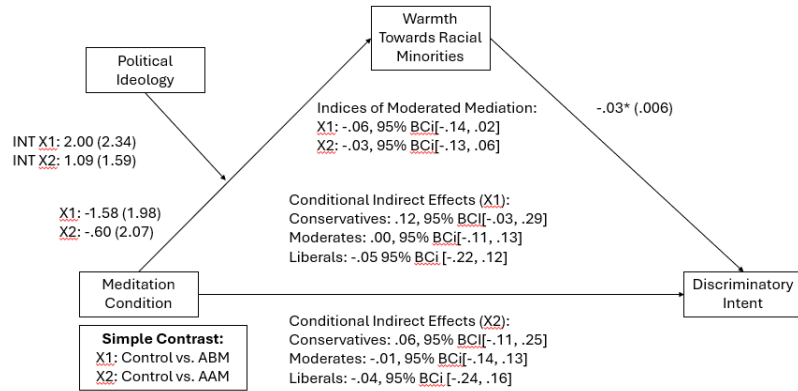
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Figure 4.8. Moderated Mediation: Political Ideology, Discriminatory Intent (Helmert)



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Figure 4.9. Moderated Mediation: Political Ideology, Discriminatory Intent (Simple)



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Figure 4.10. Resource Allocation Task Applications

Application 1 (all-White):

Portland State University

Application for Student Organization Funding

Due Date: February 28th, 2024

Instructions: This form should be completed by the president or chair of the organization. Fields with an asterisk () must be entered to receive funding.*

<i>BASIC INFORMATION</i>	
Name of Organization*: The Portland State University Robotics Club	Date*: January 4th, 2024
Name of President*: George Wright	Membership Fees?* No
Purpose of Organization*: To provide a space for PSU students who are excited about robotics to nerd out! No past experience needed to join. We plan on offering trainings, mentoring, and virtual social events.	
<i>DEMOGRAPHICS</i>	
How many members are currently in this organization?* 16	

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What is the current gender breakdown of this organization? 75% Men & 25% Women
What is the current racial breakdown of this organization? 100% White
What percentage of members are first-generation college students? 19%
FUNDRAISING
How much money does the organization currently have on hand?* \$ 276
What is the organization doing to raise more money? Last week, we held our first fundraiser. We raised money with a virtual walk.
If funding is allocated, how will it be used? We're trying to expand recruitment. We also want to host mini-classes for our members.

Application 2 (Black-Latinx):Portland State University

Application for Student Organization Funding

Due Date: February 28th, 2024

Instructions: This form should be completed by the president or chair of the organization. Fields with an asterisk (*) must be entered to receive funding.

BASIC INFORMATION	
Name of Organization*: Portland State University Black-Latinx Association of Programmers	Date*: January 7th, 2024

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Name of President*: Jason Simmons	Membership Fees?* No
Purpose of Organization*: We want to network with awesome PSU students who see Java as their second language. As we expand, we're gonna hold trainings, and bring mentors and students together! No past coding experience needed.	
DEMOGRAPHICS	
How many members are currently in this organization?* 18	
What is the current gender breakdown of this organization? 75% Men & 25% Women	
What is the current racial breakdown of this organization? 55.2% African-American, 44.8 % Latinx	
What percentage of members are first-generation college students? 22%	
FUNDRAISING	
How much money does the organization currently have on hand?* \$ 291	
What is the organization doing to raise more money? Last month, we had our first fundraiser. We held a day long coding marathon! During that marathon, we asked for donations from friends and family.	

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If funding is allocated, how will it be used? We want to bring in more people. We're also want to connect with programmers in the community. Our dream is to set up mentorship opportunities to our members.

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Appendix A: Full Survey

Demographics

1. What is your age? (open-ended response)
2. With which racial or ethnic group do you identify?
 - a. White
 - b. Black or African American
 - c. Native American
 - d. Latino/a/x
 - e. Asian
 - f. Middle Eastern, Arab
 - g. Hawaiian Native/Pacific Islander
 - h. Multi-Ethnic (open-ended response)
 - i. Other (open-ended response)
3. Gender
 - a. Woman
 - b. Man
 - c. Non-binary
 - d. Unknown
 - e. Not listed (open-ended response)
 - f. Decline to answer
4. Do you identify as transgender?

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- a. Yes
 - b. No
 - c. Decline to answer
5. Which of the following best represents your political views?
- a. Very liberal
 - b. Liberal
 - c. Slightly liberal
 - d. Moderate
 - e. Slightly conservative
 - f. Conservative
 - g. Very conservative
 - h. Other (open-ended response)
6. What is your major?
7. What year in school are you?
- a. First year
 - b. Second year
 - c. Third year
 - d. Fourth year or higher
 - e. Graduate student

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Pre-Meditation Measures

1. Social Dominance Orientation

Next, we are interested in your opinions on various social groups. In this section, you can work quickly, as your first feeling is often best.

Please indicate the extent to which you agree or disagree with the ideas presented below. (Strongly Disagree – Strongly Agree)

- a. An ideal society requires some groups to be on top, and others to be on the bottom.
- b. Groups at the bottom are just as deserving as groups at the top.
- c. We should do what we can to equalize conditions for different groups.
- d. We should work to give all groups an equal chance to succeed.
- e. Some groups of people are simply inferior to other groups.
- f. No one group should dominate in society.
- g. It is unjust to try and make groups equal in society.
- h. Group equality should not be our primary goal.

Meditation (ABM, AAM, or control audio, 10 minutes)

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Post-meditation Measures

5. *MSMQ*

When responding to these statements, please consider what you are feeling, thinking, and doing right now, after listening to the audio. (Strongly disagree – Strongly agree)

- a. I think some of my thoughts/feelings are slightly off.
- b. Things are going through my mind that I should not really be engaging with myself.
- c. I think I could have acted more appropriately at a certain time.
- d. I am focusing my attention on the present-moment.
- e. I am opening myself up to what was happening.
- f. I am concentrating on what I am doing in the moment.

6. *Feeling Thermometers*

Using a scale ranging from 0 (very cold) to 100 (very warmth), please rate how warm you feel to the following groups.

- a. White People

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- b. Black People
- c. Latin-/o/a/x People
- d. Police Officers
- e. Teachers
- f. Politicians

7. *Racial Policy Support*

In the following section, we're interested in your opinion on various public policies.

For the following items, please rate the extent to which you favor or oppose the following government policies. (Strongly Oppose – Strongly Favor)

- 7. Reducing the budget of police departments and shifting the money to social programs.
- 8. Government making cash payments to Black Americans who are the descendants of slaves.
- 9. Building a wall along the entire U.S.-Mexico border.
- 10. Police officers stopping motorists of certain racial/ethnic groups because members of these groups are more likely than others to commit crimes.

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11. The United States should rejoin the Paris Climate agreement to address climate change.

12. I believe abortion for any reason should be illegal in the United States.

8. *Discriminatory Intent*

In this final section, we're interested in getting your feedback on a University funding decision for the 2021-2022 academic year. More information is provided below.

Regents at Portland State University received applications from twelve newly created student groups requesting start-up funding.

As part of the application, organizations submit demographic information and provide the goals of the organization.

You will be provided with applications from two randomly selected student groups and will be asked to review these applications based on the provided information.

Your goal is to review application material for both groups, and then make recommendations about how much money the University should allocate to each group.

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Applications Below

Now that you have viewed these applications, we're seeking your feedback on the amount of money that should be awarded to each group. Please note that the money being used to fund these organizations comes from PSU student fees.

Indicate which combination you feel should be allocated to the student organizations.

Portland State Robotics Club	\$70	\$90	\$110	\$130	\$150	\$170	\$190
PSU Black- Latinx Association of Programmers	\$10	\$50	\$90	\$130	\$170	\$210	\$250

9. Did you fall asleep during the audio?

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a. Yes

b. No

10. How engaged were you when listening to the audio?

a. Very engaged

b. Engaged

c. Somewhat engaged

d. Somewhat disengaged

e. Disengaged

f. Very disengaged

11. Did you experience any distractions while listening to the audio? If so, briefly describe them below.

12. What was the audio you just listened to about?

a. Natural History of England

b. Focused Breathing

c. Tips for Grilling Steak

d. Best Dog Parks in Oregon

e. Recent News Report

Transcript: Mind-wandering Control Condition

Thank you for taking part in our study. This exercise will last about ten minutes, and during that time, you will allow your mind to wander. If at any time, you are not sure about what to do, or you are uncomfortable allowing your mind to wander, then do your best to continue with the exercise in a way that feels okay with you.

This exercise is designed to help you develop the skill of letting your mind wander while you sit still. So, first of all, sitting fairly upright in the chair, with your feet flat on the ground, and hands and arms resting wherever is most comfortable for you. You might find it easier to concentrate on the practice if you close your eyes, but if that doesn't feel comfortable for you, then practicing with your eyes open is fine. Just direct your gaze to an empty wall or floor.

Simply think about whatever naturally comes to mind. For the duration of this practice, simply think about whatever comes to mind naturally. Let your mind wander freely without trying to focus on anything in particular. Continue to let your mind wander until you hear the final instruction.

As this exercise draws to an end, making a decision to continue this practice beyond the span of this exercise, to bring the same experience to your next activity. We hope that you find this skill helpful in the rest of the study and your life generally.

Ring bell after audio reaches 10 minutes in length. End audio when the bell stops ringing.

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Transcript: Attention-Based Meditation

Thank you for taking part in our study. This exercise will last 10 minutes, and during that time, I'll guide you through a form of mindfulness practice. If my guidance is unclear at any time or you feel uncomfortable following it, then do your best to continue with the exercise in a way that feels OK with you.

This exercise will help you develop the skill of focusing your attention on the physical sensations of breathing, and regaining this focus when the mind wanders from the breath.

So, first of all, sitting fairly upright in the chair, with your feet flat on the ground and your hands and arms resting wherever's most comfortable for you. You may find it easier to concentrate on the practice if you close your eyes, but if that doesn't feel comfortable for you, then practicing with your eyes open is fine—just direct your gaze to an empty area of wall or floor.

As you sit in the chair, becoming aware that you're breathing. Noticing where in the body the physical sensations of breathing are vivid for you right now. So, this might be around the nostrils or mouth, as the air moves in and out. It might be at the back of the throat. It might be in the chest. Perhaps you can feel the chest and ribs expand and contract as you breathe? Or perhaps you're aware of the rise and fall of the abdomen. Choosing one place to follow the breath as you breathe in and breathe out. Settling your attention on a part of the body where you can feel the physical sensations of breathing.

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Making a decision to stay with this place for the duration of the exercise, rather than moving the attention round the body.

You don't have to breathe in any special way – just following the breath as you breathe in and breathe out. This practice is not about changing how you breathe—it's about bringing your attention and curiosity to each breath. So, following each breath all the way in . . .

The practice isn't so much about thinking about the breath, but rather feeling the sensations in the body as you breath. Noticing in detail the sensations as you breathe in and breathe out. And each time you notice your attention has wandered . . . Starting again. Using the breath as an anchor, a place to come back to.

As this exercise draws to an end, making a decision to try and continue this quality of focused attention beyond the span of this exercise, to bring the same ability to direct and focus attention to your next activity. We hope that you find this skill helpful in the rest of this study, and perhaps more broadly in your life. Thank you for participating.

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Transcript: Attention and Acceptance Meditation

Thank you for taking part in our study. This exercise will last 10 minutes and during that time I'll guide you through a form of mindfulness practice. If at any time my guidance is unclear or you feel uncomfortable following the guidance, then do your best to continue with the exercise in a way that feels OK with you.

This exercise will help you develop the skill of accepting your thoughts, feelings and other kinds of private experiences such as physical sensations.

So, first of all, sit fairly upright in the chair, with your feet flat on the ground and your hands and arms resting wherever's most comfortable for you. You may find it easier to concentrate on the practice if you close your eyes, but if that doesn't feel comfortable for you, then practicing with your eyes open is fine—just direct your gaze to an empty area of wall or floor.

As you sit in the chair, directing your attention inwardly, so that you can notice any thoughts, emotions, physical sensations and any other kinds of experiences as they show up in the field of your awareness. Sitting and noticing what's here right now for you. And each time you become aware of a private experience such as a thought or a feeling, then briefly turning your attention towards it, acknowledging it, maybe labeling it in your mind. Saying to yourself: "A headache is here right now," or "I'm aware of a thought about what I'm going to do later."

Seeing how things are for you, what's around for you at the moment.

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Maybe the mind is busy? Maybe it's relatively quiet. Maybe the body is tired or uncomfortable, or maybe it's energized or restless. However, things are for you, that's just how things are right now. Seeing if you can let things be as they are.

Finding some way of saying to yourself, "Ok. This is how things are for me right now. I'll let things be as they are in this moment."

And then as best you can just allow whatever you notice to be here, given that it's already here. Making space for it while it's here in your awareness, rather than trying to push it away, get rid of it, change it. Letting each experience come and go in your awareness without trying to either push it away or hold on to it.

At times you may notice that you've got caught up in a particular experience—a thought, for example—and that you're no longer sitting available to notice experiences as they come and go. This is not a problem at all—human minds wander and get caught very easily. Just notice what it is that's caught your attention, maybe even congratulate yourself for noticing, then see if you can broaden out your attention again, so that you can notice experiences more generally as they show up in your field of awareness.

So, noticing thoughts, emotions, sensations as they show up. Acknowledging them, and then seeing if you can make space for them, rather than trying to get rid of them or getting too caught up in them.

So just sitting, and waiting to see what shows up, and as best you can, seeing if you can let things be, just as they are—even uncomfortable or unwished for thoughts or

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feelings or sensations. Even so, seeing if you can make space for them while they're here.

Letting them be here rather than struggling or battling against them.

So, the practice is about noticing experiences and then neither holding on to them nor trying to get rid of them.

And if you find your body has tensed up or braced itself in reaction to anything that's in your awareness, seeing if you can somehow soften, and let things be as they are, however they are. Maybe even saying to yourself: "It's OK. Whatever it is, it's just how things are right now."

So, each time you notice that your attention is being dominated by a particular thought or a particular emotion or sensation, that's not a problem at all. Just acknowledge what it was that caught your attention, then as best you can, let it be, and return to being more broadly available to notice each experience, each thought and sensation and emotion, and so on, as it shows up in your awareness.

And if you struggle, if how things are for you right now is uncomfortable, or the practice itself is difficult, seeing if you can be kind to yourself as you struggle. Seeing if you can be gentle with yourself if things are difficult.

As this exercise draws to an end, making a decision to try and continue this quality of acceptance beyond the span of this exercise, to bring the same allowing and accepting of moment-by-moment experience to your next activity. We hope that you find this skill helpful in the rest of this study, and perhaps more broadly in your life. Thank you for participating.

Supplemental Analysis I: White Participants Only

Primary analyses were replicated for each racial group with cell sizes larger than 20. White participants were the only racial groups that met this requirement. In this section, primary analyses were replicated using White participants only ($N = 199$). Participant race was not controlled for in these analyses given racial invariance (see Figures 4.11 through 4.19 for models).

H1

Three one-way ANOVAs were conducted to assess whether there were any differences in warmth towards racial minorities, discriminatory intent, or racial policy support by merged meditation condition. The first analysis tested whether there were differences in warmth towards racial minorities by meditation condition. Warmth towards racial minorities was not statistically significantly different in the control condition ($M = 85.06$, $SD = 16.21$) relative to the ABM ($M = 86.30$, $SD = 14.90$) and AAM conditions ($M = 87.73$, $SD = 17.31$). Analyses confirmed that there was no significant difference in warmth towards racial minorities by condition, $F(2, 195) = .94$, $p = .391$, $\eta^2 = .010$.

The second analysis utilized discriminatory intent as the dependent variable. On average, there was no significant difference in discriminatory intent in the AAM condition ($M = 2.90$, $SD = 1.61$) relative to the control ($M = 3.20$, $SD = 1.64$) and ABM conditions ($M = 3.20$, $SD = 1.59$). Analyses confirmed that there was no significant

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difference in discriminatory intent by meditation condition, $F(2, 195) = .72, p = .489, \eta^2 = .01$. The final analysis examined racial policy support. Support for racial policy was not significantly different across the control ($M = 4.03, SD = .96$), ABM ($M = 4.11, SD = .88$) and AAM conditions ($M = 4.06, SD = .94$). The omnibus ANOVA testing for differences in racial policy support by meditation condition was not significant, $F(2, 196) = .13, p = .878, \eta^2 = .00$. In summary, for White participants, meditation did not significantly influence warmth towards racial minorities, discriminatory intent, and racial policy support. Additionally, these results were virtually identical to primary analyses with the full sample.

H2

Two moderated mediation analyses were conducted using Model 7 from the Hayes' (2022) PROCESS macro for SPSS, examining whether SDO moderated the effect of meditation on warmth towards racial minorities and whether warmth subsequently predicted racial policy support and discriminatory intent, respectively. For both analyses, 10,000 bootstrapped samples were drawn, and predictors were grand mean-centered prior to analyses. The first moderated mediation analysis used racial policy support as an outcome (see Figure 4.1). Both Helmert and simple contrast codes were employed for meditation condition. Helmert coded contrasts were reported first (X1: control compared to combined meditation conditions; X2: ABM compared to AAM). X1 was not a significant predictor of warmth towards racial minorities, $B = .76, SE = 2.15, p = .723, 95\% \text{BCi}[-3.47, 4.99]$. X2 was also not a significant predictor of warmth towards racial

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minorities, $B = 1.82$, $SE = 2.47$, $p = .462$, 95% BCI[-3.05, 6.69]. Further, the X1-SDO

interaction was significant, $B = -4.76$, $SE = 2.07$, $p = .023$, 95% BCI[-8.84, -.68].

However, the X2-SDO condition was not significant, $B = -.37$, $SE = 2.64$, $p = .889$, 95%

BCI[-5.58, 4.85]. Simple slopes analyses for X1 indicated that for those low in SDO,

meditation marginally significantly increased warmth towards racial minorities, $B = 5.81$,

$p = .065$, but for those high in SDO, condition did not significantly predict warmth

towards racial minorities, $B = -3.99$, $p = .173$. Warmth towards racial minorities was a

significant positive predictor of racial policy support, $B = .02$, $SE = .004$, $p < .001$, 95%

BCI[.01, .03]. The index of moderated mediation for X1 was not significant, $B = -.11$,

95% BCI[-.23, .01], and the index of moderated mediation for X2 was also not

significant, $B = -.01$, 95% BCI[-.16, .12]. In summary, although the moderated mediations

were not significant for White participants, SDO moderated with combined meditation

condition increasing warmth towards racial minorities for those low in SDO.

Moderated mediation analyses utilizing simple contrasts were reported next (X1:

control compared to ABM; X2: control compared to AAM). The X1 contrast code was

not a significant predictor of warmth towards racial minorities, $B = -.15$, $SE = 2.42$, $p =$

.951, 95% BCI[-4.92, 4.62]. Similarly, the X2 code was also not a significant predictor of

warmth towards racial minorities, $B = 1.67$, $SE = 2.53$, $p = .510$, 95% BCI[-3.32, 6.66].

Mirroring primary analyses, the X1-SDO interaction was marginally significant, $B = -$

4.57, $SE = 2.45$, $p = .063$, 95% BCI[-9.40, .25], and the X2-SDO condition was

significant, $B = -4.94$, $SE = 2.46$, $p = .046$, 95% BCI[-9.80, -.08]. Contradicting

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prediction, simple slopes analyses for the contrast code X1 found that for those low in SDO, meditation did not significantly increase warmth towards racial minorities, $B = 4.70, p = .197$. Conversely, for participants high in SDO, condition did not significantly impact warmth towards racial minorities, $B = -4.72, p = .161$. Simple slopes analyses for the second contrast code, X2, found that for those low in SDO, meditation did marginally significantly increase warmth towards racial minorities, $B = 6.92, p = .056$. Yet, for White participants high in SDO, condition did not significantly influence warmth towards racial minorities, $B = -3.27, p = .363$. However, warmth towards racial minorities was a significant positive predictor of racial policy support, $B = .02, SE = .004, p < .001, 95\% \text{BCi} [.01, .03]$. Contrary to prediction, the index of moderated mediation for contrast code X1 was not significant, $B = -.10, 95\% \text{BCi} [-.22, .01]$, along with the index of moderated mediation for X2, $B = -.11, 95\% \text{BCi} [-.29, .03]$. To summarize, although both indices of moderated mediation were not significant, for White participants, SDO did moderate for the ABM and AAM conditions. However, the ABM did not impact warmth towards racial minorities for those low or high in SDO, although the AAM did increase warmth for those low in SDO.

This second series of moderated mediation analyses replaced racial policy support with discriminatory intent as the dependent variable. Helmert coded contrasts were reported initially (X1: control compared to combined meditation conditions; X2: ABM compared to AAM). The combined meditation condition (X1) did not significantly influence warmth towards racial minorities relative to the control condition, $B = 1.06, SE$

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= 2.15, $p = .493$, 95% BCi[-3.18, 5.30]. The X2 contrast code was also not a significant predictor of warmth towards racial minorities, $B = 1.89$, $SE = 2.48$, $p = .445$, 95% BCi[-2.99, 6.78]. However, in line with primary findings, the X1-SDO interaction was significant, $B = -4.67$, $SE = 2.08$, $p = .026$, 95% BCi[-8.77, -.56]. Yet, contradicting primary findings, the X2-SDO condition was not significant, $B = -1.09$, $SE = 2.67$, $p = .684$, 95% BCi[-6.37, 4.19]. Follow up simple slopes analyses for the first contrast code indicated that for participants low in SDO, the combined meditation conditions marginally significantly increased warmth towards racial minorities, $B = 6.23$, $p = .055$, but for White participants high in SDO, combined meditation condition did not significantly predict warmth towards racial minorities, $B = -3.69$, $p = .212$. Warmth towards racial minorities was significantly negatively related to discriminatory intent, $B = -.02$, $SE = .008$, $p < .001$, 95% BCi[-.03, -.00]. However, neither the index of moderated mediation for X1, $B = .08$, 95% BCi[-.02, .19], nor the index of moderated mediation for X2 was significant, $B = .02$, 95% BCi[-.10, .14]. SDO moderated the effect of the combined meditation conditions on warmth towards racial minorities, with the combined conditions increasing warmth towards racial minorities for White participants low in SDO. However, the overall moderated mediation analysis was not significant for either index.

Finally, moderated mediation results for the simple contrast analyses are reported. ABM did not significantly influence warmth towards racial minorities, $B = .11$, $SE = 2.43$, $p = .963$, 95% BCi[-4.69, 4.92], and AAM also did not significantly affect warmth

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towards racial minorities, $B = 2.01$, $SE = 2.52$, $p = .428$, 95% BCI[-2.97, 6.98]. Although the X1-SDO interaction was not significant, $B = -4.12$, $SE = 2.49$, $p = .10$, 95% BCI[-9.04, .79], the X2-SDO condition was significant, $B = -5.21$, $SE = 2.46$, $p = .035$, 95% BCI[-10.05, -.37]. However, simple slopes follow up analyses for AAM (X2) indicated that for participants low in SDO, AAM did not significantly increase warmth towards racial minorities, $B = 4.68$, $p = .215$. Similarly, for White participants high in SDO, AAM did not significantly predict warmth towards racial minorities, $B = -4.08$, $p = .236$. Warmth towards racial minorities was a significant negative predictor of racial policy support, $B = -.02$, $SE = .008$, $p = .032$, 95% BCI[-.03, -.00]. Yet, the index of moderated mediation for X1 was not significant, $B = .07$, 95% BCI[-.02, .19], and the index of moderated mediation for X2 was also not significant, $B = .09$, 95% BCI[-.03, .23].

In short, likely due to the smaller sample size of White participants, findings for **H2** using White participants only did not perfectly align with predictions, and indeed, no indices of moderated mediation were significant for White participants. However, it should be noted that SDO is somewhat consistently moderating the effects of meditation on explicit racial prejudice and that the regression coefficients for those low and high in SDO in simple slopes analyses are generally in line with prediction and what was found in the primary analyses using the full sample. Finally, any differences in significant results here were likely due to the smaller sample among White people, which produced underpowered analyses.

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H3

For the final hypothesis examining political ideology as a potential moderator instead of SDO, two moderated mediation analyses were conducted. For political conservatives, meditation was expected to increase explicit racial prejudice, whereas, for political liberals, meditation was expected to reduce explicit racial prejudice. These analyses were structured similarly to the analyses detailed above for **H2**, with the exception that political ideology was used as the moderator instead of SDO.

This first analysis used racial policy support as an outcome (see Figure 4.4), and Helmert coded analyses were reported initially. Combined meditation condition did not significantly influence warmth towards racial minorities, $B = .53$, $SE = 2.09$, $p = .798$, 95% BCI[-3.58, 4.65]. The contrast code X2 was also not a significant predictor of warmth towards racial minorities, $B = 2.90$, $SE = 2.41$, $p = .231$, 95% BCI[-1.86, 7.66]. Further, both the X1-political ideology interaction, $B = .90$, $SE = 1.66$, $p = .587$, 95% BCI[-2.37, 4.18], and the X2-political ideology interaction were not significant, $B = .95$, $SE = 2.06$, $p = .644$, 95% BCI[-3.11, 5.01]. However, warmth towards racial minorities had a significant positive relationship with racial policy support, $B = .02$, $SE = .005$, $p < .001$, 95% BCI[.02, .04]. Unsurprisingly, the index of moderated mediation for X1, $B = .03$, 95% BCI[-.07, .13], and for X2 was not significant, $B = .03$, 95% BCI[-.08, .13]. To summarize, political ideology failed to moderate the effect of the combined meditation condition on explicit racial prejudice, and the overall moderated mediation analysis was not significant.

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Now, simple contrast results were presented for the analysis using racial policy support as an outcome. X1 was not a significant predictor of warmth towards racial minorities, $B = -.92$, $SE = 2.36$, $p = .698$, 95% BCi[-5.57, 3.73]. Similarly, AAM did not significantly impact warmth towards racial minorities, $B = 1.98$, $SE = 2.46$, $p = .421$, 95% BCi[-2.88, 6.84]. Consistent with primary analyses using the full sample, the X1-political ideology interaction was not significant, $B = .43$, $SE = 1.83$, $p = .234$, 95% BCi[-3.19, 4.05], along with the X2-political ideology interaction, $B = 1.38$, $SE = 2.06$, $p = .669$, 95% BCi[-2.69, 5.45]. However, warmth towards racial minorities was a significant positive predictor of racial policy support, $B = .03$, $SE = .005$, $p < .001$, 95% BCi[.02, .04]. Yet, the index of moderated mediation for contrast code X1 was not significant, $B = .01$, 95% BCi[-.08, .12], and the index of moderated mediation for contrast code X2 was also not significant, $B = .04$, 95% BCi[-.08, .16]. In short, political ideology did not moderate the effects of ABM or AAM on explicit racial prejudice, and unsurprisingly, the moderated mediation analysis was not significant.

The next moderated mediation analysis utilized discriminatory intent as the dependent variable of interest. Helmert coded findings were reported in this section. The combined meditation condition did not significantly influence warmth towards racial minorities, $B = 1.01$, $SE = 2.07$, $p = .627$, 95% BCi[-3.08, 5.10], and X2 also failed to significantly predict warmth towards racial minorities, $B = 2.75$, $SE = 2.41$, $p = .254$, 95% BCi[-2.00, 7.50]. Consistent with analyses using the full sample, the X1-political ideology interaction was not significant, $B = 1.35$, $SE = 1.64$, $p = .412$, 95% BCi[-1.89,

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4.60], and the X2-political ideology condition was not a significant predictor of warmth towards racial minorities, $B = .81$, $SE = 2.04$, $p = .694$, 95% BCI[-3.23, 4.84]. Yet, warmth towards racial minorities did have a significant negative association with discriminatory intent, $B = -.02$, $SE = .01$, $p = .015$, 95% BCI[-.04, -.00]. Finally, the index of moderated mediation for X1, $B = -.03$, 95% BCI[-.11, .05], and X2 was also not significant, $B = -.02$, 95% BCI[-.12, .08]. The results indicated that political ideology failed to significantly moderate the effect of ABM or AAM on explicit racial prejudice. Further, overall moderated mediation results were not significant.

Finally, results for **H3** were reported for White participants using the simple coded analyses. The contrast code X1 was not a significant predictor of warmth towards racial minorities, $B = -.37$, $SE = 2.36$, $p = .877$, 95% BCI[-5.02, 4.29]. Similarly, the contrast code X2 did not significantly predict warmth towards racial minorities, $B = 2.38$, $SE = 2.43$, $p = .980$, 95% BCI[-2.42, 7.19]. Further, the X1-political ideology interaction was not significant, $B = .95$, $SE = 1.83$, $p = .604$, 95% BCI[-2.67, 4.57]. However, the X2-political ideology condition was also not significant, $B = 1.76$, $SE = 2.03$, $p = .389$, 95% BCI[-2.26, 5.77]. Yet, warmth towards racial minorities significantly negatively predicted discriminatory intent, $B = -.02$, $SE = .01$, $p = .015$, 95% BCI[-.04, -.00]. In line with primary analyses, the index of moderated mediation for X1 and for, $B = -.02$, 95% BCI[-.11, .07], X2 was also not significant, $B = -.04$, 95% BCI[-.15, .07].

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For **H3**, moderated mediation analyses were not significant for any analysis, and political ideology failed to significantly moderate the efficacy of meditation in any analysis. Findings for White participants generally aligned with findings from the full sample. Broadly, results for White participants largely aligned with primary findings, with **H2** results for White participants only generally consistent in direction with the findings from the full sample, although most indices of moderated mediation were not significant for the White sample. Due to the smaller sample, power is lower for the White analyses relative to analyses for the full sample.

Supplemental Analysis II: Outliers Excluded

In this section, the primary analyses were replicated with outliers excluded. As described in text, data points that had a Cook's Distance greater than 1, or a studentized deleted residual more extreme than 3, or a Mahalanobis Distance that exceeded the calculated critical value were identified as an outlier. (See Figures 4.20 through 4.27 for results)

H1

Outliers were identified for two out of three analyses. Specifically, for the ANCOVA analyses using racial policy support and warmth towards racial minorities as outcomes, two outliers were identified for the first analysis, and one was identified for the second. Below, these outliers were excluded for the following analyses.

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The first one-way ANCOVA examined whether meditation condition influenced warmth towards racial minorities relative to the control condition. On average, warmth towards racial minorities did not differ between the AAM ($M = 84.69, SD = 18.78$), control ($M = 84.46, SD = 16.35$), or ABM conditions ($M = 84.35, SD = 15.96$). Unsurprisingly, meditation condition did not significantly impact warmth towards racial minorities, $F(2, 364) = .20, p = .816, \eta^2 = .00$. The final analysis examined whether meditation condition significantly impacted racial policy support. Overall, racial policy support was not different in the control condition ($M = 3.88, SD = .96$), on average, then in the ABM ($M = 3.96, SD = .94$) or AAM conditions ($M = 3.88, SD = 1.02$). Further, there was no significant main effect of condition on racial policy support, $F(2, 372) = .49, p = .616, \eta^2 = .00$. In summary, meditation condition did not predict either outcome after removing outliers. These findings align with the analyses conducted with outliers included.

H2

It was hypothesized that SDO should moderate the relationship between meditation and explicit racial prejudice, which should predict racial policy support and discriminatory intent. Specifically, meditation should enhance warmth towards racial minorities for those low in SDO but reduce it for those high in SDO. Outliers were found for both moderated mediation analyses. Specifically, four outliers were identified for the moderated mediation analysis using racial policy support as an outcome, and two outliers were identified for the moderated mediation analysis using discriminatory intent as an

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outcome. These analyses were structured identically to the moderated mediation analyses presented in Chapter IV. The Helmert coded findings were reported first (X1: control compared to combined meditation conditions; X2: ABM compared to AAM). The combined meditation condition did not influence warmth towards racial minorities, $B = -1.06$, $SE = 1.65$, $p = .519$, 95% BCI[-4.30, 2.18]. The contrast code X2 also did not significantly predict warmth towards racial minorities, $B = .87$, $SE = 1.85$, $p = .638$, 95% BCI[-2.76, 4.51]. Further, the X1-SDO interaction significantly predicted warmth towards racial minorities, $B = -4.87$, $SE = 1.47$, $p = .001$, 95% BCI[-7.77, -1.97]. However, the X2-SDO interaction was not significant in this case, $B = -.67$, $SE = 1.70$, $p = .694$, 95% BCI[-4.02, 2.68]. Follow up simple slopes analyses for the combined meditation found that for participants low in SDO, the combined meditation conditions marginally significantly enhanced warmth towards racial minorities, $B = 4.67$, $SE = 2.39$, $p = .052$, 95% BCI[-.03, 9.38], and for those high in SDO, it significantly decreased warmth towards racial minorities, $B = -6.90$, $SE = 2.41$, $p = .005$, 95% BCI[-11.64, -2.15]. Additionally, warmth towards racial minorities was significantly positively associated with racial policy support, $B = .03$, $SE = .003$, $p < .001$, 95% BCI[.02, .03]. Finally, the index of moderated mediation for X1 was significant, $B = -.12$, 95% BCI[-.22, -.04], but the index of moderated mediation for X2 was also not significant, $B = -.02$, 95% BCI[-.11, .07]. For X1, the conditional indirect effect for participants low in SDO was significant, $B = .12$, 95% BCI[.01, .24], whereas the conditional indirect effect for those high in SDO was also significant, $B = -.18$, 95% BCI[-.34, -.03]. SDO moderated the

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effect of the combined meditation condition on explicit racial prejudice, enhancing warmth towards racial minorities for those low in SDO but reducing it for those high in SDO. Also, moderated mediation analyses were significant for the first contrast code examining the combined mediation-control comparison.

Simple contrast analyses were reported next (X1: control compared to ABM; X2: control compared to AAM). X1 was not a significant predictor of warmth towards racial minorities, $B = -1.50$, $SE = 1.84$, $p = .416$, 95% BCI[-5.11, 2.12]. X2 was also not a significant predictor of warmth towards racial minorities, $B = -.63$, $SE = 1.93$, $p = .747$, 95% BCI[-4.43, 3.18]. Further, the X1-SDO interaction was significant, $B = -4.54$, $SE = 1.67$, $p = .007$, 95% BCI[-7.81, -1.26], and the X2-SDO interaction was also significant, $B = -5.21$, $SE = 1.74$, $p = .003$, 95% BCI[-8.62, -1.79]. Simple Slopes for X1 indicated that for those low in SDO, ABM did not significantly affect warmth towards racial minorities, $B = 3.84$, $SE = 2.69$, $p = .154$, 95% BCI[-1.45, 9.14], but decreased it for those high in SDO, $B = -6.93$, $SE = 2.71$, $p = .011$, 95% BCI[-12.26, -1.60]. Simple slopes for X2 indicated that for those low in SDO, AAM marginally increased warmth towards racial minorities, $B = 5.50$, $SE = 2.81$, $p = .051$, 95% BCI[-.02, 11.02], but decreased it for those high in SDO, $B = -6.86$, $SE = 2.85$, $p = .017$, 95% BCI[-12.47, -1.26]. Warmth towards racial minorities was a significant positive predictor of racial policy support, $B = .03$, $SE = .003$, $p < .001$, 95% BCI[-.02, -.01]. The index of moderated mediation for X1 was significant, $B = -.12$, 95% BCI[-.21, -.03], and the index of moderated mediation for X2 was also significant, $B = -.13$, 95% BCI[-.25, -.03]. For X1, the conditional indirect

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effect for those low in SDO was not significant, $B = .10$, 95% BCI[-.03, .23], yet, the conditional indirect effect for those high in SDO was significant, $B = -.18$, 95% BCI[-.35, -.03]. For X2, the conditional indirect effect for those low in SDO was significant, $B = .14$, 95% BCI[.01, .29], yet, the conditional indirect effect for those high in SDO was not significant, $B = -.17$, 95% BCI[-.37, -.00]. In summary, SDO successfully moderated the effect of ABM and AAM on explicit racial prejudice, with both ABM and AAM reducing warmth towards racial minorities for those high in SDO, but AAM only increasing warmth towards racial minorities for those low in SDO. Finally, the moderated mediation analyses was significant for both indices. Findings, then, for this analysis were largely identical to the findings with outliers included.

Next, the second moderated mediation analysis used discriminatory intent as the dependent variable instead of racial policy support (see Figure 4.7). To begin, Helmert findings were reported (X1: control compared to combined meditation conditions; X2: ABM compared to AAM). The combined meditation condition was not found to significantly influence warmth towards racial minorities, $B = -1.38$, $SE = 1.64$, $p = .401$, 95% BCI[-3.87, 1.84]. Further, the X2 contrast code also did not significantly predict warmth towards racial minorities, $B = .85$, $SE = 1.83$, $p = 1.83$, 95% BCI[-2.74, 4.44]. However, the X1-SDO interaction was a significant predictor of warmth towards racial minorities, $B = -5.36$, $SE = 1.48$, $p < .001$, 95% BCI[-8.27, -2.45], although the X2-SDO interaction was not, $B = -.82$, $SE = 1.67$, $p = .625$, 95% BCI[-4.11, 2.47]. Follow up simple slopes to probe the significant X1-SDO interaction indicated that for participants

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low in SDO, the combined meditation conditions significantly increased warmth towards racial minorities, $B = 4.80$, $SE = 2.36$, $p = .043$, 95% BCI[.15, 9.44], but significantly decreased it for those high in SDO, $B = -7.93$, $SE = 2.44$, $p = .001$, 95% BCI[-12.73, -3.14]. Additionally, warmth towards racial minorities significantly negatively predicted discriminatory intent, $B = -.02$, $SE = .006$, $p < .001$, 95% BCI[-.03, -.01]. Consistent with primary analyses, the index of moderated mediation for X1 was significant, $B = .12$, 95% BCI[.04, .22], but the index of moderated mediation for X2 was not, $B = .02$, 95% BCI[-.06, .10]. For the X1 contrast code, the conditional indirect effect for those low in SDO was significant, $B = -.11$, 95% BCI[-.23, -.01], along with the conditional indirect effect for those high in SDO, $B = .17$, 95% BCI[.04, .35]. Overall, moderated mediation analyses were significant for the combined meditation conditions, and SDO moderated the effect of combined meditation on explicit racial prejudice for those low in SDO but decreasing it for those high in SDO, consistent with prediction and prior analyses with the full sample.

Finally, simple coded analyses were reported for the analysis using discriminatory intent as the dependent variable (X1: control compared to ABM; X2: control compared to AAM). The contrast code for X1 was not a significant predictor of warmth towards racial minorities, $B = -1.80$, $SE = 1.83$, $p = .325$, 95% BCI[-5.41, 1.80]. Further, AAM did not significantly impact warmth towards racial minorities, $B = -.95$, $SE = 1.92$, $p = .620$, 95% BCI[-4.72, 2.82]. Further, the X1-SDO interaction was a significant predictor of warmth towards racial minorities, $B = -4.95$, $SE = 1.67$, $p = .003$, 95% BCI[-8.24, -

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1.66], and the X2-SDO interaction was also found to be significant, $B = -5.77$, $SE = 1.73$, $p = .001$, 95% BCI[-9.16, -2.38]. Simple slopes analyses to explore the significant X1-SDO interaction showed that, for participants low in SDO, ABM did not significantly affect warmth towards racial minorities, $B = -1.05$, $SE = 1.85$, $p = .570$, 95% BCI[-4.69, 2.59], but decreased warmth for participants high in SDO, $B = -.07$, $SE = 1.93$, $p = .969$, 95% BCI[-3.88, 3.73]. A second set of simple slopes analyses were conducted to examine the X2-SDO interaction. First, for those low in SDO, AAM increased warmth towards racial minorities, $B = 5.69$, $SE = 2.75$, $p = .039$, 95% BCI[.28, 11.11], but decreased it for those high in SDO, $B = -8.01$, $SE = 2.86$, $p = .005$, 95% BCI[-13.63, -2.39]. Next, warmth towards racial minorities significantly negatively predicted discriminatory intent, $B = -.02$, $SE = .006$, $p < .001$, 95% BCI[-.03, -.01]. Consistent with primary analyses with outliers included, the index of moderated mediation for X1 was significant, $B = .11$, 95% BCI[.03, .22], along with the index of moderated-mediation for X2, $B = .13$, 95% BCI[.04, .25]. For ABM (X1), the conditional indirect effect for those low in SDO was not significant, $B = -.09$, 95% BCI[-.22, .02], but the conditional indirect effect for those high in SDO was significant, $B = .17$, 95% BCI[.03, .36]. For AAM (X2), the conditional indirect effect for those low in SDO was significant, $B = -.13$, 95% BCI[-.27, -.01], and the conditional indirect effect for those high in SDO was significant, $B = .18$, 95% BCI[.03, .37]. To summarize, for **H2**, SDO was generally found to moderate the effect of meditation (both combined and ABM and AAM individually) on explicit racial prejudice. For those high in SDO, meditation increased explicit racial prejudice, but

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reduced it for those low in SDO. All relevant indices of moderated mediation were significant. Finally, results for **H2** with outliers excluded were largely consistent with findings presented in the primary paper, strengthening our confidence in the current findings.

H3

For **H3**, political ideology was projected to moderate the relationship between meditation and warmth towards racial minorities, which should subsequently predict racial policy support and discriminatory intent. For conservatives, meditation should increase explicit racial prejudice, but it should be reduced for political liberals. Outliers were also identified for both moderated mediation analyses using political ideology as a moderator. Outlier identification indicated that each moderated mediation analysis had four outliers that were excluded for the following analyses.

To start, the first moderated mediation analysis used racial policy support as the dependent measure. Consistent with prior sections, Helmert coded contrasts were reported first (X1: control compared to combined meditation conditions; X2: ABM compared to AAM). Combined meditation conditions did not significantly shift warmth towards racial minorities, $B = -.65$, $SE = 1.75$, $p = .710$, 95% BCI[-4.08, 2.78]. Additionally, the contrast code X2 also did not predict warmth towards racial minorities, $B = 1.49$, $SE = 1.96$, $p = .447$, 95% BCI[-2.36, 5.34]. Further, the X1-political ideology interaction was not a significant predictor of warmth towards racial minorities, $B = 1.02$,

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$SE = 1.35, p = .451, 95\% \text{BCi}[-8.99, 2.97]$, along with the X2-political ideology interaction, $B = -1.01, SE = 1.41, p = .475, 95\% \text{BCi}[-3.79, 1.77]$. Next, warmth towards racial minorities was significantly negatively associated with racial policy support, $B = .03, SE = .003, p < .001, 95\% \text{BCi} [.02, .03]$. Finally, the index of moderated mediation for X1 was not significant, $B = -.03, 95\% \text{BCi}[-.04, .11]$, along with the index of moderated mediation for X2, $B = -.03, 95\% \text{BCi}[-.11, .05]$. Political ideology failed to moderate the combined meditation-warmth relationship, and the overall moderated mediation analysis was not significant.

Next, simple coded contrasts were reported (X1: control compared to ABM; X2: control compared to AAM). ABM did not significantly change warmth towards racial minorities, $B = -1.40, SE = 1.94, p = .473, 95\% \text{BCi}[-5.22, 2.43]$. AAM also did not significantly influence warmth towards racial minorities, $B = .10, SE = 2.06, p = .963, 95\% \text{BCi}[-3.95, 4.14]$. Further, the X1-political ideology interaction did not significantly predict warmth towards racial minorities, $B = 1.52, SE = 1.47, p = .300, 95\% \text{BCi}[-1.36, 4.41]$, as well as the X2-political ideology interaction, $B = .51, SE = 1.57, p = .745, 95\% \text{BCi}[-2.58, 3.60]$. Further, warmth towards racial minorities was a significant positive predictor of racial policy support, $B = .03, SE = .003, p < .001, 95\% \text{BCi} [.02, .03]$. Unsurprisingly, the index of moderated mediation for X1 was not significant, $B = .04, 95\% \text{BCi}[-.03, .12]$, along with the index of moderated mediation for X2, $B = .02, 95\% \text{BCi}[-.07, .11]$. In summary, political ideology did not moderate the efficacy of ABM or

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AAM on warmth towards racial minorities. By extension, neither index of moderated mediation was significant.

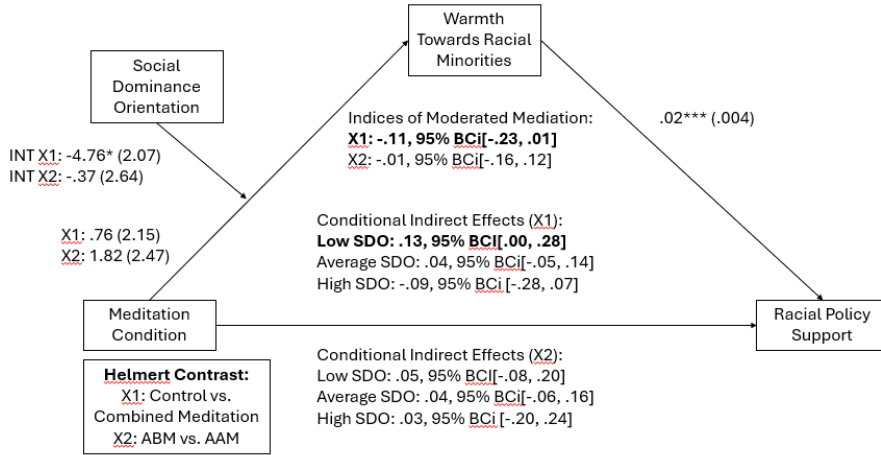
The second series of moderated mediation analyses used discriminatory intent as the outcome measure (see Figure 4.10). To start, Helmert coded contrasts were presented (X1: control compared to combined meditation conditions; X2: ABM compared to AAM). The combined meditation condition was not a significant predictor of warmth towards racial minorities, $B = -1.09$, $SE = 1.77$, $p = .539$, 95% BCI[-4.57, 2.39]. X2 also did not significantly predict warmth, $B = .98$, $SE = 1.97$, $p = .618$, 95% BCI[-2.89, 4.86]. Consistent with primary analyses, the X1-political ideology interaction was not significant, $B = 1.54$, $SE = 1.37$, $p = .261$, 95% BCI[-1.15, 4.24], and the X2-political ideology interaction also did not significantly predict warmth towards racial minorities, $B = -.91$, $SE = 1.42$, $p = .523$, 95% BCI[-3.71, 1.89]. Next, warmth towards racial minorities did significantly negatively predict discriminatory intent, $B = -.03$, $SE = .006$, $p < .001$, 95% BCI[-.04, -.02]. Finally, the hypothesized index of moderated-mediation for X1 was not significant, $B = -.04$, 95% BCI[-.12, .03], and the second index of moderated-mediation (X2) was also not significant, $B = .03$, 95% BCI[-.06, .11]. Overall, this moderated mediation was not significant for either index or political ideology and also failed to significantly moderate the combined meditation-explicit racial prejudice relationship.

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Finally, this moderated mediation analysis used discriminatory intent as an outcome, and simple coded contrasts were reported second (X1: control compared to ABM; X2: control compared to AAM). ABM was not a significant predictor of warmth towards racial minorities, $B = -1.55$, $SE = 1.94$, $p = .424$, 95% BCI[-5.37, 2.26]. AAM also did not significantly impact warmth towards racial minorities, $B = -.09$, $SE = 2.04$, $p = .964$, 95% BCI[-4.10, 3.92]. Further, the X1-political ideology interaction was not significant, $B = 2.04$, $SE = 1.16$, $p = .165$, 95% BCI[-.84, 4.93], alongside X2-political ideology interaction, $B = 1.03$, $SE = 1.56$, $p = .509$, 95% BCI[-2.04, 4.10]. Moving to the b-path, warmth towards racial minorities did significantly negatively predict discriminatory intent, $B = -.03$, $SE = .006$, $p < .001$, 95% BCI[-.04, -.01]. The index of moderated mediation for X1, $B = -.05$, 95% BCI[-.14, .02], and for X2 were also not significant, $B = -.03$, 95% BCI[-.12, .06]. Overall, findings did not differ for **H1**, **H2**, and **H3** between the outlier excluded and full sample analyses, both in terms of patterns of significance, and the direction of regression coefficients. In general, the number of outliers identified for each analysis was relatively minimal, and these outlying points did not have a severe influence on findings. This suggests that findings regarding SDO as a moderator were relatively robust.

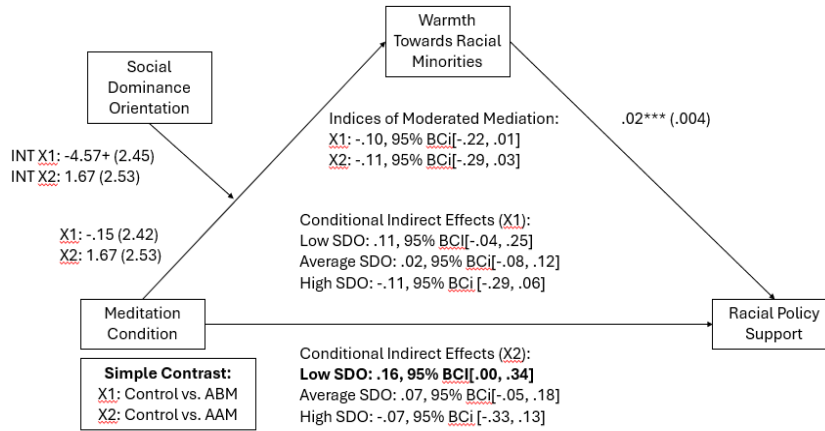
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Figure 4.11. Moderated Mediation: SDO and Racial Policy Support (White Participants, Helmert)



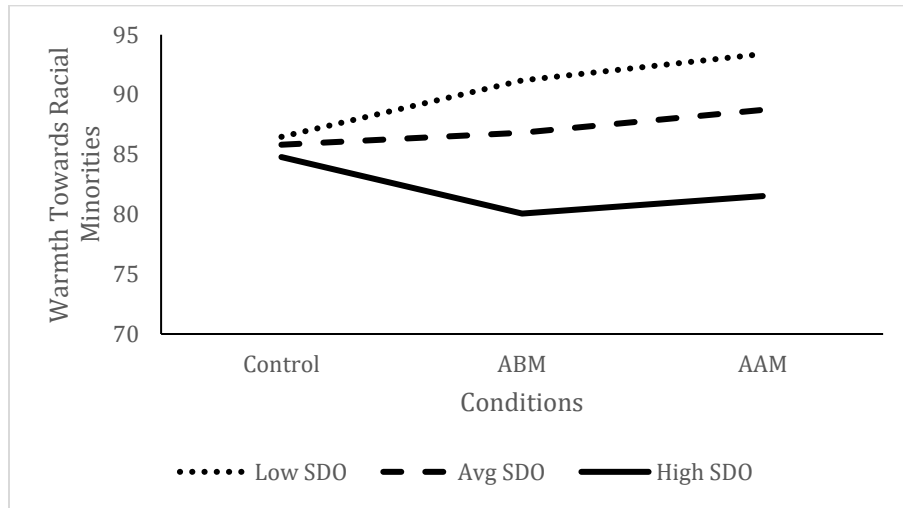
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Figure 4.12. Moderated Mediation: SDO and Racial Policy Support, White Participants only



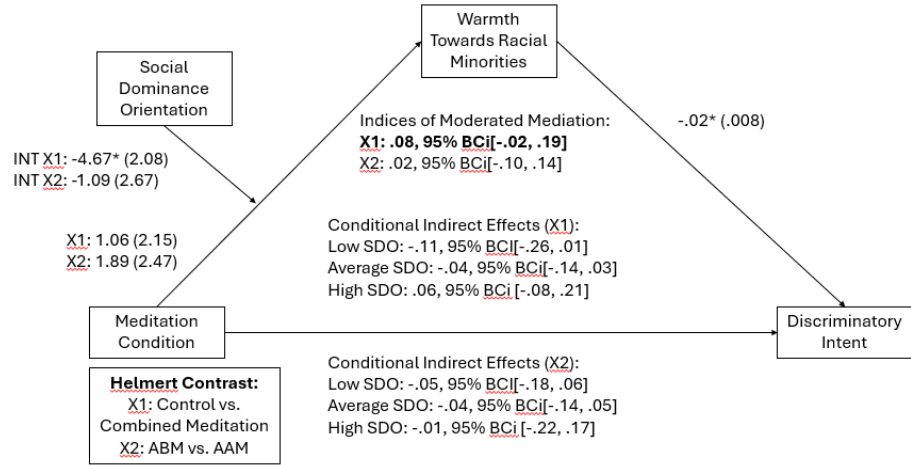
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Figure 4.13. SDO Simple Slopes



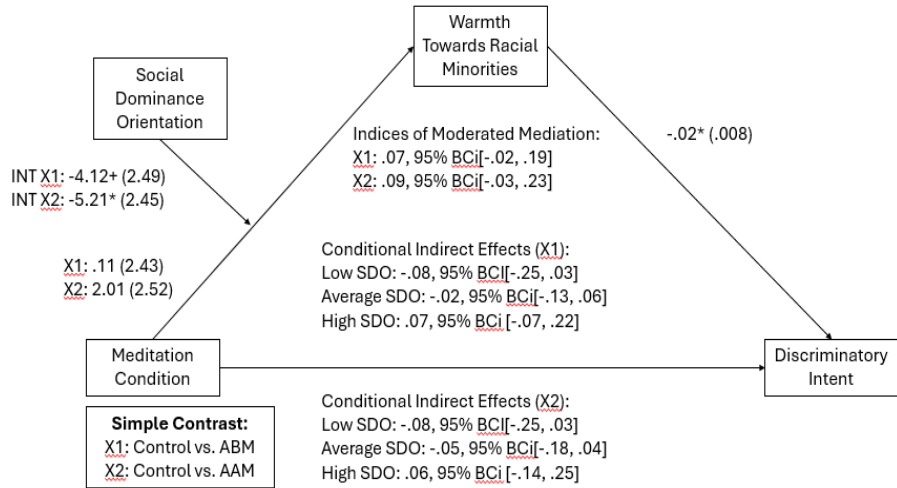
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Figure 4.14. Moderated Mediation and Discriminatory Intent (White Participants, Helmert)



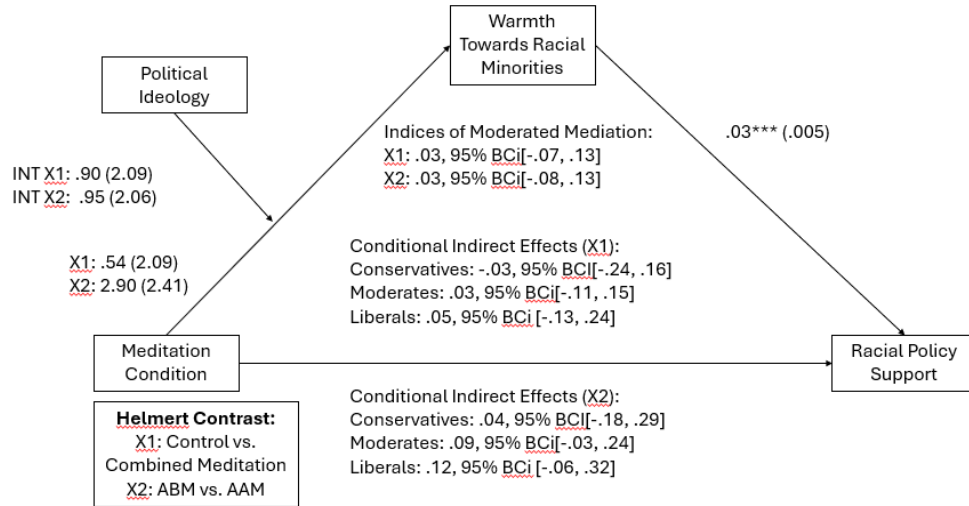
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Figure 4.15. Moderated Mediation: SDO and Discriminatory Intent (White Participants)



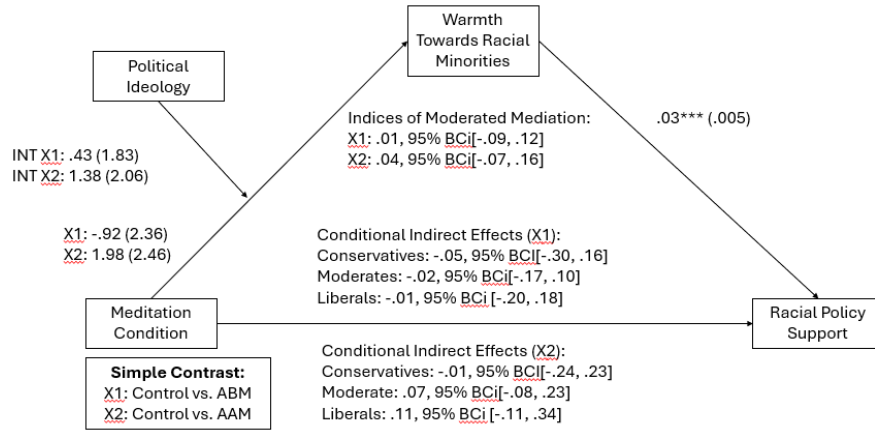
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Figure 4.16. Moderated Mediation: Political Ideology as a moderator, Racial Policy Support as an outcome (White Participants, Helmert)



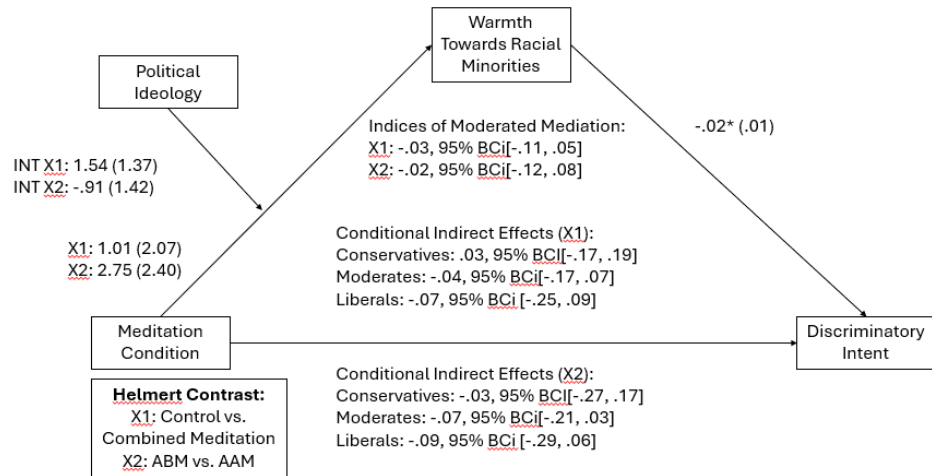
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Figure 4.17. Moderated Mediation: Political Ideology and Racial Policy Support (White, Simple)



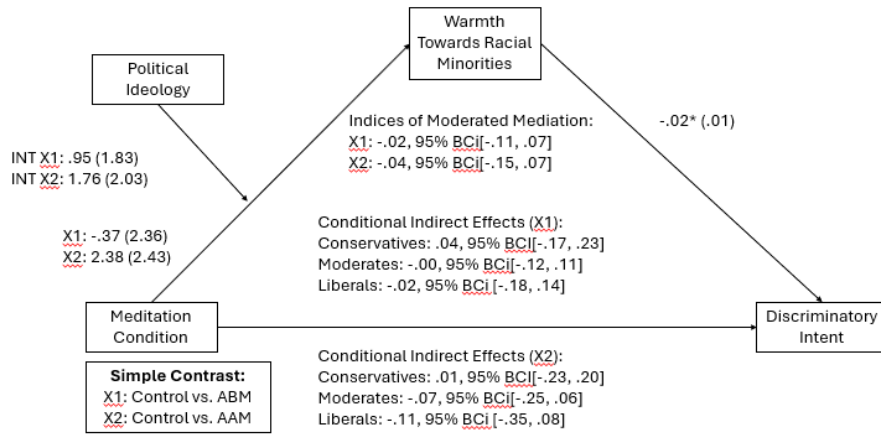
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Figure 4.18. Moderated Mediation: Political Ideology and Discriminatory Intent (White Participants, Helmert)



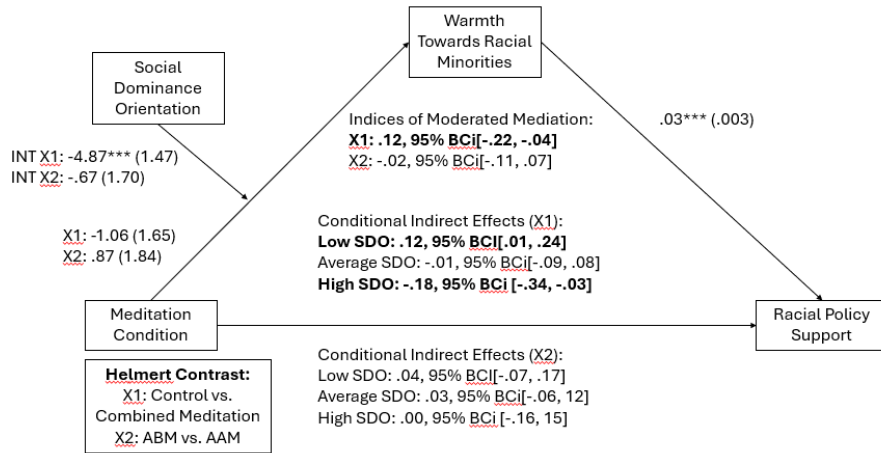
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Figure 4.19. Moderated Mediation: Political Ideology and Discriminatory Intent (White Participants, Simple)



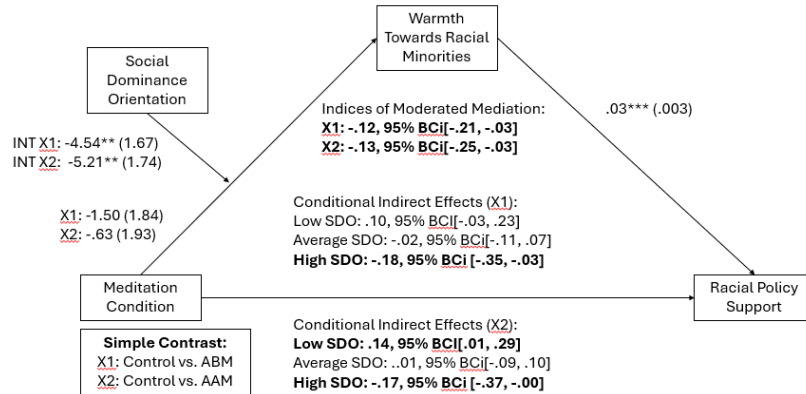
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Figure 4.20. Moderated Mediation: SDO and Racial Policy Support (Outliers Excluded, Helmert)



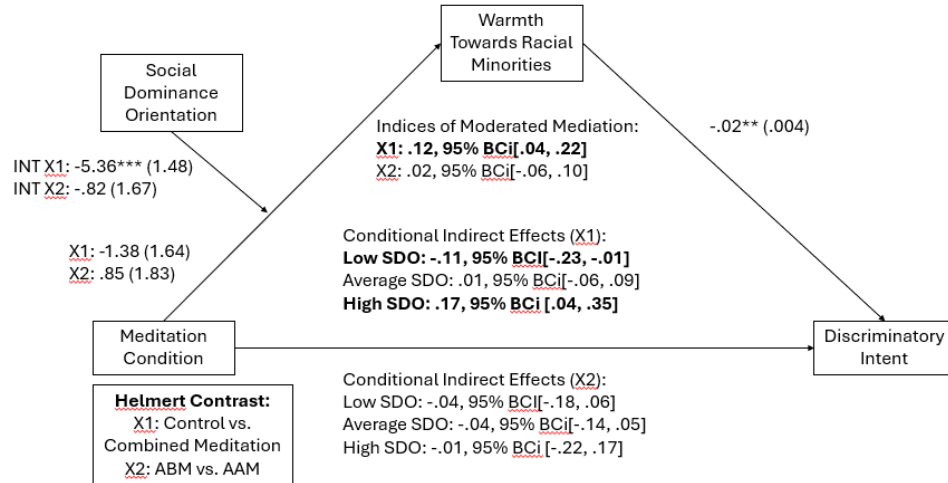
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Figure 4.21. Moderated Mediation: SDO and Racial Policy Support (Outliers Excluded, Simple)



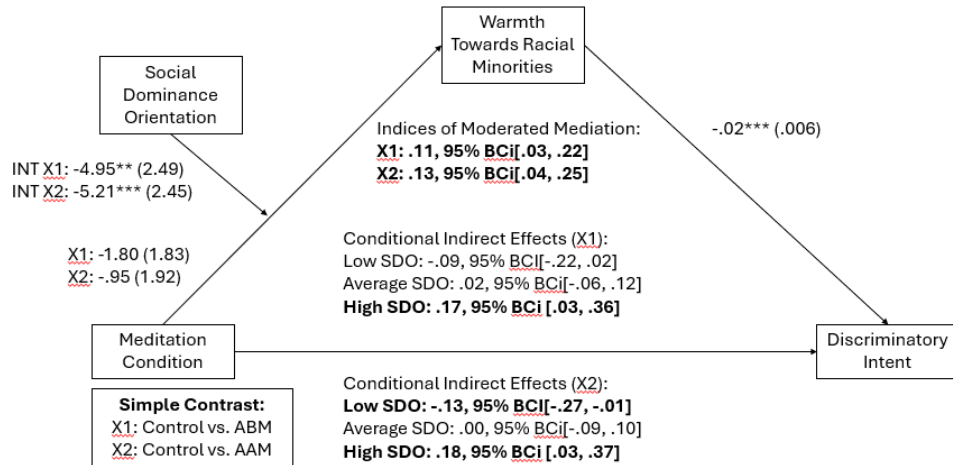
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Figure 4.22. Moderated Mediation: SDO and Discriminatory Intent (Outliers Excluded, Helmert)



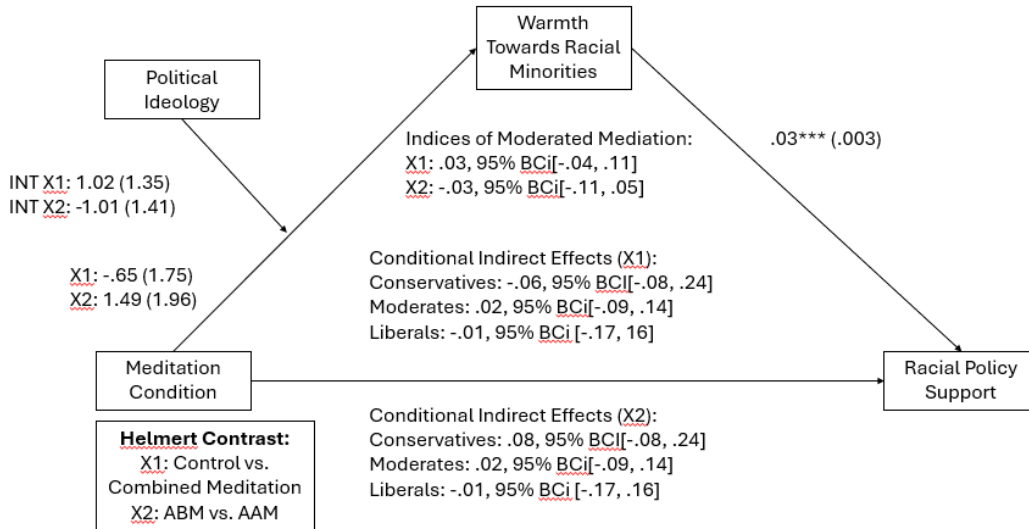
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Figure 4.23. Moderated Mediation: SDO and Discriminatory Intent (Outliers Excluded, Simple)



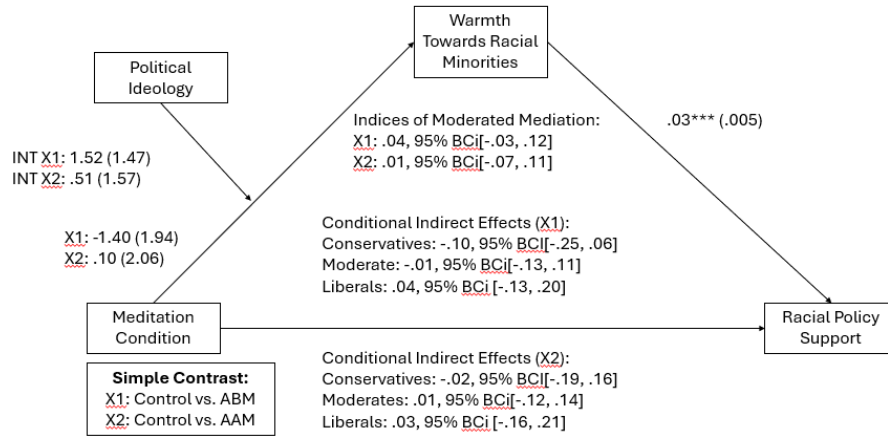
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Figure 4.24. Moderated Mediation: Political Ideology and Racial Policy Support (Outliers Excluded, Helmert)



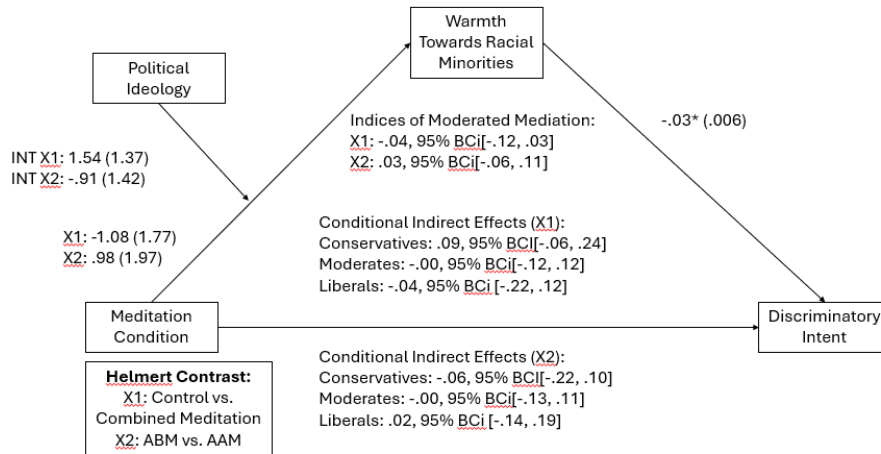
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Figure 4.25. Moderated Mediation: Political Ideology and Racial Policy Support (Outliers Excluded, Simple)



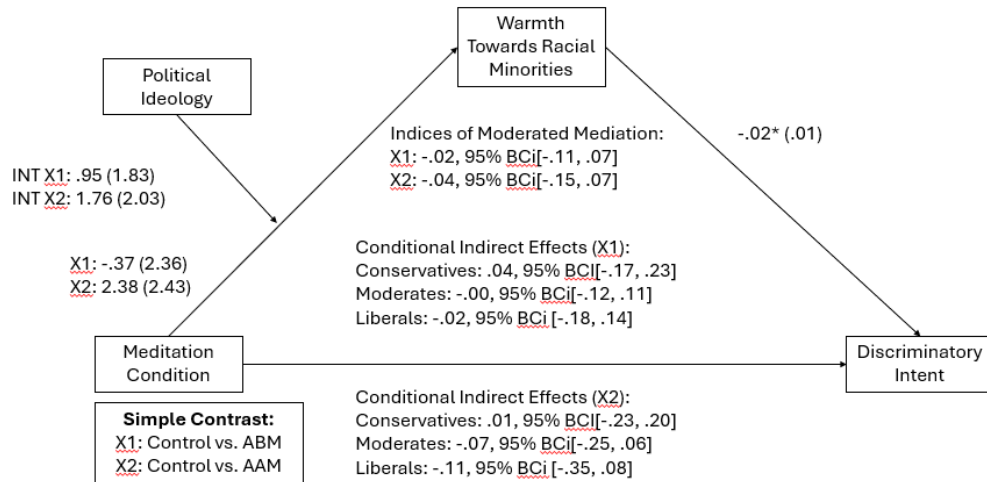
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Figure 4.26. Moderated Mediation: Political Ideology and Discriminatory Intent (Outliers Excluded, Helmert)



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Figure 4.27. Moderated Mediation: Political Ideology and Discriminatory Intent (Outliers Excluded, Simple)



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Chapter V General Implications, Discussion, Limitations, Future Directions

The primary goal of this dissertation was to identify the researcher-determined (e.g., the content of mindfulness trainings and measures) and individual-level (e.g., political ideology) elements that may influence the mindfulness-prejudice causal relationship. A recent review article found, across articles, on average, a small, negative relationship between mindfulness and intergroup conflict, although there have also been null results (Oyler et al., 2022), implying that the status of brief mindfulness practice as an intervention to attenuate prejudice generally may be somewhat unclear. Further, ABMs aimed at reducing intergroup bias may backfire for political conservatives and those high in social dominance orientation (SDO, Pratto et al., 1994) by enhancing awareness of their power-related values (see Chen & Jordan, 2020).

A secondary goal of this dissertation was to explore the relationship between mindfulness and its facets, and racial policy support. Minimal research has investigated the nature of the mindfulness-policy relationship, with mindfulness being linked to environmental and tax policy (De Cristofaro et al., 2021; Panno et al., 2018). To our knowledge, mindfulness has not been associated previously with support for racial policies, both equitable and inequitable. However, given that racial prejudice and policy support are associated (Baranauskas, 2022; Knowles et al., 2010), this poses that mindfulness and its facets can influence racial policy support by altering prejudice. If mindfulness can influence racial policy, it may be that meditation could serve as a tool to promote policy and promote social change.

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The first project (Chapter II, Cutler et al., in prep) investigated whether a primarily attention-based measure of trait mindfulness (PABTM) was associated with higher explicit sexual and racial prejudice, discriminatory intent, and racial policy support, and these predictions were largely confirmed across two studies. Specifically, PABTM had a relatively consistent positive relationship with both forms of prejudice, as well as discriminatory intent. Additionally, PABTM had a negative relationship with equitable racial policy support and predicted greater support for building a border wall to the South. Finally, explicit racial prejudice mediated the relationship between PABTM and racial policy support in Study 2, such that MAAS predicted greater explicit racial prejudice, which then predicted less support for equitable racial policy.

The third chapter (Chapter III) probed whether state attention monitoring alone had a detrimental relationship with implicit racial prejudice and whether state attention and acceptance together minimized implicit racial prejudice. This project built on Chapter II by evaluating whether the findings from Chapter II on attention alone generalized to implicit racial prejudice and whether attention and acceptance attenuated implicit racial prejudice. In this study, state attention monitoring predicted greater implicit racial prejudice for those low in acceptance, consistent with prediction. However, it did not predict implicit racial prejudice for those high in acceptance. Consistent with Chapter II, this suggests that attention alone, or at low levels of acceptance, had a harmful relationship with implicit racial prejudice, while acceptance mitigated the negative effect of attention monitoring on implicit racial prejudice.

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The final project expanded on prior findings by comparing the efficacy of a brief attention-based meditation (ABM) to a brief attention monitoring and acceptance meditation (AAM) to address explicit racial prejudice and assessed the causal nature of these relationships. Building on prior chapters that adopted correlational approaches (Chapters II & III), this study adopted an experimental design, where participants were randomly assigned to listen to either mind-wandering control audio, audio of an ABM, or an AAM audio (Ainsworth et al., 2017; Edwards et al., 2016). It was predicted that the ABM would increase explicit racial prejudice and discriminatory intent, decrease equitable racial policy support, and elevate inequitable racial policy support, whereas the AAM would reduce explicit racial prejudice and discriminatory intentions, increase equitable, and decrease inequitable racial policy support.

Results demonstrated that the two meditation conditions, ABM and AAM, both increased state attention but not state acceptance relative to the control condition. Although the AAM condition technically was not designed as an attention-based practice, given that the AAM and ABM conditions failed to increase state acceptance relative to the control condition, for interpretation purposes, both meditation conditions can be understood as ABMs, or more precisely, as meditations that increased state attention. Finally, this study explored whether SDO and political ideology moderated the relationship between meditation and explicit racial prejudice and whether explicit prejudice then subsequently predicted discriminatory intent and racial policy support. SDO, but not political ideology, moderated the mindfulness-policy and mindfulness-

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intent relationships. The meditations that increased state attention elevated warmth towards racial minorities for those low in SDO, but decreased it for those high in SDO, with warmth predicting greater support for equitable racial policy and less discriminatory intent, respectively. These findings suggested that the mindfulness-prejudice relationship may be complicated by participant-level factors, particularly one's beliefs regarding social inequality.

Implications

Mindfulness has become more popular (Van Dam et al., 2018) in American culture, with a common reason for seeking meditation to improve one's mental health. Mindfulness has also been brought into the office to improve employee well-being and focus (Dane & Brummel, 2014). Given the popularity of mindfulness among lay people, it may be worthwhile to better understand the boundaries of mindfulness interventions to minimize potential negative consequences.

Practical Implications

Beginning with the practical implications, relying solely on ABMs may backfire in terms of racial prejudice and equitable policy support (see Chapters II-IV), particularly for those high in SDO. As such, for political actors and movements, brief ABMs should only be utilized with targeted samples that value equity at baseline, as meditations aimed at decreasing intergroup prejudice that increased state attention but not acceptance backfired for those who valued group dominance. For context, in the literature, particularly pre-MAT, ABMs were rarer than AAMs but were still used (see Lindsay &

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Creswell, 2017; 2019). Intensive interventions targeting meditation novices typically use ABMs and AAMs, starting with ABMs to build attention skills, and followed by AAMs (Baer et al., 2012; Kabat-Zinn, 2003).

Relatedly, mindfulness apps, such as Headspace, as well as YouTube channels, host both ABMs and AAMs. Headspace provides recommended exercises in a set order to new users, but they are also free to engage in any other training. This mindfulness cell phone app has also been downloaded over 70 million times since its release. Many YouTube meditation videos (including ABM and AAM) are also freely available, leaving it to the uninformed user to decide which meditation may be best. The Goodful YouTube channel, for instance, has 17 meditation videos that have been viewed up to 21 million times. These findings suggested that brief YouTube and smartphone app ABMs may be harmful, particularly for those high in SDO. However, a caveat to this argument is that ABMs can be used on a limited basis to achieve pro-equity goals for samples that desire equal societies at baseline. Based on these findings, it is recommended that mindfulness content creators should consider informing potential practitioners of the potential benefits and negative side effects of ABMs.

Yet, these applied implications should be taken with caution, given that all manuscripts used college student samples recruited for extra credit or compensation (Chapters II - IV), who may not have necessarily been motivated to engage in meditation practice. Conversely, intervention-based meditation studies often target populations needing assistance, who frequently seek out mindfulness practice to improve their lives

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(e.g., Baer et al., 2012). It may be, then, that SDO may not have moderated the effects of brief meditation on explicit racial prejudice when using a sample of motivated participants (see Chapter IV). However, some organizations hold diversity trainings and courses that their employees are required to attend (Wang et al., 2024). Meditation practice could be integrated within these required courses (e.g., Lai et al., 2023). As such, these findings, particularly regarding SDO, may be most applicable to contexts where meditation is required and participants are less motivated. Additionally, brief meditations, including ABMs and AAMs, may produce a different pattern of results than their more intensive counterparts (see Chapters III & IV). Although this was not directly tested, attention monitoring skills, particularly for novices, generally develop before acceptance skills, such that even an AAM may fail to build acceptance skills immediately for novices (Baer et al., 2012). Indeed, in Chapters III and IV, brief meditations failed to increase state acceptance relative to the control condition. This may explain why the brief AAM meditation in Chapter IV failed to reduce explicit racial prejudice and discriminatory intent, and why the general mindfulness intervention in Chapter III also did not change intergroup and political outcomes. By cultivating state acceptance and state attention, an intensive version of these interventions may have influenced intergroup and political outcomes in the predicted manner.

Building on this, these findings conveyed that targeting explicit racial prejudice may be one approach to influencing support for racial policy (see Chapters II & IV), in line with prior work associating racial prejudice with policy support (e.g., Baranauskas,

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2022). These findings similarly could inform organizations seeking to change the social system by providing a potential mechanism to build equitable racial policy support. This research program also provided beneficial information for interventionists seeking to address racial inequities. Evidence for the beneficial effects of attention and acceptance in tandem was relatively scarce, with initial work suggesting acceptance may buffer the effects of attention on implicit racial prejudice (see Chapter III). However, more research is needed to investigate further the role that attention and acceptance skills and practices play in shaping intergroup outcomes.

Theoretical Implications

Considering theoretical implications, this research illustrated the complexity of the mindfulness-prejudice relationship (see Chapters II, III, and IV) by clarifying the role that the individual and design-level factors play in shaping it. In terms of individual-level components, SDO, but not political ideology, shaped the mindfulness-prejudice relationship, which may be due to participant differences in acceptance skills (Nicol & De France, 2018), and values endorsed (Caprara et al., 2006; Feather & McKee, 2012). However, regression coefficients for political liberals and conservatives were generally consistent with prediction, even if not significant, suggesting political ideology may have moderated in a manner consistent with prediction with a somewhat larger sample. Further, courses and measures that primarily capture attention monitoring may be positively related to prejudice, especially for those low in acceptance and high in SDO, whereas acceptance served as a buffer of the attention-prejudice relationship.

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Relatedly, these results generally bolstered and extended the acceptance, especially the attention tenets of Monitor and Acceptance Theory (MAT). This dissertation broadened MAT to the novel intergroup and political areas by finding that acceptance buffered the relationship between attention and implicit racial prejudice (see Chapter III), whereas ABMs, ATMs, and state attention subscales had harmful relations with prejudice and policy (see Chapters II, III). Further, meditations that enhanced state attention but not acceptance worsened explicit racial prejudice for those high in SDO (see Chapter IV). Building on this implication, results from Chapters II, III, and IV have begun to establish acceptance and especially attention monitoring skills as the crucial mechanisms linking mindfulness meditation to political and intergroup outcomes.

Although some have found that acceptance alone may be foundational (Simione et al., 2021), these results suggest that attention monitoring and acceptance are the fundamental facets of mindfulness. Additionally, trait attention has been similarly associated with negative outcomes, including emotion rumination (Pearson et al., 2015) and depressive symptoms (Desrosiers et al., 2014), in line with current findings indicating that PABTM predicted greater prejudice (see Chapters II & III). These results provided strong evidence establishing attention monitoring and moderate evidence establishing acceptance skills as the crucial, foundational facets of mindfulness.

Next, overall, it should be noted that, across four studies, mindfulness had a beneficial relationship with prejudice only in two analyses; in Chapter IV, meditation reduced explicit racial prejudice only for those low in SDO. These studies, then, provided

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minimal support for the traditional models and perspectives on mindfulness and intergroup conflict that argue that mindfulness should reduce bias (see Burgess et al., 2017). It should not be expected that mindfulness will have beneficial relationships with intergroup outcomes, and indeed, the opposite may be the case in certain circumstances.

Next, these studies linked mindfulness and its components (see Chapters II and IV), as a trait and as a practice, to racial policy support (Chapters II & IV), and extended prior work connecting mindfulness to environmental (e.g., Panno et al., 2018) and tax policies (e.g., De Cristofaro et al., 2022). Further, these studies also established explicit racial prejudice as a mechanism of the mindfulness-racial policy relationship. This connotes that emotion may play a role in shaping one's policy positions. Additionally, the relationship between mindfulness and racial policy may depend on the content of the course or measure, with meditations primarily only enhancing state attention and PABTM at least indirectly if not directly associated with promoting support for inequitable racial policy.

Finally, this project provided indirect evidence on whether mindfulness practice shifts one's underlying values (e.g., Warren & Wray-Lake, 2017) or simply makes one more aware of their currently endorsed values (Chen & Jordan, 2020, see also Nicol & De France, 2018; Ridderinkhof et al., 2017). Given that SDO is associated with values endorsed (Feather & McKee, 2012), as a brief meditation (meditations that increase state attention) boosted explicit racial prejudice for those high in SDO but weakened it for those low in SDO, that would pose that ABM may simply enhance current value

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awareness rather than change one's underlying values. Additional research should explore whether this is the case for AAMs.

Limitations

This program of research had multiple limitations to note when considering the results. One limitation was the reliance on American college student samples for all three projects. This limited the degree to which these findings generalized to a broader U.S. population. However, college students are a relevant population, as mindfulness interventions have been successfully utilized in university settings to improve mental health among students (Caldwell et al., 2010). Additionally, college students hold prejudice (e.g., Cramer et al., 2013) that, if addressed, could improve belonging on campus (Brannon & Lin, 2021). Finally, as meditation experience may shape the effect that mindfulness may have on relevant outcomes (e.g., Baer et al., 2012) by potentially shaping when certain foundational mindful skills may emerge (Lindsay & Creswell, 2017), having a younger sample may have also influenced study results by putting a ceiling on the amount of meditation experience a participant can have. Future research should seek to replicate and extend these findings using more diverse samples.

Another limitation of this program of research was the dearth of true behavioral measures. Prior work has established that attitudes do not always predict topic-relevant behavior (Ajzen & Fishbein, 2000). In Chapter IV, SDO moderated the effect of meditation on warmth towards racial minorities, which subsequently predicted discriminatory intent and racial policy support in separate models. Yet, if meditation did

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not shift political or discriminatory behavior in line with those attitudes and intentions, that would limit the broader applicability of these findings. Future research could replicate and extend these results by examining whether meditation can alter relevant behavior in this context, such as donating or signing petitions that attenuate racial disparities.

A third limitation was the brief nature of the interventions utilized in Chapters III and IV. Ideally, one of these projects could have deployed an eight-week intervention (e.g., Lindsay et al., 2018), and examined its effect on racial prejudice and policy endorsement. Given that acceptance may take 3-4 weeks to develop (Baer et al., 2012), a brief AAM boosted state attention but not acceptance in this study. As such, there likely are differences in effectiveness between a brief relative to an intensive AAM. However, given that mindfulness apps host brief meditation audios, a better understanding of the effectiveness of these audios can also provide practical benefits.

A related final limitation was the cross-sectional, single-wave design that was employed in all projects. In an ideal scenario, Chapters III or IV could have measured racial prejudice and racial policy support pre-intervention, immediately post-intervention, and eight weeks post-intervention (e.g., Devine et al., 2012). Literature on prejudice, particularly implicit prejudice, illustrates that it can be difficult to change in a lasting way (Paluck et al., 2021), and often returns to baseline post-intervention. These findings indicated that a brief ABM reduced explicit racial prejudice for those low in SDO. However, it was unlikely that these brief ABMs were able to influence explicit racial bias

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and affect support for racial policy in a lasting manner (e.g., Paluck et al., 2021).

Additionally, to our knowledge, only a single study (see Baer et al., 2012) has examined when mindful skills develop during an intensive mindfulness intervention. An intensive study design would provide additional evidence on when trait attention and acceptance may be cultivated within novice practitioners. Moving forward, researchers could utilize these findings to employ a longitudinal design to reduce implicit racial prejudice and impact racial policy in a lasting way. However, immediately conducting a longitudinal intensive intervention without doing any preliminary research can have consequences, including wasted resources if the intervention is ineffective. Thus, the current study provided initial evidence on which to build future longitudinal studies.

Future Directions

This program of research also may inspire future research. First, due to the failed manipulations in Chapters III and IV, this dissertation was unable to thoroughly explore the role of a brief AAM in shaping explicit racial prejudice and policy support. Further, it was also impossible to examine whether SDO potentially moderated the effect of a brief AAM on explicit racial prejudice, given that it did not increase state acceptance. It may be impossible for a brief AAM to increase state acceptance among novices, given that acceptance takes longer to develop than attention (Baer et al., 2012). Answering these questions would inform researchers of mindfulness' ability to reduce prejudice and influence policy support generally, and whether AAMs promote prosocial values. These are important questions that future research should investigate.

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Another direction for future research would focus on other individual-level moderators of the mindfulness-prejudice relationship. One such set of moderators may be internal and external motivation to respond without prejudice (Plant & Devine, 1998). Internal motivation captures one's desire to respond without prejudice to remain consistent with your own values, whereas external motivation is the desire to respond without prejudice to avoid social sanctioning (see also Butz & Plant, 2009). Those high in internal motivation and low in external motivation tend to have the lowest levels of implicit racial prejudice (e.g., Devine et al., 2002). It is possible, then, that meditation may backfire for those low in internal and high in external motivation to respond without prejudice. These moderators, along with others, could be investigated in future work.

Another potential direction for future research would be investigating the different mediators of the mindfulness-prejudice relationship. One empirically established mediator of the mindfulness-implicit prejudice relationship was the automatic activation of stereotypes (Lueke & Gibson, 2015). Otherwise, mediators of the mindfulness-prejudice relationship, to our knowledge, have gone largely unexamined, particularly when thinking about ABM and AAM. One important set of potential mediators would be emotion rumination and reactivity, given that they have been previously linked to prejudice and are negative consequences of attention-based meditation (Ainsworth et al., 2017; Pearson et al., 2015). ABMs may enhance prejudice through increased rumination, whereas AAMs may reduce prejudice through reductions in rumination. Another interesting mediator would be value awareness and alignment. Meditation has been

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argued to enhance awareness of one's current values (Chen & Jordan, 2020), and values of power and tradition are related to greater prejudice (Feather & McKee, 2008), whereas universalism (helping all others regardless of their identity, Schwartz, 2012) is negatively associated with prejudice (Souchon et al., 2017). The relationship between mindfulness and prejudice, then, may be mediated in competing directions by awareness of both internal and external sets of values.

Finally, future research could seek to generalize the current findings regarding mindfulness and racial policy to different policy positions. If mindfulness, specifically, AAM, is related to the affirmation of more equitable policies across the board (e.g., linked to pro-abortion stances), whereas attention-based interventions and measures may predict greater support for inequitable policies (e.g., linked to pro-abortion stances), that would have practical implications for movements and organizers seeking to make a social change regarding these issues.

Conclusion

Given the inconsistent results on the mindfulness-prejudice relationship in prior literature (Oyler et al., 2022), this dissertation illustrated the potential nuances of this relationship. The research program, across three different projects, sought to achieve two broader goals. First, it began to establish the complexity of the mindfulness-prejudice relationship by investigating individual and design-related factors that shape it. Second, it sought to better understand the relationship between mindfulness as a state, trait, and

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practice and racial policy support by examining explicit racial prejudice as a mediator of this relationship.

This line of research established attention-based measures and meditations as generally harmful in terms of explicit and implicit racial prejudice and racial policy support, particularly for those high in SDO. Further, this project also provided information for policy makers, interventionists, and organizers seeking to reduce prejudice and discrimination and enhance equitable racial policy approval that ABM may be a possible tool to avoid when seeking to achieve these goals. However, given that ABMs were found to be beneficial for those who do not prefer unequal societies, focused use of ABMs with specific samples that already value equity may be moderately valuable for these stakeholders.

This program of research was also the first to apply MAT to political and intergroup outcomes and provided strong correlational and causal evidence for the attention and moderate evidence for the acceptance tenets of the framework being relevant in these contexts (Lindsay & Creswell, 2017). In short, although attention-based measures and interventions were generally found to be harmful, the final study indicated that meditations that enhance state attention reduced explicit racial prejudice for those low in SDO, suggesting ABMs may have a minor role to play in attenuating the broader racial and ethnic disparities that currently exist in American society) for those prefer equitable societies at baseline (e.g., Kahn & Martin, 2020; Quillian et al., 2019). Although acceptance buffered the effects of attention on implicit racial prejudice in

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Chapter III, additional research is needed to investigate the effects of a brief AAM on racial prejudice and policy support.

In conclusion, the mindfulness-prejudice relationship may be more complicated than originally conjectured. In particular, attention-based mindfulness measures and techniques may have a harmful relationship with racial prejudice and equitable racial policy support (see Chapters II-IV). However, these relationships may depend on both one's levels of acceptance, which buffered the attention-implicit racial prejudice relationship (see Chapter III), and one's endorsed ideologies (see Chapter IV). Additionally, the final project established a causal relationship between ABM and explicit racial prejudice, one that depended on SDO, an individual ideology (see Chapter IV). Evidence for these takeaways was provided by three projects (four empirical studies) that employed a multi-measure (e.g., implicit and explicit, trait, state, affective, behavioral intent) and a multi-method approach (e.g., experiment, survey, correlational, mediation, moderated mediation), further strengthening confidence in the overall conclusions from this dissertation. As a final takeaway, policy makers, interventionists, theorists, the creators of mindfulness apps, and members of the public may wish to approach brief meditation practices with caution, as this dissertation suggests that it may be inaccurate to assume that all forms of brief mindfulness practice will be beneficial for all people.

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