

Not If, But When Do We Show Bigotry? A Study of the Interaction of Emotional Resource
Depletion and Egalitarianism with Expressions of Bigotry

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ABSTRACT (academic)

Stereotypes are cognitive heuristics used by all individuals. Researchers studying bigotry have demonstrated that individuals often expose underlying stereotypical racial biases when using less effortful processing (e.g. Correll, Park, Judd, & Wittenbrink, 2002; Miami & DeBono, 2007). It is well-established in the resource depletion literature that acting beyond natural impulses requires self-regulation. However, the capacity for self-regulation is limited; prior acts of self-regulation deplete regulatory resources, hence temporarily decreasing the ability to self-regulate. The objective of this study was to examine if resource depletion leads to greater expressions of bigotry. More specifically, self-regulation failure was studied from the emotion resource depletion perspective. Even if resources are depleted however, some individuals may be more motivated than others to suppress their biases. Egalitarianism, a value system that emphasizes equal treatment for all, may be an individual difference that influences this motivation. Thus, egalitarianism was examined as a potential moderator of the resource depletion effect.

In the current study, 100 participants were randomly assigned to an emotion suppression or a control condition as they watched a race-relevant social injustice video. Then, participants were given the opportunity to express bigotry through responses to a survey assessing reactions to racial microaggressions. Research findings provide evidence for an emotion resource depletion effect in that individuals suppressing their emotions while watching the video expressed greater bigotry on the survey. Additionally, the results also demonstrated a negative

relationship between egalitarianism and expressions of bigotry. Although the interaction effect was not found on the full sample, exploratory gender subgroup analyses suggest that gender is a potential moderator of the interaction between emotion suppression and egalitarianism on expressions of bigotry. Within the male sample, relative to participants scoring low on egalitarianism, high egalitarian participants in the emotional suppression condition showed a greater rate of emotional resource depletion due to the video and in turn showed greater levels of bigotry. In contrast, the evidence was only consistent with an egalitarianism main effect for female participants.

Thus, findings from the study demonstrate that aside from cognitive-based depleting tasks, emotion resource depletion can also lead to self-regulation failure in terms of expressions of bigotry. Although the resource depletion effect was robust, there are several limitations in this study that need to be addressed in future research. This includes collecting a more gender-balanced sample so gender can be analyzed as part of a three-way interaction to determine the impact gender had on the model. Furthermore, there was a persisting model misspecification issue; in an ongoing replication study, a measure on agreeableness has been included to assess if this was part of the missing variable problem. Finally, the two self-regulation tasks in the current study were domain-specific in the sense that they were both racially-relevant. Next steps include testing the domain-general argument of the resource depletion effect; that is, if self-regulation failure from emotion suppression would still be observed if the two self-regulation tasks were not related through the context of race.

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GENERAL AUDIENCE ABSTRACT

Stereotypes are cognitive heuristics used by all individuals. Researchers studying bigotry have demonstrated that individuals often expose underlying stereotypical racial biases when they rely on more automatic thought-associations as they process situations. It is well-established in research that acting beyond these natural impulses requires self-regulation. For example, one study showed that self-regulation effort was required to suppress the automatic association between African-Americans and negative traits such as hostility and recklessness (Muraven, 2008). However, our capacity to effectively self-regulate is limited; prior acts of self-regulation deplete regulatory resources, hence temporarily decreasing the self-regulation ability.

The objective of this study was to examine if resource depletion (i.e. practicing self-regulation and using those regulatory resources) leads to greater expressions of bigotry, and particularly to understand the role of emotions in this process. However, even if resources are depleted, some individuals may be more motivated than others to suppress their biases. Egalitarianism, a value system that emphasizes equal treatment for all, may be an individual difference that influences this motivation. Thus, egalitarianism was examined as a potential moderator of the resource depletion effect.

100 participants were randomly assigned to an emotion suppression or a control condition as they watched a race-relevant social injustice video, then they responded to a survey assessing reactions to racial microaggressions. Research findings demonstrate an emotion resource depletion effect; individuals suppressing their emotions while watching the video

expressed greater bigotry on the survey. Additionally, a negative relationship was found between egalitarianism and expressions of bigotry. Interestingly, gender seemed to moderate the interaction between emotion suppression and egalitarianism on expressions of bigotry. For males, relative to low egalitarians, high egalitarians who suppressed their emotions expressed greater levels of bigotry; this indicates a greater rate of emotional resource depletion experienced from watching the video. In contrast, there was no difference in emotion resource depletion in females across egalitarian values. Thus, results demonstrate how emotion resource depletion can lead to expressions of bigotry. This carries implications to our social interactions, as both emotion regulation and interracial encounters are common components of our daily lives.

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Introduction

In light of recent political and other current events, the issue of racial discrimination has become an increasingly important topic of conversation. A Google Ngram analysis on the word “discrimination” shows that its use in English-language books has doubled since the 1960s (“Google Ngram Viewer,” 2017). Although there has been a rise in awareness and efforts for fair and equal treatment, discrimination still exists through all layers of society – from individual levels of prejudice to systemic discrimination (Miller & Garran, 2017). Accordingly, diversity research has proliferated with scholars aiming to understand interracial interactions including causes of discrimination, triggers for displaying discriminatory behavior, and consequences of discrimination.

The goal of the current study is to examine the effects of emotion resource depletion on discrimination, as operationalized as the increased willingness to expose underlying bigoted attitudes. Emotion resource depletion is conceptualized here as the state of depletion during which regulatory resources are spent through emotion regulation; thus, reducing an individual’s ability to self-regulate behavior. Past research has demonstrated cognitive resource depletion and its effects on increased displays of bigotry/discrimination (e.g., Richeson & Shelton, 2003; Gordijn, Hindriks, Koomen, Dijksterhuis, & Van Knippenberg, 2004). When depleted, individuals lack the cognitive resources necessary to self-regulate behavior; thus, they are often guided by natural impulses or snap judgments instead. However, a majority of bigotry-related resource depletion research focuses on cognitive depletion, not emotion depletion. It is important to understand emotion regulation as an alternative path to resource depletion in the racial context, as managing emotional reactions is often employed as a strategy when responding to challenging or important situations (Tooby & Cosmides, 1990). Additionally, this

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study will also examine the moderating effect of egalitarianism on the relationship between emotion depletion and expression of bigoted attitudes. The construct of egalitarianism is based on the notion of fairness, equality, and tolerance, and is often associated with reduced or non-prejudiced behavior (Moskowitz, Gollwitzer, Wasel, & Schaal, 1999; Wyer, 2003). However, relative to an individual low on egalitarianism, a high egalitarian individual is more likely to be taxed at a higher rate when viewing instances of apparent racial injustice, potentially leading to strong egalitarians to display a greater increase in levels of bigotry when depleted.

Bigotry

Defined as the acts or beliefs of someone who has intolerance and hatred towards members of a group (“Bigot”, 2018), bigotry results when individuals are treated differently due to race, gender, sexual orientation, or other social identities. Bigotry is often understood as an attitude resulting from the combined influence of the stereotypes and prejudice that individuals have. Though similar in concept, prejudice is the totality of beliefs and affective orientations towards members of a particular subgroup (Kenrick, Neuberg, & Cialdini, 2014) whereas stereotypes refer to the cognitive beliefs about a subgroup (Lippmann, 1922).

Examining Stereotypes. A foundational argument of research on prejudice and discrimination is that individuals use stereotypes to make sense of both the situation and their social interactions (McGarty, Yzerbyt, & Spears, 2002). In fact, children as young as five are able to categorize people into social groups (Allport, 1954). Stereotypes are also reinforced when they become shared group beliefs shaped by cultural norms (McGarty et. al., 2002). In social interactions, stereotypes that are triggered can influence perceptions of another’s behavior; this subsequently creates a tendency to behave according to those perceptions (Bargh & Chartrand, 1999). Even those who attempt to control prejudiced thoughts and emotions are

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susceptible to exhibiting discrimination, as generalized beliefs about other social groups are culturally ingrained. Over time, individuals gain awareness of the distinctions among groups and the associated implications for self-identification; this then becomes an integral part to the process of perceiving others and influences subsequent behavior towards them. Past social experiences influence the categorization of others according to mental schemas that extend beyond conscious thinking in terms of implicit stereotypes. These underlying biases influence perceptions spontaneously outside of an individual's attentional awareness (Greenwald & Banaji, 1995).

Stereotypes are cognitive heuristics used to efficiently perceive social contexts, instead of expending resources on processing individuating contextual information (McGarty et. al., 2002). Furthermore, suppressing stereotypes is a depleting process as it requires self-regulatory resources (Gordijn et. al., 2004). Research on "stereotype rebound effects" suggests that suppressed stereotypes become more readily accessible and affect subsequent judgments (Macrae, Bodenhausen, Milne & Jetten, 1994).

Implicit Biases. While motivation to control prejudice can influence expression of explicit racial discrimination, underlying biases are more likely to be exposed when an individual relies on automatic rather than controlled processing of thoughts. Implicit stereotypes guide behavior in situations when the demand for information processing is high, such as making decisions in time-constrained or distracting situations (Greenwald, McGhee, & Schwartz, 1998; Miami & DeBono, 2007). Due to information overload, an individual is unable to engage in elaborated processing of social stimuli, instead relying on automatic associations thereby exposing underlying biases regardless of conscious racial attitudes (Correll, Park, Judd & Wittenbrink, 2002; Payne, 2001).

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Many experimental researchers have studied the effects of implicit stereotype effects. One example are the shooter bias experiments created by Correll and colleagues (Correll et al., 2002; Correll, Urland & Ito, 2006; Correll & Keesee, 2009; Correll, Wittenbrink, Park, Judd, & Goyle, 2011; Correll, Wittenbrink, Crawford, & Sadler, 2015). Shooting simulations present ambiguous stimuli in a time-pressured decision context, and participants' decisions to shoot or not shoot is assumed to reflect the effects of implicit stereotypes. Measures of neural activity in the shooter task indicate that stereotypes guide an individual's perception of a situation that results in lower levels of inhibition of the "shoot" response towards Black targets over Whites, regardless if Blacks are armed or not (Correll et al., 2006). Additionally, priming studies also demonstrate the effect of implicit biases on perception and subsequent behavior. White participants primed by African-American images display more hostile behavior and perceive more hostility shown towards them than those primed with White images (Chen & Bargh, 1997).

Resource Depletion

Although the majority of an individual's daily behavior is driven by less effortful, nonconscious processes (Bargh & Chartrand, 1999), a small but important percentage of behaviors are influenced by conscious, self-directed decisions. These volitional acts include making choices and committing to a course of action (Baumeister, Bratslavsky, Muraven & Tice, 1998). Engaging in volitional acts requires self-regulation; hence, the ability to act beyond natural impulses is dependent on the availability of regulatory resources. In an interracial context, an untaxed individual who has sufficient resources will achieve socially desirable goals activated by conscious choice. Actions such as expressing unbiased attitudes about others and/or controlling discriminatory intent are sustained by the availability of these resources.

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Self-Regulation as a Limited Resource. Volitional acts require an individual to be conscious of the decisions that sustain (or cease) behavior. This is an application of the self's executive function, through which the desire and decision to act comes from the self (Baumeister et. al., 1998). One of the self's executive functions include self-regulation, i.e, "...the self-exerting control to override a prepotent response, with the assumption that replacing one response with another is done to attain goals and conform to standards" (Vohs et. al., 2008, p. 884). All volitional acts are a function of self-regulation; an individual often attempts to direct actions and resists impulses to conform to both internally generated standards and normative expectations of behavior. The capacity for self-regulation is a limited resource, which decreases each time volitional acts draw upon it (Baumeister & Heatherton, 1996; Muraven, Tice & Baumeister, 1998).

Ego Depletion. In order to maintain conscious goal-directed behavior, the amount of self-control exerted to suppress natural impulses depends on the potency of the initial motivation. This implies various degrees of strength in self-control are needed to overcome an individual's natural impulse (Baumeister et al., 1998). Ego depletion occurs when there is "a temporary reduction in the self's capacity or willingness to engage in volitional action caused by prior exercise of volition" (Baumeister et. al., 1998, p. 1253). Every act of volition draws from this limited resource and ego depletion occurs when subsequent acts of volition have to draw from a smaller pool of available resources (Muraven et al., 1998; Baumeister et al., 1998). Depletion occurs at the time when an action requires volitional control, and continues for a period of time after the volitional act (Muraven et al., 1998). Ego depletion is described using a muscle analogy (Baumeister et al., 1998); just as a muscle needs recovery time after reaching exhaustion, the limited resources for self-regulation require a recovery period before becoming

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available for further self-regulation. As all regulated actions and decisions draw from the same executive function resource, even if two continuous actions appear unrelated the quality and quantity of volitional control exerted on the second action depends on available resources not expended on the first (Vohs & Heatherton, 2000). For example, dieting participants who resisted the temptation to snack had weaker self-control over the amount of ice-cream they ate at a later time (Vohs & Heatherton, 2000).

Cognitive and Emotional Resources. The resources that provide capacity for cognitive self-regulation are also the foundation for other attentional processes, including thoughts related to emotion. Emotion is a complex construct that is dependent on an individual's interpretation of the situation. Additionally, even if emotions are experienced, the individual does not necessarily display them. The monitoring of emotions is known as emotion regulation, which is defined as a set of "processes by which individuals influence which emotions they have, when they have them, and how they experience and express these emotions" (Gross, 1998b, p. 275). Cognitive processes are a key part of interpreting emotional information, which influences an individual's mood and subsequent behavior (Mathews & Macleod, 1994). Cognitions are also important in emotion regulation, as cognitive resources are required to exaggerate, maintain, or suppress emotions according to the individual's need and the circumstances (Muraven et. al., 1998). However, the relationship between cognition and emotions is not unidirectional; an individual's emotional state can also affect the amount of cognitive resources available (Eysenck & Calvo, 1992). Thus, cognitive resources are used to generate emotions, at the same time the availability of these resources is affected by experienced emotions.

Emotion Regulation. As emotions and cognitions are so intricately connected, the ability to carry out emotion regulation according to personal and situational needs depends on

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the availability of cognitive resources. Thus, emotion regulation is often used as a method to manipulate or measure resource availability (Muraven et. al., 1998; Baumeister et. al., 1998; Vohs, Baumeister, Ciarocco, 2005). Emotion regulation is often understood through Gross' (1998a; 1998b) process model, in which it is divided into two primary categories: antecedent-focused emotion regulation and response-focused emotion regulation. Antecedent-focused emotion regulation refers to strategies employed to perceive a situation differently in order to manipulate the actual experience of an emotion. Response-focused emotion regulation deals with regulating behavioral and facial expressions after an emotion is experienced. Within each overarching strategy, there are several ways to regulate emotion, but most emotion regulation research is based on response-focused emotion regulation. Specifically, researchers use emotion suppression manipulations that lead to the "conscious inhibition of one's own emotional expressive behavior while emotionally aroused," (Gross & Levenson, 1993; p. 970). Emotion suppression manipulations require participants to suppress emotional reactions in order to control manifest indicators of emotion, usually facial expressions (Baumeister et al., 1998; Vohs & Schmeichel, 2003). In the context of resource depletion, Muraven, Tice, and Baumeister (1998) found that participants instructed to control their emotional reactions while watching an upsetting film had less task persistence in a subsequent physically taxing task, relative to participants not instructed to control their emotions.

Resource Depletion and Expressions of Bigotry.

It is well established that people use stereotypes to process social information and this leads them to form implicit biases. Nevertheless, through effortful thought processing an individual typically avoids allowing a stereotype to actively influence judgments and behavior

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towards others. The ability to control expressions of bigotry is dependent on motivation and available cognitive resources.

Previous resource depletion studies have demonstrated decreases in self-regulation as a function of depletion in cognitive resources. Resource depletion effects are robust in the context of prejudice and discrimination (e.g., Gailliot, Plant, Butz, & Baumeister, 2007; Apfelbaum, Sommers & Norton, 2008). Park, Glaser, and Knowles (2008) demonstrated that cognitive depletion leads to a lowered threshold to display spontaneous racial discrimination. As the difficulty of an anagram task increased, the participants recorded shorter reaction times when deciding to shoot a Black suspect over a White suspect in the shooting simulation. Potential victims of discrimination also exhibit resource depletion effects; ethnic minorities who interact with prejudiced Whites are affected with their cognitive functioning and do worse on the Stroop task (Salvatore & Shelton, 2007; Holoien & Shelton, 2012).

In contrast, emotion resource depletion is not often empirically studied in conjunction with bigotry. Of the relevant studies, most of the research examine emotion resource depletion effects on the victims instead of perpetrators of prejudice. For example, Johns, Inzlicht, & Schmader (2008) examined the mediating role of emotion regulation between stereotype threat and executive resource depletion. Individuals who controlled their expression of anxiety when dealing with stereotype threats depleted their resources at a higher rate, which resulted in poorer performance on cognitive tests.

Thus, there is evidence that emotional resource depletion draws from the same limited resources as cognitive resource depletion. Both lead to the outcome of ego depletion, during which the ability to self-regulate behavior is impaired and underlying biases are exposed.

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However, past research on resource depletion and expressed bigotry has focused more on cognitive than emotional resource depletion methods.

Egalitarianism

An individual's background, life experiences, and interactions with others influence the manner in which information is processed and organized. Among various individual difference variables, egalitarianism is often included as an antecedent of behavior in research on bigotry (e.g. Plant, Devine & Peruche, 2010; Monteith & Walters, 1998). Egalitarians are intrinsically motivated to control their prejudices, making them more successful at inhibiting the effects of stereotypes on behavior (Devine, 1989). However, as interracial interactions tax an individual's resources (Richeson & Shelton, 2003), the ability to control behavior and suppress the effects of stereotypes in constrained conditions depends on an individual's motivational source. Internal motivation to regulate discriminatory behavior and respond without prejudice decreases an individual's tendency to express both explicit and implicit race bias (Devine, Plant, Amodio, Harmon-Jones, & Vance, 2002).

Furthermore, it is likely that emotion regulation affects resource depletion as a function of egalitarianism. Egalitarians typically experience distress and indignation when presented with incidents of obvious discrimination against a subgroup, such as African-Americans (Esses & Dovidio, 2002) Thus, high egalitarians may be more reactive and have stronger emotional reactions to social injustice incidents; they may experience emotional resource depletion at a higher rate when asked to suppress their emotions, compared to low egalitarians. This could result in a potential interaction whereby the effect of egalitarianism on suppressing manifestations of bigotry disappears when high egalitarians are resource depleted by emotional reactivity to prior acts of social injustice.

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Current Study

Although bigoted attitudes are an inherent part of our social schemas, they do not necessarily predict discriminatory tendencies (Devine, 1989; Stangor, Lynch, Duan, & Glass, 1992). From a self-regulation perspective, the ability to suppress the influence of bigotry on behavior is dependent on available regulatory resources. Emotion regulation is one mechanism through which self-regulatory resources are depleted. Once depleted, individuals cannot effectively control their actions and become susceptible to underlying biases. However, the potential for expressing bigotry may be influenced by other factors. Individual differences such as the strength of one's egalitarian values can moderate how individuals respond in racial situations, even if they are resource depleted. In relation to a weak egalitarian, a strong egalitarian who carries out emotion regulation in the presence of injustice that directly contradicts their value system may be depleted of their resources at a higher rate. Thus, this could reveal a surprising result that stronger egalitarians express greater bigotry.

Literature Review

Bigotry

According to the American Heritage Dictionary (1985), bigotry is defined as “the attitude, state of mind, or behavior characteristic of a person who is intolerant of those who differ”. Bigotry results in acts such as judgment, harassment, or violence against groups of people believed to be distinguishable by the presence (or absence) of certain abilities and characteristics (Jennings, 1990).

Stereotypes. Based on the tripartite model, attitudes can be deconstructed into three distinct components - affect, behavior and cognition (Breckler, 1984). Stereotypes represent the cognitive element of a bigoted attitude; defined as a set of characteristics associated with or

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believed to be descriptive of members from a social subgroup (Stangor & Lange, 1994). In the context of racial bigotry, stereotypes influence how individuals sort information about others into mental categories defined by salient characteristics, such as race (Lippmann, 1922; Hamilton & Troiler, 1986). In contrast, prejudice is the affective component of this social categorization process of others; prejudices are generalized negative attitudes toward members of other social groups. Members of the out-groups are often perceived as different and viewed unfavorably, thereby generating negative evaluations from the perceiver (Dovidio & Hebl, 2005). Although stereotypes and prejudices are distinct constructs from the tripartite model perspective, activation of a stereotype results in accessing both stereotypical beliefs and prejudicial affect (Dovidio, Brigham, Johnson & Gaertner, 1996). Specifically, Fiske (1982) proposed a model of schema categorization in which valenced evaluations of groups are stored together with standard knowledge structures and linked to the process of categorization. Thus, the activation of a stereotype and its influence on bigotry must be examined taking into consideration the affective associations that are also involved.

Stereotype Utilization. Stereotypes function as heuristics that simplify information processing of social cues (Macrae, Milne & Bodenhausen, 1994; Dovidio, Evans, Tyler, 1986). As a result, using stereotypes to form social judgments is a low effort strategy used when an individual lacks the ability or motivation to generate a unique response to an interaction (Bodenhausen, 1990). However, even if individuals are driven by personal beliefs to evaluate a social situation without predetermined judgments, they are still susceptible to stereotype use (Devine, 1989). Reliance on stereotypes increases in complex social situations that are rich in individuating information but carry a high cognitive processing cost. If an individual has insufficient mental resources to distinguish among people and identify their distinctive traits,

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information is processed at the group rather than at the individual level (Rothbart, Fulero, Jensen, Howard, & Birrell, 1978). Furthermore, even those in non-taxing situations may utilize stereotypes, as that frees up cognitive resources for other mental processing activities. This is particularly true of social interactions in which the perceived characteristics of individuals are consistent with the associated stereotype (Macrae et. al., 1994).

Implicit Stereotypes. Defined as “introspectively unidentified (or inaccurately identified) traces of past experience that mediate attributions of qualities to members of a social category” (Greenwald & Banaji, 1995, p. 15), implicit stereotypes operate outside of the perceiver’s awareness (Bargh, 1989). Subconscious processing augments stereotype utilization, as individuals are unable to control the influence of implicit stereotypes as they make judgments of others. Both implicit and explicit stereotypes inform the cognitive representation of a certain subgroup; stereotyping begins with the activation of implicit stereotypes, regardless if the effects of explicit stereotypes are manifested in bigoted behavior or suppressed (Blair, Ma, & Lenton, 2001). Although explicit race bias may be controlled by internal motivations to respond without prejudice, overcoming implicit race bias is a demanding process (Devine, Plant, Amodio, Harmon-Jones & Vance, 2002). Even amongst those who explicitly disavow bigotry, negative implicit stereotypes are normatively shared and are used for perceiving members of stereotyped groups (e.g., Devine, 1989; Greenwald, McGhee, & Schwartz, 1998; Monteith, Voils, Ashburn-Nardo, 2001). The Implicit Association Test (IAT) is a well-known indirect measure of stereotypes that demonstrates the consistent automatic association White individuals have between Blacks and negative traits (Greenwald et. al., 1998). In conditions of where opportunity for controlled processing is limited, both low and high prejudiced individuals

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display comparable knowledge of stereotypes and evaluate ambiguous behaviors according to stereotypic beliefs (Devine, 1989).

Thus, regardless of motivation to abide by social justice ideals, individuals are susceptible to making stereotypic judgments especially when they cannot engage in effortful processing. One factor that impedes ability to overcome the automatic associations related to stereotypes is an insufficient amount of available internal cognitive resources.

Resource Depletion

Self-Regulation/Self-Control. The ability to exert self-control and behave beyond natural impulses is a distinctively human trait that has been adapted through evolutionary processes (Baumeister, Gailliot, DeWall & Oaten, 2006). Self-control is the capacity for altering one's responses, with the purpose for achieving standards, ideals, values, morals, and social expectations in order to pursue long-term goals (Baumeister, Vohs, & Tice, 2007). Often used interchangeably with self-control, self-regulation is a broader term that refers to the general effort (i.e., initiate, adjust, interrupt, terminate) on the part of an agent (i.e., the self) to override pre-wired responses (Heatherton & Baumeister, 1996; Vohs et. al., 2008). Self-regulation is a controlled process that interrupts the transformation of a natural impulse into an action, thus preventing an individual from acting on that impulse (Baumeister & Heatherton, 1996). Self-control is subsumed under the umbrella of self-regulation, but is distinguished by being the deliberate, conscious, and effortful component of self-regulation (Baumeister et. al., 2007). However, both the concepts of self-regulation and self-control require hypothesizing a higher order executive function in the sense that autonomous qualities are manifest in the intentional acts directed by the individual (Baumeister et. al., 1998; Heatherton & Baumeister, 1996). Due to the overlap between self-regulation and self-control in the literature, a distinction between the

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two terms will not be made in this paper; moving forward, any reference to an individual's general purposeful intent to align his/her actions with an identified goal will be defined by self-regulation.

Self-Regulation as a Strength Model. Self-regulation models are based on the core argument that resources are limited and that self-regulation is sustained by the availability of finite resources (Baumeister, Heatherton, Tice, 1994; Vohs et. al., 2008; Vohs & Heatherton, 2000; Baumeister et. al., 2007). These resources refer to the set amount of cognitive resources available to cope with impulses, temptations or urges that are formed by habit or the situation (Heatherton & Baumeister, 1996).

The limited resource model is often explained by drawing an analogy to physical strength or energy (Vohs et. al., 2008). Similar to a muscle fatigued from exertion, acts that tax self-regulatory resources will be followed by a period of decreased capacity (Muraven et. al., 1998). This period of reduced ability to self-regulate due to a temporary scarcity of resources is a defining characteristic of the strength model. Thus, with each act of self-regulation, fewer resources become available for processing subsequent tasks; as a result, the ability to effectively self-regulate decreases (Muraven et. al., 1998; Baumeister, et. al., 2007; Vohs et. al., 2008). Furthermore, the strength model implies a degree of flexibility when using self-regulation. Impulses differ in intensity and stronger impulses are more difficult to inhibit (Baumeister et. al., 1998); thus, the capacity for self-regulation must be able to adapt accordingly and provide the necessary strength to overcome impulses (Muraven et. al., 1998). In order to interrupt a natural tendency from manifesting into an action, greater resources are required to replace that inclination with the desired response (Vohs et. al., 2008).

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Success of goal-directed behavior increases with the amount of self-regulatory effort exerted. As such, if an individual is fatigued and is unable to expend the necessary effort, it will lead to self-regulation failure (Muraven et. al., 1998). Self-regulation failure occurs when there are inadequate resources to regulate actions resulting in impulsive actions (Vohs & Heatherton, 2000; Baumeister & Heatherton, 1996). When in a state of resource depletion, self-regulation is impaired to the extent that an individual is less able to control behavior even in situations where he/she could under regular circumstances (Baumeister & Heatherton, 1996). In fact, self-regulation failure has been found to lead to counter-productive goal behavior (Heatherton & Baumeister, 1996).

Ego Depletion. The limited resource from which self-regulation draws upon also sustains volitional actions in general such as choice and decision-making (Baumeister, 2003). Ego depletion occurs when the self's capacity for carrying out subsequent volitional acts is temporarily diminished due to prior acts drawing from the same resource (Baumeister et. al., 1998). Thus, ego depletion is the term used to describe the transitory state of limited resources. Ego depletion has been linked to multiple behavioral problems such as binge-eating (e.g., Vohs & Heatherton, 2000), ineffective self-presentation (e.g., Vohs, Baumeister, & Ciarocco, 2005) and prejudice (e.g., Richeson & Shelton, 2003).

In most empirical studies, ego depletion is achieved by a “dual-task paradigm” where participants in the ego depletion condition complete two consecutive but different self-regulation tasks. The control group participants also engage in two consecutive tasks, but only the second task requires effortful self-regulation. Lower performance on the second task in the experimental group is attributed to reduced self-regulatory resources reflective of ego depletion (Hagger et. al., 2010; Baumeister, Vohs, & Tice, 2007). Ego-depletion effects are seen even if

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the two tasks are unrelated, as there is an underlying assumption that all self-regulation tasks draw from the same limited resources (Muraven et. al., 1998).

Two of the broad categories that experimental tasks in ego-depletion studies fall under are: cognitive-processing tasks that require high-level executive functioning and information processing (e.g., memory span, counting tasks, solving anagrams), and social-processing tasks that entail processing of social information and execution of socially-desirable behavior (e.g., suppressing stereotypes, resisting persuasion, participating in high-maintenance social interactions) (Hagger et. al., 2010). For example, thought suppression is a cognitive-processing task that requires individuals to avert their thoughts from a particular topic. Muraven et. al (1998) found that participants who avoided thoughts of a white bear while completing a free-writing task were less persistent on a subsequent anagram task relative to the control group. Vonasch (2016) found that participants who were depleted from a prior task of crossing out specific letter *e*'s from paragraph tended to pick the more intuitive (but incorrect) answer of a word problem; they lacked the resources to think through all possible solutions to the question. Deliberate processing of information is difficult during a state of ego depletion, so individuals rely on cognitive heuristics instead. Furthermore, decreased capacity for self-regulation is observed not only in lab-based manipulations (e.g., squeezing a handgrip or solving an anagram (Baumeister, et. al., 1998; Muraven et. al., 1998)) but also in self-motivated or chronic inhibitions such as dieters who frequently abstain from eating foods outside their diet (Vohs & Heatherton, 2000). When temptation to eat chocolate M&M candies was manipulated by placing it next to the participant (high temptation) or across the room (low temptation), participants in the high temptation condition displayed decreased capacity for self-regulation and had lower persistence in a subsequent task to find hidden target figures in a geometric shape

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(Vohs & Heatherton, 2000). Though carried out through different methods, all ego depletion studies demonstrate the outcome of resource depletion and its lingering effects, even once the task is complete (Vohs et. al., 2008).

Ego Depletion and Bigotry. Interracial interactions are an effortful process that requires self-regulation of thoughts, feelings, and behavior to avoid seeming bigoted (Richeson & Trawalter, 2005). As high-maintenance interactions involve additional social coordination beyond a regular interaction, they lead to a greater rate of resource depletion (Finkel, Campbell, Brunell, Dalton, Scarbeck & Chartrand, 2006).

Thus, ego depletion carries important implications for social judgments in a racial context. Consequently, the dual-task paradigm has been applied to study resource depletion and bigotry. Richeson and Shelton (2003) found that interracial interactions are especially taxing for highly prejudiced Whites who have to summon more effort when engaging with individuals of a different race. Those with low motivation to suppress stereotypes also required more regulatory resources when they were instructed to do so, as it was an unfamiliar and effortful task (Gordijn, Hindriks, Koomen, Dijksterhuis, & Van Knippenberg, 2004; Gailliot, Plant, Butz, & Baumeister, 2007). However, the demand of self-regulation depends on the nature of the interaction; White participants following scripted responses in an interracial interaction were less resource depleted (Richeson & Tralwater, 2005). Additionally, talking about racial policies also elicited the ego depletion effect. This effect was exacerbated when the participant was explicitly identified as the token of his/her racial subgroup (e.g., White) (Vohs, Baumeister, & Ciarocco, 2005) or when speaking to an experimenter of a different race (Richeson & Shelton, 2003). Not only does interracial interactions consume regulatory resources that may result in expressions of bigotry, but encountering prejudice also is taxing. Blacks have been found to

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suffer from a decrement in self-regulatory abilities after being exposed to both salient threats to their racial identity (Inzlicht, McKay & Aronson, 2006) and ambiguous racial bias (Salvatore & Shelton, 2007). Apfelbaum, Sommers and Norton (2008) found evidence that attempts to avoid appearing prejudiced by staying “color-blind” when race was salient resulted higher rates of resource depletion. Interestingly, another study conducted by Holoien and Shelton (2012) demonstrated that Whites primed with the color-blindness ideology who then engaged in interracial interactions and were perceived as more prejudiced by their minority counterparts. Ethnic minorities experienced greater cognitive depletion from those interactions and subsequently showed poorer performance on the Stroop test.

Within the dual-task paradigm, ego depletion studies studying the relationship between interracial interactions and ego depletion often employ cognitive tasks as the second task of self-regulation. Performance is measured on tasks such as the Stroop test (e.g., Apfelbaum, Sommers & Norton, 2008; Holoien & Shelton, 2012; Inzlicht, McKay, & Aronson, 2006; Richeson et. al., 2003; Richeson & Shelton, 2003; Richeson & Tralwater, 2005; Salvatore & Shelton, 2007), and anagrams (e.g., Finkel, Campbell, Brunell, Dalton, Scarbeck, & Chartrand, 2006; Gailliot et. al., 2007; Gordijn et. al., 2004), along with other tasks such as multitasking between activities (e.g., Devine et. al., 2002; Gilbert & Hixon, 1991), persisting in an unsolvable hidden-figures task (Vohs et. al., 2005) and crossing out the letter ‘e’ from an article (Muraven, 2008).

In contrast, there are few studies that examine behavior in an interracial context after administering a cognitively demanding self-regulation task. Muraven (2008) found that White individuals who are usually motivated to control their prejudice rated African-Americans more stereotypically in a prejudice task when they were ego depleted. They lacked the self-regulation

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resources to reduce the impact of automatically activated stereotypes on their subsequent judgments. However, timing of the activation of stereotypes matter as Gilbert and Hixon (1991) only found the stereotype effect on subsequent behavior when the stereotypes were activated prior to cognitive task.

Emotion Regulation

Emotions are regarded as behavioral and physiological response tendencies adapted to a situation perceived provide significant challenges and opportunities (James, 1884; Tooby & Cosmides, 1990). Emotions are transitory as they focus on specific objects in particular situations (Gross, 1998a). Emotions guide response tendencies in the sense that emotions felt do not necessarily correspond to manifested behavior (Gross, 1998a). Emotion regulation research originated in developmental psychology with a focus on children, but interest in emotion regulation has expanded into the adult research literature across wide array of psychology sub-disciplines (Gross, 1998a).

Emotion Regulation Process Model. Emotion regulation is defined as “the processes by which individuals influence which emotions they have, when they have them, and how they experience and express these emotions” (Gross, 1998a, p. 275). Emotion regulation is a strategy used in everyday life, as both a conscious or automatic process that carries influence at multiple points as an emotion unfolds (Gross, 1998a). Current research is primarily based on Gross’ (1998a) process model of emotion regulation.

Gross divides emotion regulation strategies based on when an emotion is generated. Efforts prior to experiencing the emotion are considered antecedent-focused emotion regulation, and efforts after experiencing the emotion are considered response-focused emotion regulation. Strategies under antecedent-focused emotion regulation include selecting a situation to be in,

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modifying the emotional impact of a situation once in it, and deploying attention elsewhere; however, cognitive reappraisal is the strategy most often studied. Before an emotion is generated, an individual chooses how to perceive a situation based on various meanings that could be attached to a situation. This strategy of cognitive reappraisal transforms the perception of a situation to change its resulting emotional impact (Gross, 1998a). In contrast, response-focused emotion regulations are strategies to modify the emotion response tendencies, most often through emotion exaggeration or suppression.

Empirical Studies on Emotion Suppression. Emotion suppression is the conscious inhibition of emotional expression, creating a discrepancy between the manifestation of an emotion and the actual emotion being experienced (Gross & Levenson, 1993). Emotion suppression is typically studied in an experiment by screening a film that elicits a particular emotion such as disgust (e.g. Gross & Levenson, 1993), sadness (e.g. Vohs & Schmeichel, 2003), and amusement (e.g. Gross & Levenson, 1997). The control group is instructed to watch the film normally without any instructions related to emotion regulation, while the experimental group is told to maintain a neutral facial expression while watching the film. Decreased behavioral expression (i.e. facial expression, face-touching) in the emotional depletion condition is associated with increased heart rate, and somatic activity, sympathetic nervous activity (i.e. increased blinking) (Gross & Levenson, 1993; Gross, 1998b). However, there are no observed sex differences in emotion suppression for behavioral and physiological effects (Gross & Levenson, 1993). Additionally, an individual's negative emotion experience is not impacted by emotion suppression (Gross, 1998b; Gross & Levenson, 1993). Gross and Levenson (1993) theorize that the experimental instructions function as a stimulus external to the emotions elicited by the film itself. Suppression does not directly impact negative emotions

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as they are already experienced and instead targets expression of those emotions; as a result, those negative emotions continue to linger (Gross & John, 2003). Thus, there is empirical evidence that emotion suppression functions as a response-focused emotion regulation strategy that occurs after the emotion is generated. While emotion-expressive behavior is decreased, the subjective emotion experience manifests in other ways, such as increased physiological arousal.

Connection between Emotions and Cognition. Emotions are closely intertwined with our cognitions, such that most emotional experiences are a function of our cognitive-affective processes (Izard, 1992). Lazarus (1982) argued that emotional responses are the result of an individual's cognitive appraisal of a situation, and its implications to his/her well-being. That cognitively perceived relationship between a person and the environment can moderate the intensity of emotion felt (Lazarus, 1982). The Differential Emotions Theory postulates emotions are discrete and drive distinct experiential and motivational processes (Izard, 1977). Emotions automatically and selectively impact conscious and subconscious cognition as a consequence of that particular feeling state experienced (Izard, 1992). For example, joy cues thoughts and actions associated with sharing and relaxing (Izard, 1992). Thus, while there are underlying cognitive processes that drive emotions it is not a unidirectional effect; the emotional state also affects the availability of cognitive resources (Matthews & Macleod, 1994).

Cognitive Impact of Emotion Suppression. Focusing on emotion regulation specifically, functional imaging studies have demonstrated interactions between the act of suppressing emotional expression with specific areas of the brain associated with goal regulation and activation of affective responses (Ochsner, Silvers & Buhle, 2012). As emotion suppression occurs after an emotion is generated, an individual must continuously monitor his/her expressions. Thus, emotion suppression is often understood according to Carver and

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Scheier's (2004) control model of self-regulation, in which emotion regulation occurs through self-corrective actions carried out to achieve a purpose (i.e. maintaining a neutral facial expression). The feedback system operates by reducing discrepancy between the current situation and the specified goal through corrective adjustments (Carver & Scheier, 2004). However, the effort expended on constant self-monitoring required of emotion suppression taxes cognitive resources, leaving a fewer resources for information processing during subsequent activities (Gross, 2002; Gross & John, 2003). Evidence of decreased cognitive capacity has been demonstrated by impaired memory for social information when emotion suppression was used (Gross & John, 2003; Gross, 2002; Richards & Gross, 2000; Richards, Butler, & Gross, 2003). The negative effect of emotion suppression on memory is so pronounced that just engaging in that regulation strategy is sufficient to inflict the cognitive cost on memory, regardless of the intensity of the emotion suppressed (Richards & Gross, 1999; Gross, 2002). Decreased information processing also has implications on social behavior as individuals are more likely to engage in stereotypical thinking if cognitively taxed from emotion suppression (Richards & Gross, 1999). Interestingly, while memory of situational information decreases with emotion suppression, memory of the emotional reactions experienced is enhanced. Active self-monitoring to suppress emotions requires attentional resources be allocated to emotional cues at the expense of other contextual information (Richards, Butler, & Gross, 2003). Furthermore, the increased salience of the emotional cue leads an individual to focus more on emotional stimuli, which leaves fewer resources for successful self-regulation (Baumeister & Heatherton, 1996).

Emotion Resource Depletion. In this paper, emotion resource depletion is understood as the scarcity of regulatory resources due to emotion suppression. Due to its connection to

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cognitive self-regulation, emotion suppression is often studied in ego depletion studies. In fact, affect regulation is identified as one of the four main spheres of self-regulation (Baumeister et. al., 1994). Aligned with the defining characteristic of self-regulation in which an individual has to overcome a natural impulse to achieve a goal, emotion regulation entails overriding the urge to experience and display the natural emotional response to environmental stimuli (Hagger et. al., 2010). Although the negative and positive emotions elicited from a situation can be manipulated through the different emotion regulation strategies, each strategy has unique costs and benefits associated with an emotion regulatory goal (Gross, 1998a). In particular, emotion suppression has been often studied to examine an individual's ability to achieve specific goals in light of other contributing factors, such as amount of resources available (Baumeister & Heatherton, 1996) and cognitive load (Wegner, 1994).

Muraven et. al. (1998) found that emotion suppression reduced physical stamina on a subsequent task relative to participants who were not told to regulate their emotions while watching an upsetting movie. Vohs & Heatherton (2000) also found that emotion suppression while watching a sad movie led to decreased ability in chronic dieters to control the amount of ice-cream eaten after. Furthermore, ability to carry effective self-presentation can be negatively impacted; participants who suppressed their emotional responses to an amusing clip either disclosed too much or too little information about themselves when making a new acquaintance in a subsequent interaction (Vohs et. al., 2005). Vohs and Schmeichel (2003) also found that participants who engaged in emotion suppression while watching a sad film perceived the clip to be longer than the control group. They argued that depleted participants who engaged in self-regulation gave longer duration estimates because monitoring their behavior led them to be more cognizant of the movement of time. In an interesting study on the influence of automatic

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attitudes and personal standards on resulting dietary behavior, Hoffmann, Rauch, & Gawronski (2007) also found the depletion effect with participants who suppressed their emotions while watching a clip with both positive and negative emotional elements. Depleted participants lacked the self-regulation resources to resist their automatic preferences for candy (as measured by a modified version of the IAT), and went against their dietary restraint standards to consume greater amount of M&M candies compared to those who were not depleted.

Conversely, emotion resource depletion is also impacted by cognitive resource depletion; the depletion of one regulation system depletes the other. For example, thought suppression on a prior unrelated task impaired an individual's ability to successfully suppress emotions on a subsequent task (Muraven et. al., 1998). Ego depletion has also been associated with more intense reactions to emotion stimuli (Vohs & Baumeister, 2016). Participants displayed an increased dependence on negatively-valenced stimuli in semantic processing when they were depleted (Maranges, Schmeicel, & Baumeister, 2016).

Emotions and Bigotry

As discussed earlier, emotions are an important component in bigoted attitudes. In fact, different emotions often are associated with specific outgroups such as fear paired with African-Americans, or disgust paired with homosexuality (Cottrell & Neuberg, 2005). Experiencing negative emotions in the presence of the associated outgroup can elicit a stronger implicit bias against the outgroup. For example, Dasgupta, DeSteno, Williams and Hunsinger (2009) found that participants who experienced anger in the presence of Arabs displayed increased implicit prejudice on the IAT but experiencing disgust had no effect.

Emotion Resource Depletion and Bigotry. The role of negative affect in self-regulation failure has been well studied, and has been connected to behaviors such as gambling

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(Raviv, 1993), alcohol consumption (Witkiewitz & Villarroel, 2009) and aggression (Berkowitz, 1989). Emotion regulation decreases the experiential impact of positive emotions but not negative ones. Therefore, negative emotions experienced have an amplified effect on reducing capacity for self-regulation (Wagner & Heatherton, 2014).

In the context of racial bigotry, negative emotions are not only an integral aspect of bigoted attitudes against an outgroup member, but also have a strong impact on those suffering from prejudice. Stigmatized individuals often suppress their anxiety and anger felt in order to achieve their interaction goals, despite the prejudice experienced (Miller & Kaiser, 2001). However, this comes at a cognitive cost to those experiencing prejudice (Crocker, Major, & Steele, 2008; Johns et. al., 2008). Neuroscience research has shown that when stereotypes against a woman's spatial abilities were made salient, there was increased activity in a specific part of the brain involved with in regulation of negative self-conscious emotions which in turn led to worse performance on a mental rotation task (Schmader, Johns, Forbes, 2008; Wraga, Helt, Jacobs and Sullivan, 2007).

While majority of the literature in this area has examined the depleting effects of emotion suppression on victims of prejudice, there is a dearth of research looking at emotion suppression linked to expressions of bigotry. One notable exception is a study by Burns, Isbell and Tyler (2008) who looked at the difference of emotional experience reported after suppressing emotions towards a stereotyped target as a function of the perceiver's level of prejudice. They instructed heterosexual male participants to either suppress or not suppress their emotions while watching a video of a gay couple. While they found that low-prejudiced males who suppressed their emotions reported lower levels of positive emotion compared to others who did not, high-prejudiced individuals reported an increase in positive emotions experienced.

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One explanation presented by the authors was that high-prejudiced individuals are not typically efficient in regulating emotions related to prejudice; their overcompensation in efforts to regulate negative emotions resulted in an increase in positive emotions experienced (Burns et. al., 2008).

In summary, self-regulation is ubiquitous in our daily lives. All volitional acts draw from the same limited source, and ego depletion occurs when ability to carry out self-regulation decreases due to a temporary scarcity of these cognitive resources. While emotions are distinct from cognition, both are related to each other through complex affective-cognitive processes. Thus, emotion suppression is a form of emotional self-regulation that is sustained by the same cognitive resources. As a result, carrying out emotion suppression will lead to resource depletion. Numerous studies have demonstrated this effect; carrying out emotion suppression negatively impacts subsequent ability to self-regulate other unrelated tasks. One possible outcome related to resource depletion from emotion suppression is the increased likelihood of expressing bigotry. While some studies have examined the negative outcomes of emotion suppression for victims of bigotry, there is limited research looking at its effect on perpetrators of bigotry. As emotions are an integral component of both our everyday life and attitudes towards others, it is important to examine how they can play a role in self-regulation of expressions of bigotry.

Individual Differences in Resource Depletion

Understanding self-regulation through the strength model also implies individual differences in capacities to self-regulate. As self-regulation is driven by the desire to override natural tendencies in order to conform to internal goals and societal-set expectations, a decrement in self-regulation will expose individual differences across people that were

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previously suppressed (Baumeister et. al., 2006). Several classic studies include examining individual ego strength (Funder, Block, & Block, 1983) and delay of gratification (Mischel, 1974) on self-regulatory capacity (Heatherton & Baumeister, 1996). An individual's determination to achieve a goal and the degree of collectivism present in their culture is also found to moderate the ego depletion effect (Baumeister et. al., 2007).

In some cases, self-regulation reveals individual differences in motivation to maintain goal-directed behavior. This is particularly observed in situations in which everyone shares basic impulsive inclinations, but some individuals are more motivated than others to suppress those impulses and conform instead to their personal standards and socially accepted norms (Baumeister et. al., 2006). Thus, those who are strongly motivated to override their natural tendencies are more likely to continue to do so even in an ego depleted state than others. However, if depleted enough even those with strong inhibitions to a certain behavior can lose control and behave in a socially undesirable way (Baumeister et. al., 2006).

Egalitarianism as a Moderator of Bigotry. There is a distinction between knowing the content of stereotypes and endorsing them (Devine & Elliot, 1995), and individual differences moderate the effect of stereotypes on judgments and subsequent behavior. A common moderator studied is the individual difference in levels of prejudice (Devine, 1989; Devine & Elliot, 1995; Lepore & Brown, 1997; Stangor, Lynch, Duan, & Glass, 1992).

An individual's level of prejudice is often informed by personal beliefs, including egalitarian values. Although there are multiple ways to conceptualize egalitarianism, an overarching theme is the belief that all individuals deserve equal treatment regardless of race, gender, or economic background. Those who subscribe to the prioritarianism aspect of egalitarianism believe that there must be a distribution of resources according to need (Arneson,

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2002). Thus, egalitarians acknowledge that African-Americans and other minority members who have a smaller access to opportunities to advance should be given an equal chance to succeed. The emphasis on equal opportunity leads strong egalitarians to feel morally obligated to suppress their prejudice and focus instead on positive attitudes towards disadvantaged groups; this results in a lower tolerance for prejudice (Crandall & Eshleman, 2003; Monteith & Walters, 1998).

While stereotypes and personal beliefs represent distinct cognitive structures, there can be overlap of information depending on the individual (Devine, 1989). Devine and Elliot (1995) found that although both high and low-prejudiced individuals had the same knowledge of the contemporary negative stereotype of Blacks, those who were low-prejudiced also had a set of personal beliefs about Blacks that were more positive in nature. However, as stereotypes are a well-learned set of associations (Dovidio et. al., 1986) that are activated automatically, carrying out a non-prejudiced response requires the controlled inhibition of the accessible stereotype and the intentional activation of the personal belief structure (Devine, 1989). Overcoming stereotypes takes motivation and cognitive effort, which is why Devine (1989) found that low-prejudiced individuals were only able to do so when they had time and the cognitive resources.

Not only are egalitarian beliefs important in assessing the efficacy of regulation of bigotry, but the type of motivation driving the intention to regulate prejudice also matters. Individuals who strongly internalize their egalitarian goals have a combination of high internal motivation (i.e. a desire to align with their personal beliefs) and low external motivation (i.e. normative expectations) to regulate prejudice, and are more effective in controlling their implicit racial biases (Devine et. al., 2002). Individuals who have an internal motivation to control prejudice display less implicit bias because they are more able to detect the appropriate

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responses on implicit measures and also experience less activation of stereotypes (Gonsalkorale, Sherman, Allen, Klauer, & Amodio, 2011). In an empirical study conducted by Park, Glaser and Knowles (2008), individuals who had a strong implicit motivation to control prejudice showed no difference in their implicit racial biases between those who completed a difficult or easy cognitively-depleting anagram task. As individuals who are chronically committed to their egalitarian goals preconsciously control stereotype activation (Moskowitz et. al., 1999), prejudice control becomes an automatic process that is resource-independent (Park et. al., 2008).

Role of Stereotype Activation in Expressed Bigotry. Thus, resource depletion does not always lead to increased bigotry, particularly among those who subscribe strongly to egalitarian values. While past research has shown no increase in implicit racial biases for cognitive-depleted egalitarians (e.g., Park et. al., 2008), other studies have found the opposite effect (e.g., Devine, 1989; Muraven, 2008). An important factor to understand these seemingly contradicting findings is the occurrence of stereotype activation. Stereotype activation likely impacts the relationship between resource depletion and subsequent display of bigotry.

While strong egalitarians may desire to decrease potential prejudice by intentionally suppressing a stereotype, this could result in the opposite effect. Described as the stereotype rebound effect, stereotypic thoughts that are suppressed are likely to reappear with a stronger intensity than if they had never been suppressed (Macrae et. al., 1994). Stereotype suppressors activate stereotypic thoughts (though at low levels) in order to actively inhibit its effects. This requires a constant amount of cognitive resources to sustain those inhibitory mechanisms. When those resources run out, individuals are unable replace their stereotypes with distractors, and thus are more subject to the influence of stereotypes. Macrae and colleagues (1994)

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demonstrated exactly this effect, when they found that individuals who intended to suppress their stereotypic thoughts demonstrated greater stereotype activation than the non-suppressors in a subsequent lexical decision task.

As a result, egalitarians who experience stereotype activation and are unable to expend the resources to self-regulate may expose their underlying biases. When depleted, exposure to situations that contradict their personal beliefs (i.e., watching instances of social injustice) can increase their negative affect which reinforces their state of resource depletion. This may further decrease ability to carry out self-regulation effectively.

Study Overview

In the current study, the relationship between emotion resource depletion and expressions of bigotry was examined, with egalitarianism acting as a possible moderator. For the first part of the study, participants completed a set of online questionnaires including a survey on their egalitarian values. In the subsequent lab portion, emotion resource depletion was carried out through emotion suppression. Participants were instructed to maintain a neutral facial expression while watching a 9 minute social injustice video. Participants then completed the Diversity Engagement Test to assess their behavioral intentions in relation to bigotry. It was expected that emotion suppression would increase expressions of bigotry while egalitarianism would decrease expressions of bigotry. Additionally, an interaction was predicted between egalitarianism and emotion suppression. The mean differences in overall level of bigotry would be higher in weak egalitarians than strong egalitarians; however, amongst strong egalitarians there would be a greater increase in expressions of bigotry in those who suppress their emotions than those who do not, relative to weak egalitarians who suppress their emotions and do not.

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Hypotheses

Hypothesis 1: Emotion resource depletion will cause an increase in expression of bigotry relative to when there is no emotion resource depletion.

Hypothesis 2: There will be an inverse relationship between egalitarianism and expressions of bigotry.

There will be an interaction between emotion depletion and egalitarianism such that

Hypothesis 3a: When egalitarianism is high, emotional depletion will lead to greater levels of expressed bigotry than when there is no emotion resource depletion.

Hypothesis 3b: When egalitarianism is low, emotional depletion will not affect expressions of bigotry relative to when there is no emotion resource depletion.

Methods

Participants. Participants were 100 undergraduates from a large Mid-Atlantic university. The racial breakdown of self-identified race was 91 Whites and 9 Asian-Americans, and the gender breakdown was 77 females and 23 males. They were recruited through flyers, in-class announcements, and postings on the Psychology Department's SONA Experiment Management system for this study. Participants were required to be at least 18 years of age and proficient in the English language. Compensation for participation was 0.5 extra credit points for the pre-test surveys, and 1 for the lab experiment; hence, participants were awarded 1.5 extra credit points for completing both parts of the study. Participants were randomly assigned to conditions, with 51 in the suppression condition and 49 in the no suppression condition.

Design. The experimental design was a 2-level (Emotion Regulation: Emotion Suppression/No Emotion Suppression) one way design with egalitarianism treated as the

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continuous variable. A power analysis was computed through the G*Power 3.1 program (Faul, Erdfelder, Lang & Buchner, 2009) to estimate that 90 participants were needed to achieve 0.8 power (with Cohen's $f=0.3$, and $\alpha=.05$) for an ANCOVA analysis of main and interaction effects.

Procedure. Participants were contacted after registering for the experiment through SONA. For the first part of the study, participants reviewed the university's IRB Informed Consent Form and then completed several pre-test questionnaires online through Qualtrics. This portion of the study took approximately 30 minutes to complete.

Only White-European Americans and Asian-Americans were recruited for the laboratory portion of the study. Past research has demonstrated that both subgroups have comparative American cultural fluency, thus develop similar stereotype subtypes of African-Americans (Lowery, Hardin & Sinclair, 2001). In the lab, participants were presented with a second IRB Informed Consent Form. They were told that this segment of the experiment was video recorded, and the videos they were about to watch depicted violence inflicted on African-Americans by those in power. Participants were randomly assigned to either the emotion suppression or no emotion suppression condition, and were instructed according to the relevant condition. Participants were reminded that they could stop the experiment at any point should they feel uncomfortable and then were presented with a timeline of the entire experiment. After the experiment procedure was explained, any questions from the participants at this point were answered. The lab portion of the study took approximately 35 minutes.

The experiment began with the participants seated in front of a computer and told to relax. They watched two videos: the first was a 3-minute segment of a Jackson Pollock documentary, the second was a 9-minute clip depicting apparent social injustice against

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African-Americans. The videos were presented on a computer screen of approximately 18 inches in length with an average viewing distance of 12 inches. Instructions for viewing the films and the context for the video were flashed on the computer screen for one minute right before the screening of each clip. A one-minute break video with a blank screen was played between the two videos. After both films had been watched, participants were then administered the Diversity Engagement Test (DivET) Situational Judgment Test (SJT). After this, the participant were given a Debriefing Form and fully debriefed from the study. The experimenter addressed any additional questions or concerns at this point. Participants then watched a 3-minute mindfulness video to help them return to baseline mood. The video encouraged meditation on being in the present, and letting go of other extraneous thoughts. Finally, the participant was then thanked for his/her participation, and reminded that they would receive the extra credit points as compensation.

Video Stimulus Development

Everyone watched a video clip showing a 3-minute segment from a Jackson Pollock documentary, as used by Davis and colleagues previously (Davis, Senghas & Ochsner, 2009); this neutral clip was shown to ensure participants are at baseline mood prior to watching the stimulus clips. For the second video, participants watched a 9-minute clip in which African-Americans are victims of violence perpetrated by Whites in positions of authority. The video depicted life-threatening and fatal acts of aggression.

Pilot Study

To create an emotionally taxing stimulus video, a separate pilot study (N = 20) was conducted. All pilot study participants were provided with the consent form and had the experiment procedures explained to them before proceeding with the study. They watched 15

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different video clips, each approximately a minute long; all videos depicted violence suffered by African-Americans by White police officers who hold positions of authority. The violent content covered beatings and shootings that occur in residential neighborhoods and highways. Some videos also included the audible emotional reactions of the individuals who are recording the footage. The clips were played in random order, and participants were reminded before each video clip that they were free to withdraw from the experiment at any time. After watching each video, participants immediately completed the Self-Assessment Manikin (SAM). The SAM is a pictorial Likert-scale self-report measure that allows an individual to assess their emotions reactions through the pleasure and arousal scales. Once all videos were shown, participants were asked to categorize the clips into three categories ranging from “least emotional”, “moderately emotional”, and “very emotional”. For the videos grouped under the “very emotional” category, participants were interviewed to assess their personal reactions to those clips and reasons they elicited strong emotional reactions. This was carried out to determine if the videos were eliciting the expected emotions, and at an appropriate intensity. After this, participants were asked for their general feedback on the videos including opinions on sound clarity, length of the clips, and any other issues. They were then debriefed and watched a 3-minute mindfulness meditation video to help them return to their baseline mood. Finally, participants were then thanked for their participation and reminded that they would receive 1 extra credit point through the SONA system.

Self-Assessment Manikin. The Self-Assessment Manikin (SAM) (Bradley & Lang, 1994; Hodes, Cook, & Lang, 1985) is a measure used to assess emotional reactions based on the pleasure, arousal, and dominance dimensions. However, the dominance dimension of the SAM was not used in this study as assessing the participant’s perception of control after watching the

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film was not relevant. The SAM is a Likert-type picture scale assessing pleasure (1=unhappy/annoyed to 9=happy/pleased) and arousal (1=relaxed/dull to 9=stimulated/jittery). Immediately after watching the clip, participants were instructed to rate their emotional reaction by choosing one figure for each dimension that best represents their emotional state. The SAM is frequently administered to capture reactions to affective stimuli, including from videos and images (Demaree, Schmeichel, Robinson, & Everhart, 2004; Dillon, Ritchey, Johnson, & LaBar, 2007). The paper-and-pencil version of the SAM ratings was used for this study, instead of the computer version. The measure had very high correlations to the 5 pairs of adjectives that represent each dimension, ranging from $0.98 \leq r \leq 0.99$ for pleasure and $0.90 \leq r \leq 0.94$ for arousal.

Results. The means and standard deviations for the SAM pleasure and arousal ratings of the 15 videos are also listed in Table 1. Ratings for videos 14 and 15 were averaged over 19 participants instead of the full 20, as the responses from one participant could not be used. Omitting these data points did not change the selection of videos that were identified as the most emotionally taxing videos. Selection criteria of the videos for the full study included those where more than 10 participants identified the video as “very emotional”, and videos that had the 5 lowest pleasure ratings and 5 highest arousal ratings. There were 7 videos identified that fit these criteria. 2 additional videos were selected based on participant’s interview responses, for a total of 9 videos.

These videos consisted of four clips of the victims being beaten and physically assaulted, four clips of the victims being shot, and one clip depicting the aggressive arrest of a victim in which multiple officers physically restrained him and forced him to the ground. Three

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of these clips included the death of the victims. In terms of gender breakdown, two of the videos depicted the assault of women and children while the rest of the victims were males.

Measures

Online Pre-tests. In order to disguise the purpose for measuring egalitarian values, participants also completed several other measures as part of the pre-test questionnaires. The measures were presented in random order to prevent ordering effects, with the exception that the Right-Wing Authoritarian (RWA) scale was always presented after succeeding the Egalitarianism scale to prevent responses on the RWA scale affecting subsequent answers on the Humanitarian-Egalitarian (HE) scale. Only the responses from the HE scale were analyzed for the hypotheses testing of the thesis study.

Positive and Negative Affect Schedule. The Positive and Negative Affect Schedule (PANAS) (Watson, Clark & Tellegen, 1988) is a two 10-item mood scale that measures positive and negative affect each. It has a high internal consistency, with $\alpha \geq 0.85$ for all the different time instructions used for asking how a participant has felt (ranging from “the present moment”, “today”, “past few days” and “in general”). Test-retest reliabilities over 8 weeks for both scales also indicated there was no significant difference found (at the $p > .05$ level, 2 tailed t test) between each rated time frame.

Mini-International Personality Item Pool. A 20-item survey measuring the Big Five traits (Extraversion, Conscientiousness, Agreeableness, Intellect/Imagination, and Neuroticism), the Mini-International Personality Item Pool (Mini-IPIP) (Donnellan, Oswald, Baird, & Lucas, 2006) is a well-validated personality measure. The alpha coefficients of the five factors are 0.7 and higher, and is comparable to its parent measure: Goldberg’s (1999) 50-item IPIP-Five Factor Model measure.

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Right-Wing Authoritarianism. The authoritarian values in participants were measured using the shortened version of the Right-Wing Authoritarianism (RWA) Scale (Zakrisson, 2005), which is based on the 30-item original scale by Altemeyer (1988). The RWA contains 15 items containing statements representing a RWA outlook, specifically issues pertaining to conventionalism, authoritarian aggression, and authoritarian submission. The RWA has reasonable reliability, with a Cronbach's alpha of 0.72. Items are scored on a Likert-scale from 1(very negative) to 7(very positive), and the average of the scores across the 15 items is calculated. A higher score indicates stronger authoritarian values.

Motivation to Control Prejudice. This 17-item Motivation to Control Prejudiced Reactions scale was constructed to measure individual differences in desire to control expressions of prejudice (Dunton & Fazio, 1997). The items tap into motivations to control prejudice that are relevant to concerns with acting prejudiced and also restraint to avoid dispute. Items were scored on a likert rating of -3 (strongly disagree) to 3 (strongly agree), with a higher score indicating a greater motivation to control prejudice. Cronbach's alpha for the scale is adequate at 0.81.

Emotion Regulation Questionnaire. Individual differences in the participants' use of emotion regulation strategies was measured using the Emotion Regulation Questionnaire (ERQ) by Gross and John (2003). The measure consists of 10 items measuring two different strategies - 4 items on the emotion suppression subscale, and 6 items on the cognitive reappraisal subscale with a reliability alpha coefficient score of 0.73 and 0.79 respectively. The items were scored on a Likert scale from 1(strongly disagree) to 7(strongly agree) and both subscales were independent of each other.

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Emotional Expressiveness Questionnaire. The Emotional Expressiveness Questionnaire (EEQ) (King & Emmons, 1990) was a 16-item measure that assesses an individual's expressive behaviors for both positive and negative emotions. Items were scored on a 7-point Likert scale, from "do not agree" to "strongly agree". The scale demonstrates good reliability, with an alpha reliability coefficient of 0.78; it also has an average inter-item correlation of 0.18.

Demographics Questionnaire. The questionnaire collected basic demographic information from participants including age, race/ethnicity, and gender.

Independent Variables

Emotion Resource Depletion. Emotion resource depletion was operationalized in this study through emotion suppression. Instructions were displayed right before screening of every video clip to avoid creating baseline psychological differences between groups (Demaree et. al., 2006). A camera was trained on the participant during the study, and its primary function was as a motivating factor for participants to maintain their emotion regulation strategy. Video footage was collected and the emotional expressions of participants in the no suppression condition were analyzed.

Suppressing emotional expressions while watching videos is a common manipulation that has been demonstrated as robust in previous experiments (e.g., Gross & Levenson, 1993; Vohs & Schmeichel, 2003; Gross & John, 2003). In the emotion suppression condition participants were instructed to suppress their emotions and maintain a neutral facial expression. Participants in the no-suppression condition were not given any instructions about controlling emotions prior to watching the movie clip.

Instructions for the suppression condition was:

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You will soon watch a short video clip. It is important that you pay attention and watch it carefully, immersing yourself in the scene you will be watching. Please do your best to suppress any expression of emotions you may feel while watching the videos. Try to maintain a neutral facial expression, so that a person who is watching you would not know that you are feeling anything at all. You are reminded that you are being video recorded, and are free to stop the experiment at any time. When you have finished the video clip, please alert the experimenter.

Instructions for the no-suppression condition was:

You will soon watch a short video clip. It is important that you pay attention and watch it carefully, immersing yourself in the scene you will be watching. Please watch the videos as you would on your own, as naturally as possible. You are reminded that you are being video recorded, and are free to stop the experiment at any time. When you have finished the video clip, please alert the experimenter.

Modulation Strategy Questionnaire. A self-report questionnaire of emotional response modulation was administered to determine if participants in the suppression condition complied with instructions or utilized a different strategy. Following procedure from Martjin, Tenbült, Merckelbach, Dreezens and de Vries (2002), participants were asked to endorse three statements assessing their perceived success in hiding their emotions on a likert rating of 1 (strongly disagree) to 5 (strongly agree). They were also asked one free-response question to describe the specific modulation strategies that they used. To check if the control condition participants also spontaneously regulated their emotional responses to the videos, all participants in both conditions endorsed two statements on the emotional control exerted during the task with a similar likert rating (Martjin et. al., 2002).

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Egalitarianism. Participants were measured on their egalitarian values held using the Humanitarian-Egalitarian (HE) Scale (Katz & Hass, 1988). The HE scale is a 10-item survey containing statements of a humanitarian-egalitarian outlook, and has a Cronbach's alpha value of 0.83. The level of agreement for each item is scored based on a 6-point Likert scale from 1 (strongly disagree) to 6 (strongly agree). The average score over the 10 items is calculated, with a higher score representing a stronger orientation towards egalitarian values.

Manipulation Checks

In order to empirically test if there are differences in emotional reactivity to the social injustice videos across individuals, video footage of participants in the control condition was behaviorally coded. Two undergraduate coders were trained to watch these video recordings and rate participants on their emotional expressivity based on a modified version of the Emotional Expressive Coding System adapted from Gross and Levenson (1993; 1997). A codebook was developed for this purpose, in which visible expressions of emotions were divided into categories of body, facial and mouth movements. Both coders independently coded all videos of individuals who were instructed not to suppress their emotions ($n=49$) according to these categories, and gave an overall likert-rating for the perceived emotional expressivity of each participant ($1 = No Reaction at All$, $5 = Extremely Reactive$). During the first few months of coding, the coders met frequently to discuss coding-related issues to allow for continued refinement of the codebook and ensure they were on the same page on how expressive they perceived participants to be. As a result, the final calculation of inter-rater reliability was adequate, with ($r = .72$).

All videos in the no emotion suppression condition were coded to examine whether individuals with high egalitarianism were more reactive to the content of the videos than

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individuals low on egalitarianism. Thus, the emotional expressivity ratings from both coders were aggregated and correlated with egalitarianism.

Dependent Variable

Expression of bigoted attitudes. The Diversity Engagement Test (DivET) Situational Judgement Test (SJT) was developed and validated by Hauenstein and colleagues (Hauenstein, Van Driel, Arun & McDonald, 2014; Hauenstein, Sturdivant, Gladfelter, Yibass, 2017; Sturdivant, Yibass, Abraham, & Hauenstein, 2017) as an alternative tool to measure racism and White Privilege. The DivET operates on assessing an individual's behavioral expectation of carrying out a behavior, providing for more accurate predictions in behavior (Warshaw & Davis, 1985). The DivET contains different scenarios containing racial microaggressions, in which respondents adopt an observer's perspective to the scenario and rate how likely they would be to carry out each of the three possible responses. Respondents have the option of either confronting, remaining ambivalent, or reinforcing the microaggressor's behavior, and the likelihood for choosing each response and is measured in a Likert-scale format from 1 (*extremely unlikely*) to 9 (*extremely likely*).

By presenting these racial microaggressive scenarios and recording responses from the perspective of someone not actively committing racial discrimination, the DivET is less likely to be contaminated by social desirability. Additionally, accessing expression of bigotry on all three behavioral dimensions of the SJT creates the moral licensing effect (Sturdivant et. al., 2017). Respondents are likely to feel justified to respond honestly on the reinforcing scale after having an opportunity to express their egalitarian standards on the challenging scale.

As the DivET was initially developed in a military context, Hauenstein and colleagues (2017) developed a revised version of the DivET that applied to a wider population. Factor

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analyses supported the 3-dimension framework of the SJT, with clear factor structures achieved for the reinforcing and challenging scales. The final version of the DivET used in this study contains 14 scenarios, with high internal consistency reliabilities for each dimension (Challenging $\alpha = 0.91$, Reinforcing $\alpha = 0.90$, Ambivalent $\alpha = 0.86$). A comparison of the Reinforcing dimension of the DivET with the Social Desirability Scale (Reynolds, 1982) revealed a stronger negative correlation ($r = -0.26$) than other scales accessing racial attitudes and White Privilege (i.e. White Privilege Attitude Scale (Pinterits, Poteat & Spanierman, 2009), Color-Blind Racial Attitudes Scale (Neville, Lilly, Duran, Lee & Browne, 2000), and Right-Wing Authoritarian Scale (Zakrisson, 2005)). The SJT is scored by averaging the scores for each dimension across the 14 items. Although all three dimensions of the DivET will be analyzed, scores on Reinforcing dimension are the operational definition of Expressions of Bigoted Attitudes (EoBA) and will be referred to as EoBA scores. A higher EoBA score represents a greater willingness to rationalize the microaggression depicted in the scenario.

Analyses

A linear multiple regression analysis was conducted to analyze the effects of the 2 causal antecedents on the dependent variable. The categorical variable (IV1: Emotion Suppression) will be effect coded where -1 represents “no suppression” while 1 represents “suppression”. Egalitarianism was treated as a covariate when looking at its relationship with the dependent variable.

The full model was:

Expressions of bigotry = $\beta_0 + \beta_1$ (Emotion Resource Depletion) + β_2 (Egalitarianism) β_3

(Emotion Resource Depletion X Egalitarianism)

Results

Descriptive Statistics

Analysis of the data revealed three participants as potential outliers. Their responses were identified as outliers from inspecting three criteria: the leverage values as a measure of how unusual scores on the independent variables were, the standardized residuals values measuring the distance between the predicted and observed values on the dependent variable, and Cook's distance values that reflects how much influence each participant had on the regression coefficients. Two participants had values that exceeded the recommended cut-off value for standardized residuals and Cook's distance, while the other had high leverage and Cook's distance values. All participants were in the emotion suppression condition.

Further inspection of two of the potential outliers for their both their pre-lab and in-lab scores did not reveal any disqualifying issues; there was variability in response patterns across all measured variables including the different DivET dimensions, indicating participants reasonably differentiated among items when responding. However, the third outlier showed no variance on for two pre-lab scales and response to a DivET in-lab scale hence suggesting careless responding. The decision was made to exclude this third outlier case; exclusion of this participant's responses did not affect the results.

The means and standard deviations for the remaining 99 participants, along with reliability coefficients and correlations between all variables of interest are reported in Table 2. Cronbach's alpha was adequate for all dimensions of the DivET (Expression of Bigoted Attitudes (EoBA), $\alpha = .85$; Challenging, $\alpha = .91$; Ambivalent, $\alpha = .87$) and the Humanitarian-Egalitarianism (HE) scale ($\alpha = .82$).

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Egalitarianism manipulation checks. An independent-samples t-test was done to assess the extent to which random assignment of subjects to conditions controlled for differences in egalitarianism across the emotional suppression conditions. Egalitarianism scores in the no emotion suppression condition ($M=4.74$, $SD=0.60$) were not significantly different than egalitarianism score in the emotion suppression condition ($M=4.68$, $SD=0.66$), $t(97) = 0.53$, $p = \text{n.s.}$, $d = 0.07$.

Furthermore, the correlation between emotional expressivity ratings and egalitarianism was positive ($r=.26$, $p=.04$). Thus, as expected, in the no suppression condition participants with stronger egalitarian values were more reactive to the social injustice stimulus video than those scoring lower on egalitarianism.

Emotion suppression manipulation checks. Additionally, the coders also rated five randomly selected videos from the suppression condition. These suppression videos were interspersed with the no suppression videos so the coders were blind to the condition. Comparisons of emotional expressivity from the suppression videos were made against another five randomly selected videos from the no suppression condition. Participants in the suppression condition ($M=2.20$, $SD=0.91$) were perceived as *less* expressive than those in the no suppression condition ($M=3.40$, $SD=1.08$), with $t(8) = 1.90$, $p = .05$, $d = 1.20$. As males tend suppress their emotions more frequently than females (Gross & John, 2003), the emotional expressiveness across gender was also compared. Although males did have lower emotional expressiveness ratings than females ($M_{\text{female}}=2.84$, $SD=1.22$, $M_{\text{male}}=2.32$, $SD=0.90$), the difference was not significant in this sample with $t(47) = 1.32$, $p = \text{ns}$, $d = 0.52$.

As another manipulation check on emotion suppression, participants' responses on the Modulation Strategy Questionnaire were analyzed. Participants across both conditions answered

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items that assessed their effort expended on emotional control, which they completed after watching the video stimulus. Participants who suppressed their emotions ($M=4.38$, $SD=0.73$) reported greater emotional control than those who did not suppress emotions ($M=2.49$, $SD=1.00$), with $t(87.60) = 10.77$, $p = .00$, $d = 1.89$, indicating the suppression manipulation was successful.

Hypothesis Tests

Check of data assumptions. In the regression analysis to test the hypotheses, EoBA was regressed onto Egalitarianism, Emotion Suppression, and the two-way interaction. The Egalitarianism variable was mean-centered to reduce multicollinearity with the other effects. Prior to testing the hypotheses, the data were checked for violations of regression assumptions.

The first check on assumptions was based on the plot of the standardized residuals plotted against standardized predicted values; concerns about violation of the homoscedasticity assumption were raised because this plot showed a fan-shape pattern (Figure 1a). The primary cause of heteroscedasticity is model misspecification, an issue that will be revisited later. In terms of the model being tested, although the estimated regression weights are unbiased, heteroscedasticity causes the standard errors to vary over levels of egalitarianism, raising concerns about the validity of the significance tests. The second check on assumption of normality of the dependent variable based on a P-P plot that graphs the observed cumulative probabilities of the residuals against the expected cumulative probabilities (Figure 2a). Deviations from the diagonal indicated deviations from normality, i.e., skewness. Although the plot raises concerns about normality, violation of this assumption is less concerning than the heteroscedasticity problem.

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In the attempt to remedy these issues, a log transformation was carried out on the EoBA scores, and both plots were re-examined. While the more linear trend seen in Figure 2b of the data points indicate the log transformation mitigated the concerns about normality of EoBA scores, there was only marginal improvement for the homogeneity of variance issue as shown in Figure 1b. Thus, model misspecification remained an issue. To determine if gender effects were part of the misspecification problem, a comparison of means between males and females for both EoBA and Egalitarianism was carried out. Females scored significantly higher than males for Egalitarianism (females: $M=4.78$, $SD=0.59$; males: $M=4.47$, $SD=0.69$), with $t(97) = -2.17$ $p = .02$, $d = 0.32$, and significantly lower than males for their EoBA scores (females: $M=1.42$, $SD=0.58$; males: $M=2.19$, $SD=0.88$), with $t(28.16) = 3.95$, $p = .00$, $d = 0.77$. Ideally, the gender effects would be fully modeled as a potential moderator. However, given low power due to the small sample of male participants, gender was included only as a covariate in the model. A check of the regression assumptions with the gender covariate yielded a P-P plot (Figure 3b) demonstrating normality of residuals; furthermore, there was improvement in terms of heteroscedasticity of variance (Figure 3a), but not complete resolution. The gap observed in the data points in Figure 3a (i.e., between .25 and 1.25 for standardized predicted values), is not an unexpected presence because of the two categorical variables in the model (i.e. Gender, Emotion Suppression) and the multiplicative interaction term. Including gender as a covariate reduced some, but not all, concerns about model misspecification.

Regression analyses. Multiple regression results are reported in Table 3; the log-transformed version of Expression of Bigoted Attitudes (EoBA) was regressed onto Gender, Emotion Suppression, Egalitarianism and the two-way interaction. Gender was entered as a covariate in the first step, followed by the main effects, and then the interaction term. As the

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hypotheses were directional, the significance of the values were reported according to the one-tailed t-tests. The overall regression model was significant, with $F(4, 94) = 8.69, p = .00, R^2 = .27$.

Two-way interaction effect. The interaction term between Egalitarianism and Emotion Suppression was not significant in the regression model with $b = .10, p = \text{n.s.}, R^2 \text{ change} = .01$. Thus, the emotion resource depletion effects on EoBA did not vary as a function of egalitarianism; hypotheses 3a and 3b were not supported in the full sample.

Emotion suppression main effect. Emotion Suppression was a significant causal antecedent ($b = .20, p = .01$), indicating individuals suppressing their emotions had higher scores on EoBA than those not suppressing across all levels of Egalitarian values. Additionally, items from the Modulation Strategy Questionnaire that assessed effort exerted in controlling emotions were correlated with Expression of Bigoted Attitudes. The positive correlation ($r = .25, p = .01$) suggests as individuals exerted more effort in controlling their emotions, the greater was their tendency to endorse behaviors that reinforced the depicted microaggressions, further supporting the emotional resource depletion argument. Thus, Hypothesis 1 was supported.

Egalitarianism main effect. Egalitarianism was also a significant causal antecedent of EoBA ($b = -.15, p = .05$). Individuals with stronger egalitarian values were less likely to reinforce rationalizations of racial microaggressions than those scoring lower on egalitarianism; hypothesis 2 was supported.

Exploratory Analyses

Other DivET dimensions. Exploratory regression analyses were also carried out on the other two dimensions of the DivET, i.e., Challenging and Ambivalent scores, and results are reported in Table 3. A check on the regression assumption plots did not reveal any issues for

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normality of residuals or homogeneity of variance for either the Challenging or Ambivalent model. For the Challenging scores, only Egalitarianism was a significant causal antecedent ($b = .52, p = .00$), indicating that as egalitarian values increased, individuals more strongly endorsed response options that confront a racial microaggression. As for the Ambivalent scores, only Emotion Suppression was significant ($b = .17, p = .05$); suppressing emotions led to a greater endorsement of responses that deflected from addressing a presented microaggression.

Sample without Minimum EoBA scores. As the persisting heteroscedasticity of variance issue indicates there may be another missing variable in the regression model, another set of analyses were carried out on a sample without the minimum EoBA scores (i.e. log-transformed EoBA = 0). Due to the sensitive nature of the DivET scale that asks participants how likely they would carry out rationalizations of racial microaggressions, there may be other individual differences such as agreeableness or social desirability affecting observed results, i.e., individuals scoring high on these dimensions could override the effects of the independent variables on EoBA. Those variables were not measured and thus could not be modeled. Consequently, exploratory analyses were conducted where individuals always endorsing the lowest anchor of the EoBA items were dropped from the analysis. Seven participants were excluded from the suppression condition ($n = 43$) and 10 participants were excluded from the no suppression condition ($n=39$), and seven females and three males were excluded. Of the 82 remaining participants, there were 74 Whites and 8 Asians, 62 females and 20 males. The previous regression analyses were then repeated on this sample and reported in Table 3. A check on the regression assumptions did not reveal any changes in the normality of residuals, but the heteroscedasticity issue improved. This supports the notion that there was a missing

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variable in the model that was driving the low responses, and dropping those minimum EoBA scores further mitigated model misspecification.

Two-way interaction effect. With this reduced sample, the interaction term between Egalitarianism and Emotion Suppression was significant with $b = .20$, $p = .02$, R^2 change = .04. The disordinal interaction is pictured in Figure 4. The moderation effect was analyzed with a simple slopes test by running two separate regression analyses: one regression model with high Egalitarian values and another with low Egalitarian values. For high Egalitarianism, emotion suppression effect was significant ($b = .38$, $p = .00$); thus, supporting Hypothesis 3a that the emotion resource depletion effect increases expressions of bigotry in high Egalitarians who have been taxed, relative to those who have not. Conversely, for low egalitarianism the emotion suppression effect was not significant ($b = -.004$, $p = \text{n.s.}$). This aligns with the prediction that there would be no difference in the emotional resource depletion rate in low egalitarians who suppress their emotions compared to those who do not. Hypothesis 3b is also supported.

Emotion suppression main effect. Interpretation of the emotion suppression main effect is qualified by the two-way interaction. Emotion Suppression was a significant causal antecedent ($b = .19$, $p = .02$), indicating individuals who carried out emotion suppression had higher scores on EoBA. However, the impact of Emotion Suppression changed according to different Egalitarian values. As seen in Figure 4, the emotion resource depletion effect leading to higher EoBA scores only occurred at high levels of Egalitarianism. Similar to the previous analysis with the full sample, items from the Modulation Strategy Questionnaire that assessed effort exerted in controlling emotions were again correlated with Expression of Bigoted Attitudes. The positive correlation ($r = .29$, $p = .01$) suggests as individuals exerted more effort

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in controlling their emotions, the greater was their EoBA scores. Thus, Hypothesis 1 was partially supported.

Egalitarianism main effect. Again, interpretation of this main effect is qualified by the significant two-way interaction effect. Egalitarianism was not a significant causal antecedent of EoBA ($b = -.10, p = \text{n.s.}; r = -.16, p = \text{n.s.}$). Thus, an increase in Egalitarian values did not lead to a significant decrease in EoBA scores. Unlike the full sample, Hypothesis 2 was not supported in this sample.

Regression Analyses within Gender.

As a final check, exploratory analyses were carried within the male and female samples. The goal of these analyses is to examine the extent to which the pattern of results generalized to both subgroups. As done with the previous model for the total sample, the main effects were entered into the model first followed by the interaction term.

EoBA Gender Effects for the Full Sample and Reduced Sample. Regression results for EoBA for the full sample are reported in Table 4 and for the reduced sample in Table 6. Descriptive statistics for the full sample appear in Table 5. EoBA scores were regressed onto Emotion Suppression, Egalitarianism and the two-way interaction within each gender subgroup. The concern is not in whether effects are significant within each subgroup, but rather on the similarity of result patterns within each subgroup. In the both gender subgroups for the full sample, the total variance accounted for was slightly greater than 10%; however, the pattern of effects was different. For females, the results were similar to the total sample in that there was a clear emotion suppression effect indicating greater bigotry in the suppression condition, and a general trend whereby egalitarianism was negatively related to bigotry. Almost all of the 10%

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of the variance accounted for in EoBA was due to the main effects (see Figure 5a). Excluding the seven low-scoring females showed no meaningful change in results (see Figure 6a)

In contrast, main effects accounted for less than 3% of the variance in bigotry for males, but the emotion suppression by egalitarianism interaction accounted for almost 8% of variance in bigotry (see Figure 5b). Excluding the three low-scoring males dramatically enhanced the interaction effect (see Figure 6b); the interaction accounted for almost 21% of the variance in bigotry in the reduced male sample. The results for both the total and reduced samples clearly indicate that gender is more than a covariate; instead, it appears to moderate the interaction between emotion suppression and egalitarianism. For males, evidence provides support for both hypotheses 3a and 3b. As for females, the results support hypotheses 1 and 2.

Other DivET Dimensions. Regression analyses for the Challenging and Ambivalent dimensions were also carried out on the female and male samples, and reported in Table 7. Egalitarianism was the only significant causal antecedent of Challenging scores for both genders, with the regression weights for females ($b = .47, p = .00$) and males ($b = .67, p = .00$) following the positive direction of the overall sample. For the Ambivalent model, none of the regression weights were significant in either subgroup, but the pattern of results for both subgroups was similar to the total sample, i.e., consistent with an emotion suppression main effect. Finally, the within-gender subgroup analysis was also carried out for the Challenging and Ambivalent scores. A majority of the results for both models were similar to the full sample.

Discussion

The main objective of this study was to examine how self-regulation influences subsequent expressions of racial bigotry. As the role of emotions in this process was of particular interest, ego depletion was conceptualized specifically as emotion resource depletion;

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that is, the state of depletion of regulatory resources an individual experiences after carrying out regulating emotions. Based on the strength model, self-regulation is understood as a limited but flexible resource; hence, self-regulation performance depends on both the intensity of a previous exertion and the willingness to maintain goal-directed behavior (Baumeister et. al., 2006).

Aligned with notion of flexibility, a revised version of the strength model now views ego depletion not as a complete exhaustion of self-regulatory resources, but as a decision made to stop allocating resources towards regulating behavior (Baumeister & Vohs, 2016b). Hence, individuals who are depleted from a previous self-regulation task are capable to effectively self-regulate is deemed necessary. This carries implications for the emotion resource depletion effect as discussed below.

Emotion Resource Depletion and Domain Specificity

Ego depletion is often discussed as a “domain-general” effect, such that self-regulation on a prior task leads to reduced self-regulation performance on an unrelated subsequent task (Muraven et. al., 1998). In the current study, the depletion task was specifically linked to the outcome task, i.e., participants watched violence perpetrated Whites against Blacks and then performed a subsequent task that afforded the opportunity to manifest bigotry. There were two reasons driving the decision to link the depletion task to the outcome task. First, given the debate about the robustness of the ego depletion effect (e.g., Carter, Kofler, Forster, & McCullough, 2015; Hagger et. al., 2016), the goal was to ensure that the depletion task effectively taxed emotional self-regulatory resources. Additionally, bigotry is difficult to elicit especially in the laboratory setting; linking the depleting and dependent task maximized the probability that bigotry manifested in the latter task. Thus, race-relevant social injustice videos were used to elicit strong emotional reactivity. Following recommendations of best practices for

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ego depletion research (Frieze, Loschelder, Gieseler, Frankenbach, & Inzlicht, 2018), a manipulation check of the emotion suppression task was carried out to assess self-reported effort to control emotions. There was a significant difference in self-reported effort for the emotion suppression task between the suppression and control condition; this provides evidence that the social injustice videos caused a sufficient level of emotional reactivity such that individuals in the suppression condition had to expend effort to suppress those emotions.

As to the second reason for linking the depletion task to the outcome task, emotions are interpreted depending on the relationship between a person and a certain context (Lazarus, 1982). As such, emotional resource depletion effects may be more likely when the depleting task is linked to the outcome task, i.e., a domain-specific depletion effect. Once a connection is established between the tasks, research questions become more interesting because moderators of the emotion suppression effect become readily available. Alternatively stated, questions about the robustness of the ego depletion effect are testable by identifying relevant moderator variables (cf. Loschelder & Frieze, 2016). In the current study, egalitarianism was chosen as a likely moderator due to its clear relevance to both reactivity to social injustice and expressions of bigotry.

The fundamental domain-specific argument in this study is that the depletion rate for emotional self-regulation is systematically related to egalitarianism. High egalitarianism participants in the emotion suppression condition were expected to experience the greatest depletion of emotional self-regulation capabilities, resulting in the counterintuitive expectation that the logical negative relationship between egalitarianism and EoBA scores would not be found in the emotion suppression condition.

Study Findings and Implications

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The results demonstrate clear evidence for an emotion resource depletion effect; individuals who suppressed their emotions showed greater bigotry, most likely due to an increased reliance on their implicit biases. However, interpretation of the results differ depending on whether only a main effect due to emotional suppression is considered, or if gender is also perceived to moderate the relationship between emotion suppression and egalitarianism.

Main effect of emotion resource depletion. Resource depletion was found to lead to greater manifestations of bigotry. Although the resources used to sustain self-regulation behavior are cognitive in nature (Heatherton & Baumeister, 1996), the study findings demonstrate how emotions have an important impact on the process of resource depletion too. This is a departure from many studies that investigate the connection between ego depletion and bigotry (e.g., Galliot et. al., 2007; Holoien & Shelton, 2012; Richeson & Shelton, 2003), as the tasks that are utilized often focus on the cognitive aspect of resource depletion. It is important to examine emotions in this context, as race-relevant issues are very salient in their emotional content. Different racial cues can elicit different experiences of emotions (Cottrell & Neuberg, 2005) and perceptions of emotional expressions (Zebrowitz, Kikuchi & Fellous, 2010).

Gender as a moderator. Additionally, the results indicate that males showed the predicted interaction effect in spite of the fact that there was a relatively small number of male participants. In contrast, females showed a consistent emotion resource depletion effect across all levels of egalitarian values. Thus, gender appeared to moderate the emotion suppression by egalitarianism interaction. The fundamental issue is whether the rate of ego depletion, i.e., the reactivity to the depletion task, varies as a function of individual differences. Although it is a counterintuitive result, the observed interaction effect aligns with the proposed causal

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mechanism that predicted the social injustice videos would be more depleting for high as opposed to low egalitarians. Interestingly, this was only observed in males.

As mentioned previously, successful self-regulation depends on two factors: ability to effectively self-regulate, and motivation to maintain self-regulation (Baumeister et. al., 2006). Observing the interaction effect in males could be a result of a failure in both aspects to promote effective self-regulation. In terms of ability, strong egalitarians may have needed to exert more effort to suppress their emotions in reaction to the social injustices presented, leaving them with fewer resources for the subsequent task. The emotional expressivity ratings that were coded from participant's behaviors underscores this argument, as there was a positive relationship between egalitarian values and how expressive individuals were rated. As for motivation, males were more willing to express more bigotry as indicated by the greater variance and higher means on their EoBA scores compared to females. This is not surprising, as females are less likely to express their prejudiced attitudes (Whitley, 1998). Furthermore, these gender differences found are not unique to this study but instead are consistent with findings from past administrations of the DivET. On both the military and student sample, males were found to have significantly higher mean EoBA scores than females (Hauenstein et. al., 2018). Perhaps males, who typically occupy a position of social privilege (McIntosh, 2007), do not view microaggressions with the same gravity as they do overt racial discrimination. This aligns with prior research that suggests that individuals in positions of privilege are less likely to perceive microaggressions as forms of subtle discrimination (Offermann et. al., 2014; Sue, Lin, Torino, Capodilupo, & Rivera, 2009). The overarching goal for sticking to socially prescribed norms and rejecting rationalizations of microaggressions was possibly less salient for males than it was for females; as a result, males who were depleted of their resources may have been less

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motivated to prevent their implicit biases from guiding their reactions. Their greater willingness to endorse bigoted responses made the interaction effect more apparent, compared to females who consistently had a higher threshold against endorsing the microaggressions.

Thus, the combination of exerting more effort due to egalitarian values and weaker motivational goals to reject microaggressions could be the reason emotion resource depletion was stronger amongst males high on egalitarianism. Even though everyone activated their knowledge of racial stereotypes with exposure to the social injustice videos, males with high egalitarian scores were less able to prevent their implicit biases from guiding their behavior. Thus, instead of exhibiting less bias, stronger egalitarian beliefs left males more susceptible to experiencing emotion resource depletion effects and subsequently expressing the most bigotry.

From a more macro approach, another reason contributing to the gender differences observed could be due to the action-oriented manner in which the EoBA responses are phrased. Individuals were instructed to rate the likelihood of not just thinking, but *actually* carrying out actions or verbalizing statements that supported the presented microaggression. As females tend to prioritize maintaining group harmony and are less associated with assertiveness as compared to men (Eagly & Wood, 1991) the structure of EoBA responses that are more confrontational in nature may not have comprehensively captured how females express their bigotry. Thus, though females may also be depleted, the emotion resource depletion effect as operationalized by the EoBA scores was more apparent with males.

Contextualizing Study Findings within the Current State of Ego Depletion Research

In the context of the ego depletion research as a whole, discussions about the fragility of the ego depletion effect has been rife over the past couple of years prompting many researchers to question its existence. On one hand, thinking about self-regulation ability as a function of the

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availability of limited resources is an intuitive argument. Many can attest to experiencing self-regulation failure on a personal level such as towards the end of a tiring day (Frieese et. al., 2018); additionally, studies conducted outside the typical laboratory setting have found evidence of the depletion effect, such as from hospitals (e.g., Dai, Milkman, Hoffmann, & Staats, 2015), schools (e.g., Sievertsen, Gino, & Piovesan, 2016) and voting centers (e.g., Augenblick & Nicholson, 2016). On the other hand, many researchers have failed to replicate the ego depletion effects in the laboratory. While Hagger et al's (2010) meta-analysis of ego depletion studies found evidence of a medium to large ego depletion effect, another meta-analysis by Carter, Kofler, Forster, and McCullough (2015) that corrected for publication bias and included unpublished studies found a null effect. The lack of evidence for ego depletion has been echoed by numerous other studies since (e.g. Etherton et. al., 2018; Lurquin et. al., 2016; Vadillo, Gold, & Osman, 2016) including a massive 23 multi-site lab replication effort by led by Hagger (Hagger et. al., 2016).

A complicating factor contributing to the inconsistency of this phenomenon is the wide variety of ego depletion tasks that are carried out, making it difficult to determine if the depleting and dependent tasks actually tap into processes that require self-regulatory resources (Etherton et. al., 2018; Frieese, et. al., 2018; Sripada, Kessler, & Jones, 2014). This is a reflection of a larger problem in the field; there is a need for a clearly articulated theory on what actually affects self-regulation, as the construct validity of tasks in terms of their ability to successfully deplete self-regulatory resources is often not known (Frieese et. al., 2018). In fact, a primary rebuttal that Baumeister and Vohs (2016) had in response to the null effect found in Hagger et. al's (2016) replication study was that the task employed was not a reliable method for depleting self-regulatory resources.

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Furthermore, failure to replicate the ego depletion effect is compounded by the fact that the tasks are centered on cognitive depletion and not emotion resource depletion. As mentioned previously, within bigotry-related research there is also a similar emphasis for using cognitive-based tasks to observe an ego depletion effect (e.g., Galliot et. al., 2007). In response to the controversy over ego depletion, Baumeister and Vohs (2016) urged researchers to broaden efforts into studying the emotional aspect of self-regulation in order to better understand the ego depletion effect. As evidenced by this study, ego depletion is a viable phenomenon when examined through emotion suppression. Future research should further explore other implications emotions may have on ego depletion, as the effect may not be as fragile as some argue it to be.

Additionally, ego depletion research is often studied in a domain-general sense, devoid of context. However, maintaining domain-specificity between the depleting and dependent tasks allows for an already robust emotion resource depletion effect to be even stronger. Continuity of context between tasks makes it easier to identify the boundaries of the effect, and also the contexts in which it is especially salient. Linking the two tasks together in this study created a context in which emotion resource depletion was so robust, that strong egalitarians (at least for males) behaved in counter-intuitive manner that would not be typically observed in any other setting. Thus, especially when studied in conjunction with outcomes that are difficult to capture accurately (i.e. social judgments), an ego depletion effect is likely observed not only when studied through emotion-related tasks but also when there is domain-specificity between the tasks.

Real World Implications

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The findings from this study can inform how efforts to reduce expressions of bigotry can be structured. First, all individuals need to be aware of the limits of their self-regulation abilities and that anyone can be susceptible to relying on their stereotypes to guide their social judgments. However, previous research has demonstrated how reminding the self of one's standards or value system can counteract self-regulation failure as individuals are motivated to allocating more regulatory resources to the current task (Wan & Sternthal, 2008). Thus, making the egalitarian standard of behavior salient could help mitigate the influence biases have on their behavior. Furthermore, carrying out emotion suppression as an emotion regulation strategy is a resource-consuming process. Not only can it result in self-regulation failure, but it also leads to increased physiological arousal in terms of cardiovascular (Richards & Gross, 1999) and sympathetic nervous system activity (Gross, 1998b). Hence, focus should be placed on training individuals to carry out better emotional coping strategies; for example, cognitive reappraisal is an emotion regulation strategy that decreases the intensity of negative emotional experiences and physiological responses to a situation (Gross, 1998a). Finally, just taking a break from carrying out self-regulation has been shown to be an effective method for allowing the replenishment of self-regulatory resources (Tyler & Burns, 2008). So taking the time to pause between social interactions may result in more effective self-regulation overall, especially when it comes to interracial interactions that are more taxing.

Limitations

As with any other research, this study was not without its limitations. Foremost is the recognition that the causal model was likely missing at least one important causal antecedent. This conclusion is based on the challenges of meeting the assumptions for regression analyses presented *and* the finding that results were stronger when individuals scoring at the minimum

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EoBA scores were removed from the analyses. Examples of individual differences that may provide a more complete understanding include the personality trait of agreeableness or perhaps individual differences in social desirability; either of these individual differences may lead to an overarching unwillingness to manifest any bigotry. Additionally, demand characteristics could be a possible situational explanation for the observed outcome. It is always challenging to measure and understand attitudes regarding sensitive issues, such as race. Although the study was designed to facilitate expressions of bigotry, the context remains a “strong situation” with normative prescriptions to avoid any evidence of personal bigotry.

Another limitation of this study was the sample, which consisted entirely of undergraduate Psychology students and was majority female. Despite the low power of the male sample however, the observed interaction effect aligned with the *a priori* prediction indicating the effect was in fact quite robust. Though unlikely, to ensure the observed outcomes was not due to sampling error, next steps for this study include collecting more male participants to obtain a more gender-balanced sample. Efforts are also underway to obtain funding to pay participants instead of relying on course credit for compensation, so that a more generalizable sample outside of the college setting can be collected.

Future Directions

Although the current study suggests the possibility of domain-specific depletion effects for emotion resource depletion, understanding is not complete without a test of the domain-general argument. Alternatively stated, would the emotion suppression effect occur if the depletion task is independent from the dependent task? If it does occur, then the suppression effect will be examined in conjunction with egalitarianism; additionally, gender will also be examined if it potentially moderates the egalitarianism by emotion suppression interaction

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effect. To this end, a replication study is currently in progress where instead of watching Whites cause physical harm to Blacks for the depletion task, participants will watch a video consisting of clips of especially violent mixed martial arts matches of both male and female fighters. These videos will portray extreme physical aggression and blood, but all matches are sanctioned mixed martial arts fights with a referee to ensure that rules are followed. Although emotionally disturbing, participants in the fights are there of their own free will and participants are treated fairly under the rules; thereby, providing a domain-general resource depletion task.

Conclusion

In conclusion, this study provides clear evidence that the ego depletion effect exists. Carrying out self-regulation in the form of emotion suppression can affect subsequent behavior, particularly in terms of how social judgments are made. Regardless of individual values held, everyone is susceptible to relying on their implicit biases and expressing more prejudice when they are depleted. In fact, in some cases strong egalitarians who suppress their emotions may express more bigotry. Thus, there should be an awareness of the limits of our self-regulatory abilities and understanding of the implications that carries into our social interactions.

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Tables and Figures

Table 1

Means and Standard Deviations of the SAM ratings from the 15 videos tested in the Pilot Study

Videos	Pleasure Ratings		Arousal Ratings	
	Means	S.D	Means	S.D
1	1.85	1.21	5.35	2.44
2	1.05	0.38	5.30	2.45
3	2.05	1.56	5.25	2.41
4	1.60	1.44	5.35	2.44
5	2.15	1.09	5.10	2.25
6	2.00	1.48	5.10	2.03
7	2.55	1.65	4.75	2.35
8	2.25	1.25	5.75	2.23
9	2.20	1.46	5.60	2.56
10	1.75	1.16	5.15	2.37
11	2.50	1.59	4.60	2.17
12	2.10	1.75	5.65	2.27
13	2.15	1.54	5.15	2.02
14	1.74	1.25	5.89	1.87
15	1.32	0.80	6.74	1.28

Note: n=20, except for video 14 and 15 where n=19.

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Table 2

Means, Standard Deviations, Reliabilities and Correlations for DivET Dimensions and Humanitarian-Egalitarian (HE) Scale

	<i>Mean</i>	<i>SD</i>	1	2	3	4	5	6
1. Gender	0.77	0.42	(-)					
2. Egalitarianism	4.71	0.63	.22*	(.82)				
3. EoBA	1.60	0.73	-.44**	-.20*	(.85)			
4. Log-transformed EoBA	0.17	0.17	-.45**	-.24*	.98**	(-)		
5. Challenging	5.41	1.80	.11	.53**	-.08	-.09	(.91)	
6. Ambivalent	5.05	1.50	-.08	-.08	.40**	.42**	.13	(.87)

Note. $N = 99$. EoBA represents the Expression of Bigoted Attitudes. Challenging and Ambivalent are the other two dimensions of the DivET. Males coded as 0, females coded as 1, and point-biserial correlations are reported for Gender. Cronbach's alpha are included in parentheses.

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

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Table 3

Regression Analyses between Expressions of Bigoted Attitudes (EoBA) with the Humanitarian-Egalitarian (HE) scale and Emotion Suppression, with Gender as a covariate

	EoBA	Challenging	Ambivalent	EoBA without minimum scores
	<i>b</i>	<i>b</i>	<i>b</i>	<i>b</i>
<i>Predictors</i>				
Gender	-.40**	.01	-.05	-.46**
Egalitarianism	-.15*	.52**	-.07	-.10
Emotion Suppression	.20*	-.02	.17*	.19*
Interaction	.10	.03	.10	.20*
R^2	.27	.28	.05	.34
Adjusted R^2	.24	.25	.01	.31

Note. $N = 99$. $N = 50$ for the emotion suppression condition and was effect-coded -1, $N = 49$ for the no emotion suppression condition and was effect-coded 1. Challenging and Ambivalent are the other two dimensions of the DivET.

$N = 82$ for EoBA without minimum scores. $N = 43$ for the emotion suppression condition, $N = 39$ for the no emotion suppression condition.

Standardized regression coefficients and significance according to the one-tailed t-test are reported in the table.

* $p < .05$ ** $p < .01$

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Table 4

Exploratory Regression Analyses for Gender Effects between Expressions of Bigoted Attitudes (EoBA) with the Humanitarian-Egalitarian (HE) scale

	EoBA	
	Females	Males
	<i>b</i>	<i>b</i>
<i>Predictors</i>		
Egalitarianism	-.19	-.14
Emotion Suppression	.24*	.27
R^2	.103	.026
Interaction	.03	.31
R^2 change	.001	.079

Note. Main effects were added together in the model first, followed by the interaction term. $N = 99$. $N = 50$ for the emotion suppression condition and was effect-coded -1, $N = 49$ for the no emotion suppression condition and was effect-coded 1. $N = 76$ females, $N = 23$ males.

* $p < .05$ ** $p < .01$

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Table 5

Means, Standard Deviations, and Correlations for DivET Dimensions and Humanitarian-Egalitarian (HE) Scale for Females and Males

	<i>Mean</i>	<i>SD</i>	1	2	3	4
<i>Females (N=76)</i>						
1. Egalitarianism	4.78	0.59	-			
2. Log-transformed EoBA	0.13	0.14	-.21*	-		
3. Challenging	5.52	1.78	.47**	-.06	-	
4. Ambivalent	4.98	1.53	-.08	.38**	.14	-
<i>Males (N=23)</i>						
1. Egalitarianism	4.47	0.69	-			
2. Log-transformed EoBA	0.31	0.18	-.05	-		
3. Challenging	5.04	1.84	.66**	-.01	-	
4. Ambivalent	5.26	1.38	-.02	.62**	.14	-

Note. $N = 99$. $N = 50$ for the emotion suppression condition and was effect-coded -1, $N = 49$ for the no emotion suppression condition and was effect-coded 1. $N = 76$ females, $N = 23$ males. EoBA represents the Expression of Bigoted Attitudes. Challenging and Ambivalent are the other two dimensions of the DivET. Males coded as 0, females coded as 1.

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

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Table 6

Exploratory Regression Analyses for Gender Effects between Expressions of Bigoted Attitudes (EoBA) without the minimum scores with the Humanitarian-Egalitarian (HE) scale

	EoBA without minimum scores	
	Females	Males
	<i>b</i>	<i>b</i>
<i>Predictors</i>		
Egalitarianism	-.07	-.28
Emotion Suppression	.27*	.26
R^2	.088	.011
Interaction	.12	.51*
R^2 change	.014	.205

Note. Main effects were added together in the model first, followed by the interaction term. $N = 82$. $N = 43$ for the emotion suppression condition and was effect-coded -1, $N = 39$ for the no emotion suppression condition and was effect-coded 1. $N = 62$ females, $N = 20$ males.

* $p < .05$ ** $p < .01$

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Table 7

Exploratory Regression Analyses for Gender Effects between other DivET dimensions with the Humanitarian-Egalitarian (HE) scale and Emotion Suppression

	Challenging		Ambivalent	
	Females	Males	Females	Males
	<i>b</i>	<i>b</i>	<i>b</i>	<i>b</i>
<i>Predictors</i>				
Egalitarianism	.47**	.67**	-.09	-.10
Emotion Suppression	.00	-.08	.11	.36
R^2	.219	.453	.023	.085
Interaction	-.003	.03	.11	.15
R^2 change	.000	.007	.011	.019

Note. $N = 99$. $N = 50$ for the emotion suppression condition and was effect-coded -1, $N = 49$ for the no emotion suppression condition and was effect-coded 1. $N = 76$ females, $N = 23$ males.

Challenging and Ambivalent are the other two dimensions of the DivET. Main effects were added together in the model first, followed by the interaction term. Standardized regression coefficients and significance according to the one-tailed t-test are reported in the table.

* $p < .05$ ** $p < .01$

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Figure 1a. Scatterplot of the Standardized Residuals against Standardized Predicted Values, using the aggregated values of Expression of Bigoted Attitudes (EoBA).

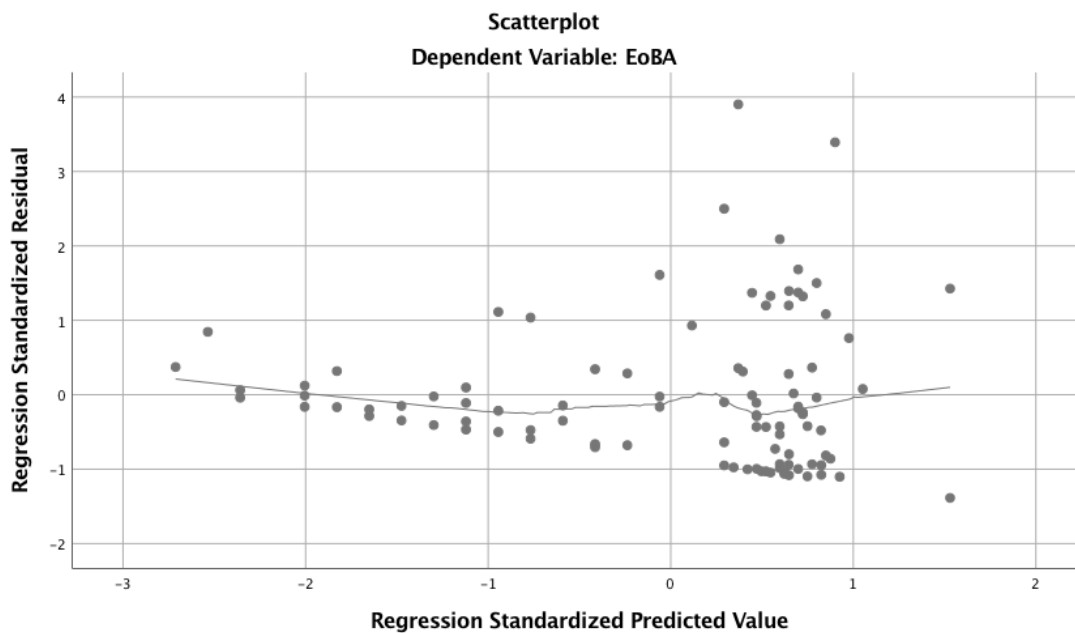
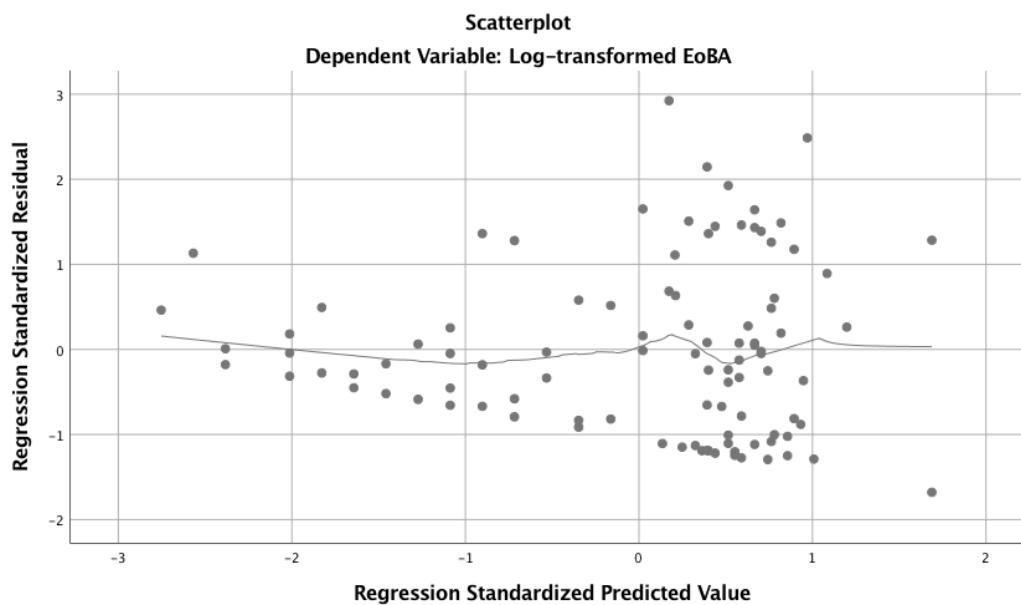


Figure 1b. Scatterplot of the Standardized Residuals against Standardized Predicted Values, using the log-transformed values of Expression of Bigoted Attitudes (EoBA).



EMOTION RESOURCE DEPLETION AND BIGOTRY

Figure 2a. Normal probability plot of the Standardized Residuals, using the aggregated values of Expression of Bigoted Attitudes (EoBA).

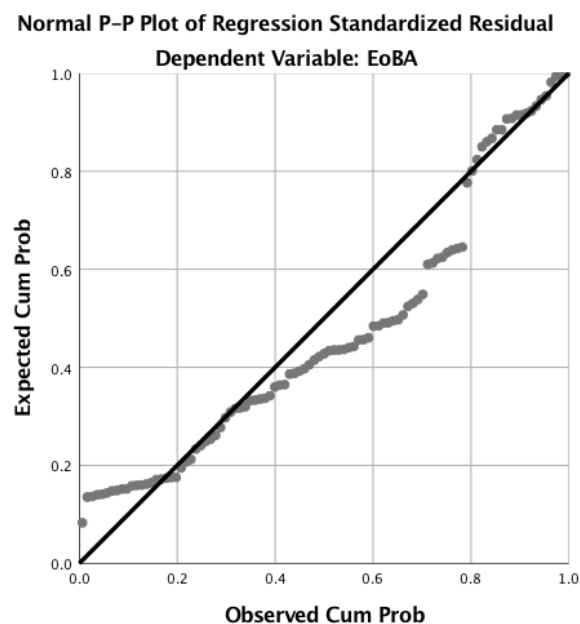
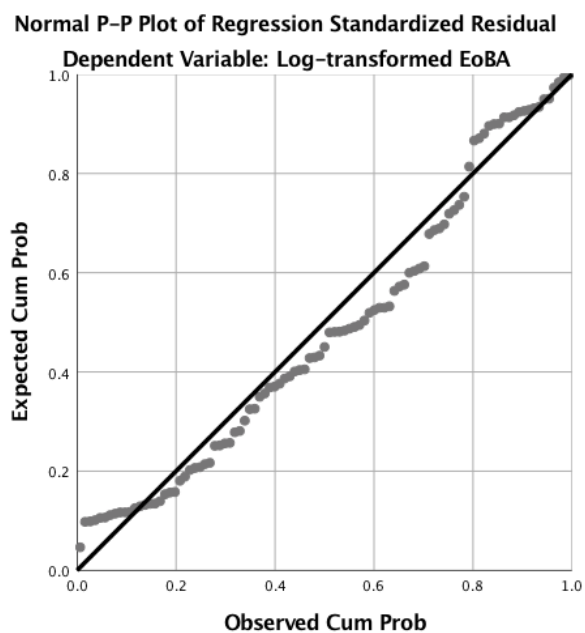


Figure 2b. Normal probability plot of the Standardized Residuals, using the log-transformed values of Expression of Bigoted Attitudes (EoBA).



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Figure 3a. Scatterplot of the Standardized Residuals against Standardized Predicted Values, using the log-transformed values of Expression of Bigoted Attitudes (EoBA), with Gender as a Covariate

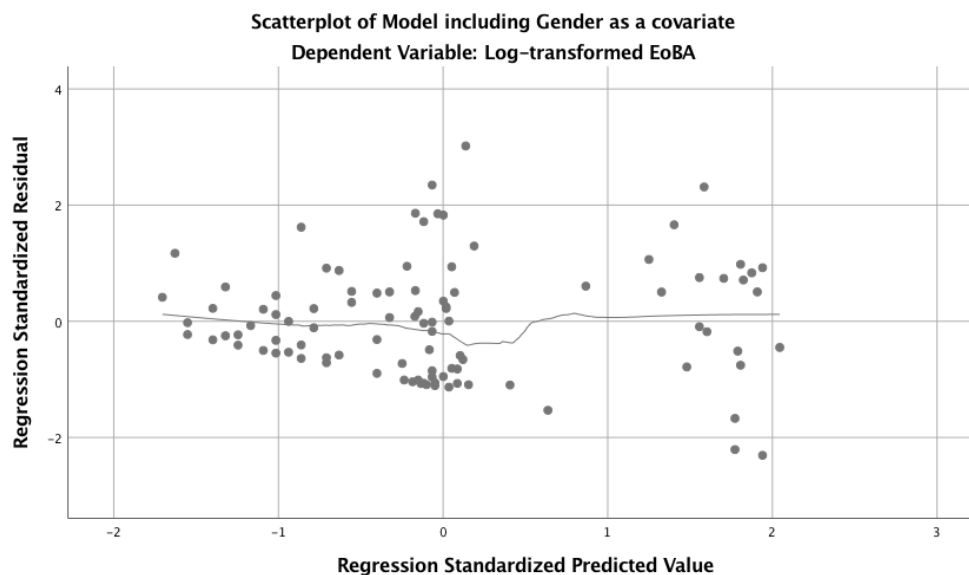


Figure 3b. Normal probability plot of the Standardized Residuals, using the aggregated values of Expression of Bigoted Attitudes (EoBA), with Gender as a Covariate

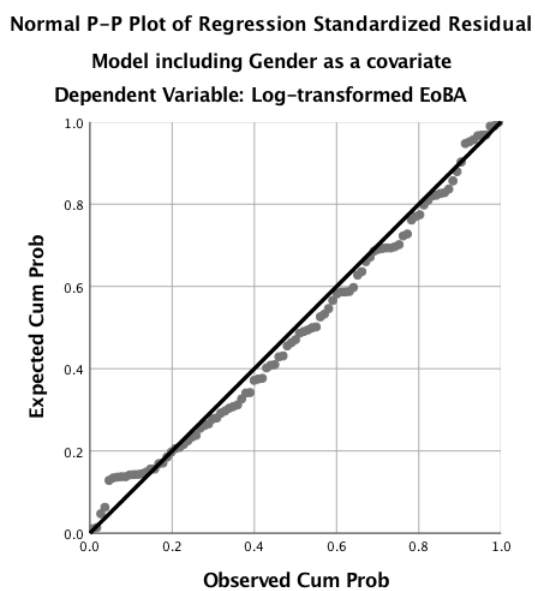
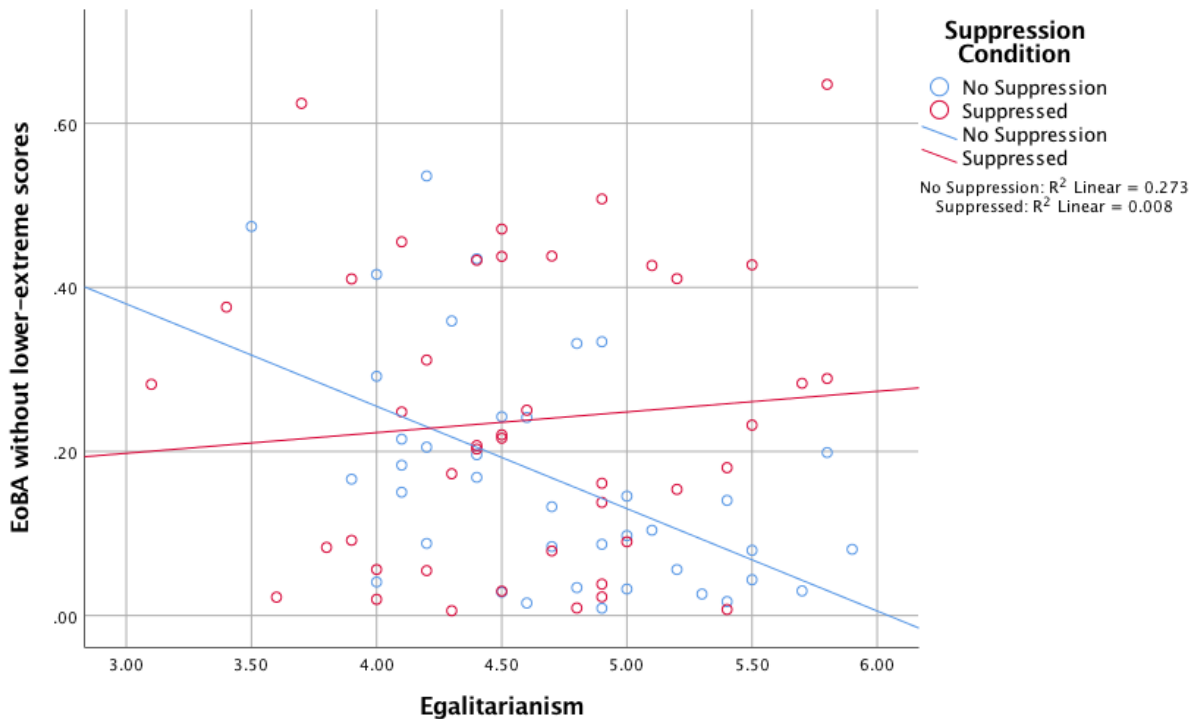


Figure 4. Graph of the Interaction Effect between Egalitarianism and Emotion Suppression on Expression of Bigoted Attitudes without minimum scores



EMOTION RESOURCE DEPLETION AND BIGOTRY

Figure 5a. Graph of the Interaction Effect between Egalitarianism and Emotion Suppression on Expression of Bigoted Attitudes for Females

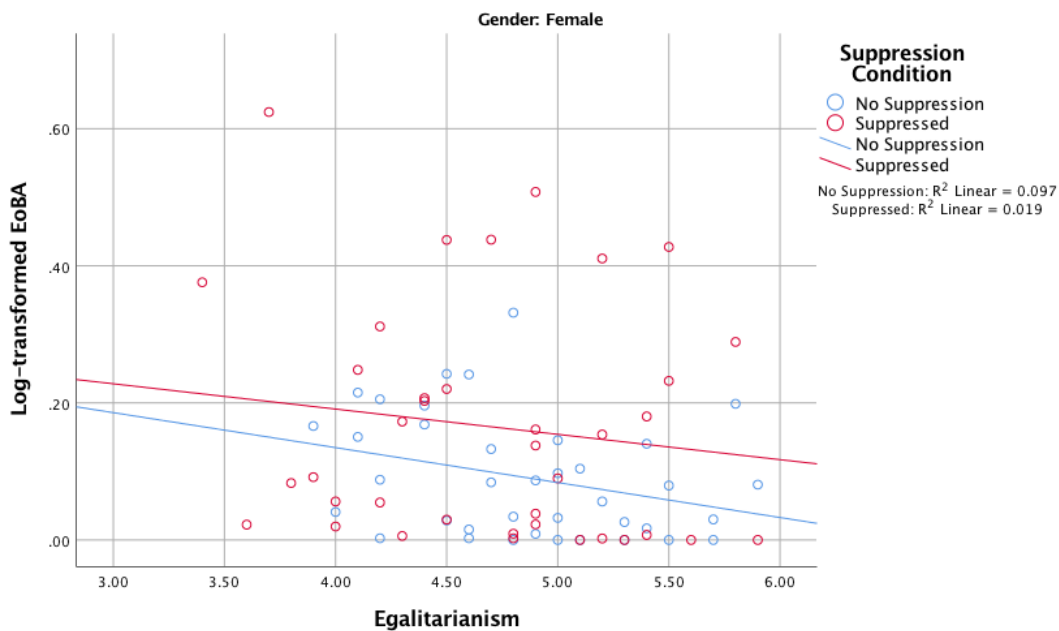
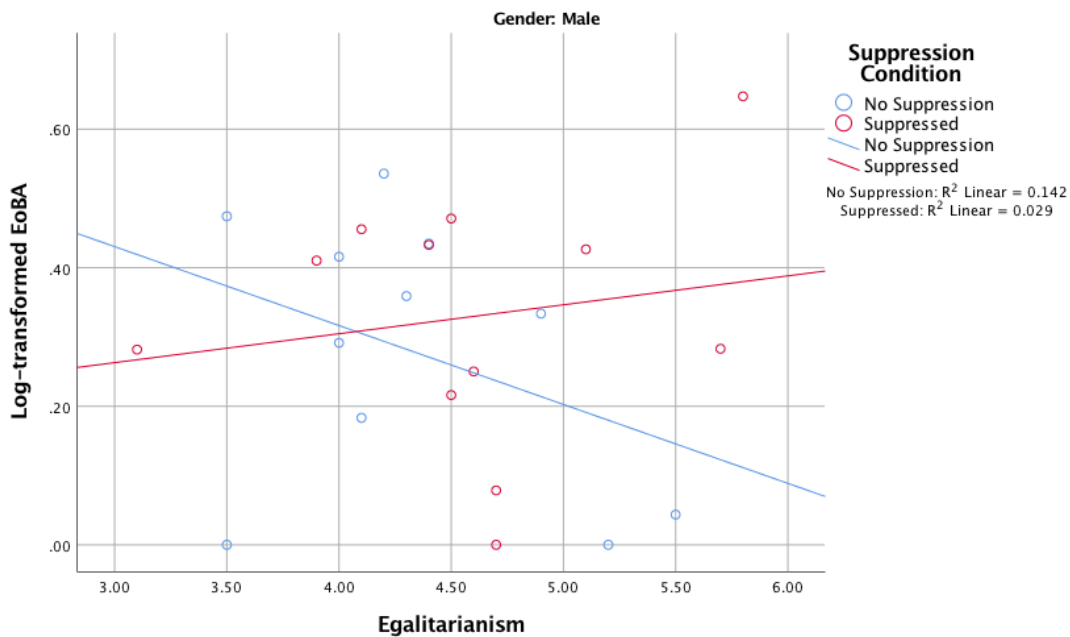


Figure 5b. Graph of the Interaction Effect between Egalitarianism and Emotion Suppression on Expression of Bigoted Attitudes for Males



EMOTION RESOURCE DEPLETION AND BIGOTRY

Figure 6a. Graph of the Interaction Effect between Egalitarianism and Emotion Suppression on Expression of Bigoted Attitudes without minimum scores for Females

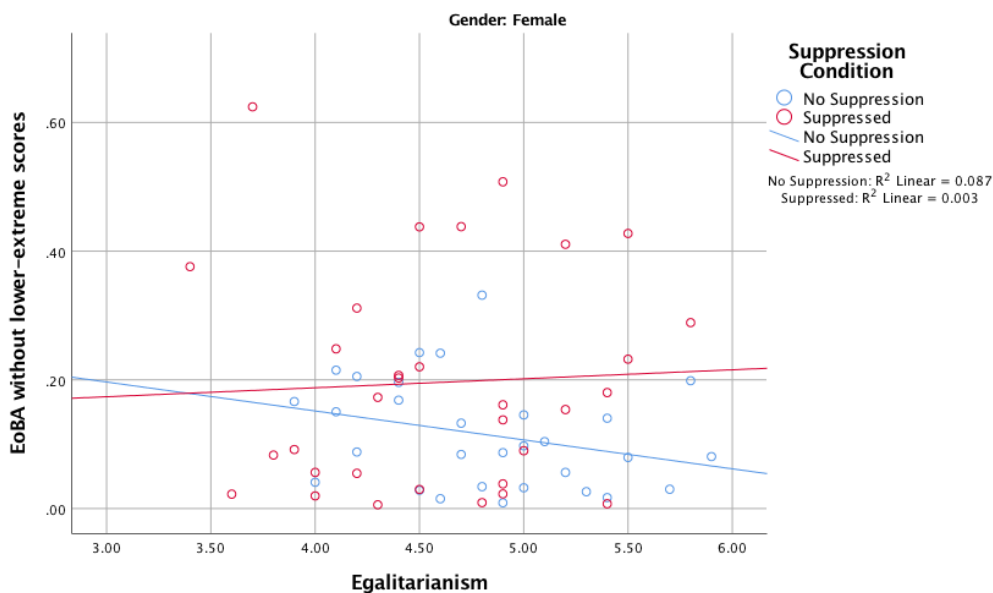
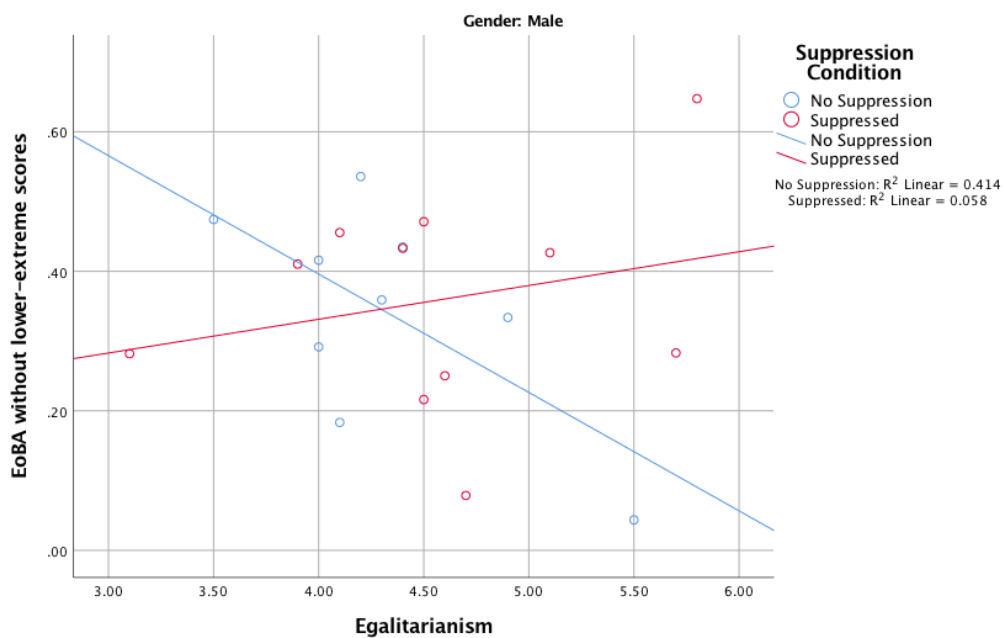


Figure 6b. Graph of the Interaction Effect between Egalitarianism and Emotion Suppression on Expression of Bigoted Attitudes without minimum scores for Males



Appendices

APPENDIX A

INFORMED CONSENT FORM, PILOT STUDY

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Informed Consent for Participants in Research Projects Involving Human Subjects

Title of Project: Pilot Study to Assess Emotional Impact of Social Injustice Videos

Investigator(s): Neil Hauenstein, Ph.D nhauen@vt.edu

Elsheba K. Abraham, B.A elsheba@vt.edu/ 608-772- 9795

I. Purpose of this Research Project

The purpose of this pilot study is to assess your emotional reactions to videos depicting physical aggression toward African-Americans by those in positions of authority. This pilot study is part of a larger project that will investigate the different factors affecting self-control in the context of racial discrimination. You will rate your emotional responses to each video, and interviewed on your reactions in order to select the videos that have the greatest emotional impact. These selected videos will then be used for the full study. Results collected from the full study will be used for thesis project purposes, and may be used further for publication and conference presentations in the future. Around 20 participants will be recruited for this pilot study, and all participants will be Virginia Tech students aged 18 years and older and must be proficient in English.

II. Procedures

If you choose to participate, you will be contacted by the experimenter to come into the lab in Williams Hall for the pilot study. You will meet the experimenter at the scheduled time where the experiment procedures will be explained again in person.

Once all your questions and concerns have been addressed, you will watch fifteen short social injustice videos ranging about 1-1.5 minutes each. Before the screening of each clip, there will be a brief description of the video's context in addition to a reminder that you can ask the experimenter to stop the video at any time. The clips will contain various forms of violence including beatings, shootings, and deaths of individuals as filmed by surveillance videos, dashboard cameras, and observers.

After each video clip, you will rate your immediate emotional reactions on a short survey. Following the screening of all clips, you will be interviewed by the experimenter to record your general responses on the emotional content of all the videos and any other additional feedback you may have. Once the interview is over, you will be debriefed by the experimenter and have a chance to communicate any remaining concerns or questions that you may have.

EMOTION RESOURCE DEPLETION AND BIGOTRY

Finally, you will watch a 3-minute mindfulness video to help you relax and potentially address any lingering emotional reactions you may have from watching the videos. The entire session should take no more than 45 minutes, and the information collected from this pilot study will be analyzed to select the most appropriate videos for the full study.

III. Risks

One potential risk is the emotional discomfort experienced while watching the video clips. Not only are acts of physical aggression depicted, many clips also contain emotional and stressful responses by the victims and other observers (e.g crying, wailing, shouting, running). The videos can also potentially trigger negative reactions from past traumatic events of injustice. You are free to leave the study at any point for any reason, and will be reminded of that option before the screening of every video clip. As an effort to address the emotional risks involved with the study, a 3-minute mindfulness video will be screened at the end of the experiment. Mindfulness is a form of meditation often used to reduce stress and anxiety levels; by completing this activity, it is hoped that you may be able to gain a sense of calm after the emotional reactions experienced due to the social injustice videos.

If additional counseling or medical treatment is needed as a result of the study, participants can seek help from the Cook Counseling Center or Schiffert Health Center on campus. Any additional expenses incurred will be shouldered by you.

IV. Benefits

Your participation will aid in understanding the different emotional impact resulting from viewing various instances of social injustice present in our culture. Additionally, it will also contribute with the overall purpose of the larger study for examining the different factors that can affect self-control capacity and subsequent behavior in the context of racial discrimination. No promise or guarantee of benefits has been made to encourage you to participate.

V. Extent of Anonymity and Confidentiality

Your identity as a participant will be kept completely confidential. Any hard copies of data (completed data collection sheets) will be kept in a locked file cabinet in a double-locked office, and soft copies of data will be kept on locked computers requiring passwords to access them. Only the researchers listed on this study will have access to the de-identified data.

The Virginia Tech (VT) Institutional Review Board (IRB) may view the study's data for auditing purposes. The IRB is responsible for the oversight of the protection of human subjects involved in research.

VI. Compensation

You will receive 1 extra credit point for completing the study, which can be allotted to any psychology course of their choice. If you show up for the study but choose to withdraw before

EMOTION RESOURCE DEPLETION AND BIGOTRY

finishing for any reason, you will still be awarded with full extra credit compensation. The extra credit point will be assigned by the experimenter to the participating student through the online credit management system, SONA.

VII. Freedom to Withdraw

It is important for you to know that you are free to withdraw from this study at any time without penalty. You are free not to answer any questions that you choose or respond to what is being asked of you without penalty. Please note that there may be circumstances under which the experimenter may determine that a subject should not continue as a subject.

Should you withdraw or otherwise discontinue participation, you will be compensated for the portion of the project completed in accordance with the Compensation section of this document.

VIII. Questions or Concerns

Should you have any questions about this study, you may contact one of the research investigators whose contact information is included at the beginning of this document.

Should you have any questions or concerns about the study's conduct or your rights as a research subject, or need to report a research-related injury or event, you may contact the Virginia Tech Institutional Review Board at irb@vt.edu or (540) 231-3732.

IX. Subject's Consent

I have read the Consent Form and conditions of this project. I have had all my questions answered. I hereby acknowledge the above and give my voluntary consent:

_____ Date _____
Subject signature

Subject printed name

(Note: each subject must be provided a copy of this form. In addition, the IRB office may stamp its approval on the consent document(s) you submit and return the stamped version to you for use in consenting subjects; therefore, ensure each consent document you submit is ready to be read and signed by subjects.)

APPENDIX B

PILOT STUDY LIST OF SOCIAL JUSTICE VIDEOS

1. Rodney King beating
2. Philando Castile shooting
3. Eric Harris shooting
4. Terence Walker shooting
5. Richard Hubbard III beating
6. Eric Garner fatal arrest
7. Nania Cain beating
8. Jacqueline Craig & Children assault
9. Keith Lamont Scott shooting
10. Terence Crutcher shooting
11. Samuel DuBose shooting
12. David Eric Casebolt – the cop and the teenage pool party incident
13. Walter Scott death
14. Kajieme Powell shooting
15. Jason Harrison shooting

APPENDIX C

SELF-ASSESSMENT MANIKIN (SAM)

Self-Assessment Manikin (SAM)

adapted from Lang, Bradley & Cuthbert (2008)

Instructions:

If you'll look at the sheet, you will see 2 sets of 5 figures, each arranged along a continuum. We call this set of figures SAM, and you will be using these figures to rate how you felt while viewing each video clip. You will use one page-- make all 2 ratings -- for each video clip that you watch. SAM shows three different kinds of feelings: Happy vs. Unhappy and Excited vs. Calm. Each SAM figure varies along each scale.

Pleasure Dimension

The first SAM scale is the happy-unhappy scale, which ranges from a smile to a frown. At one extreme of the happy vs. unhappy scale, you felt happy, pleased, satisfied, contented, hopeful. If you felt completely happy while viewing the clip, you can indicate this by placing an "X" over one of the figures towards the right. The other end of the scale is when you felt completely, unhappy, annoyed, unsatisfied, melancholic, despaired, bored. You can indicate feeling completely unhappy by placing an "X" on one of the figures on the left. The figures also allow you to describe intermediate feelings of pleasure, by placing an "X" over any of the other pictures. If you felt completely neutral, neither happy nor sad, place an "X" over the figure in the middle. If, in your judgment, your feeling of pleasure or displeasure falls between two of the pictures, then place an "X" between the figures. This permits you to make more finely graded ratings of how you feel in reaction to the pictures.

Arousal Dimension

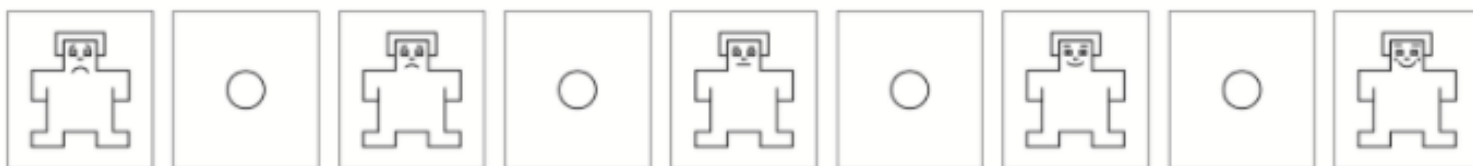
The next dimension displayed is the excited vs. calm dimension. Choose a figure towards the right extreme if you felt stimulated, excited, frenzied, jittery, wide-awake, aroused, and one towards the left if you felt completely relaxed, calm, sluggish, dull, sleepy, unaroused. As with the happy-unhappy scale, you can represent intermediate levels by placing an "X" over any of the other figures. If you are not at all excited nor at all calm, place an "X" over the figure in the middle of the row. Again, if you wish to make a more finely tuned rating of how excited or calm you feel, place an "X" between the pictures.

EMOTION RESOURCE DEPLETION AND BIGOTRY

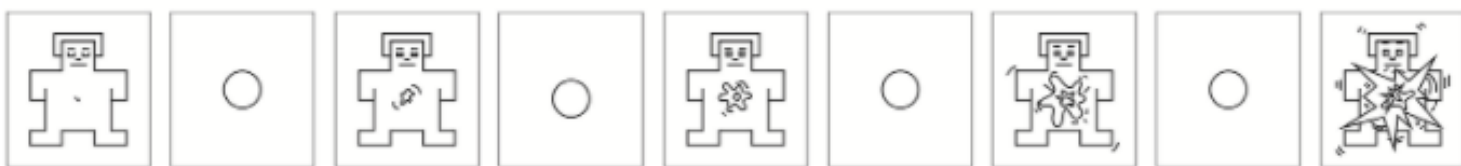
SELF-ASSESSMENT MANIKIN

Your rating of each picture should reflect your immediate personal experience, and no more. Please rate each one AS YOU ACTUALLY FELT WHILE YOU WATCHED THE VIDEO. Please note that the 2 dimensions are not presented in the same order on each page of the ratings booklet. This is to help prevent any bias on the results.

VIDEO ID: _____

PLEASURE

Unhappy
Happy

AROUSAL

Calm

Excited

EMOTION RESOURCE DEPLETION AND BIGOTRY

APPENDIX D

PILOT STUDY RATING OF SOCIAL JUSTICE VIDEOS

Please circle the videos you think apply to that category. The number of videos selected for each category don't need to be even, just make sure there is no overlap between the three categories.

Very Emotional

Rodney King beating	Philando Castile shooting	Eric Harris shooting	Terence Walker shooting	Richard Hubbard III beating
Eric Garner fatal arrest	Nania Cain beating	Jacqueline Craig & Children assault	Keith Lamont Scott shooting	Terence Crutcher shooting
Samuel DuBose shooting	Officer David Casebolt – arrest of teenagers	Walter Scott death	Kajieme Powell shooting	Jason Harrison shooting

Moderately Emotional

Rodney King beating	Philando Castile shooting	Eric Harris shooting	Terence Walker shooting	Richard Hubbard III beating
Eric Garner fatal arrest	Nania Cain beating	Jacqueline Craig & Children assault	Keith Lamont Scott shooting	Terence Crutcher shooting
Samuel DuBose shooting	Officer David Casebolt – arrest of teenagers	Walter Scott death	Kajieme Powell shooting	Jason Harrison shooting

Least Emotional

Rodney King beating	Philando Castile shooting	Eric Harris shooting	Terence Walker shooting	Richard Hubbard III beating
Eric Garner fatal arrest	Nania Cain beating	Jacqueline Craig & Children assault	Keith Lamont Scott shooting	Terence Crutcher shooting
Samuel DuBose shooting	Officer David Casebolt – arrest of teenagers	Walter Scott death	Kajieme Powell shooting	Jason Harrison shooting

APPENDIX E

PILOT STUDY INTERVIEW QUESTIONS

1. Please rank all the clips watched into three categories. The number of videos in each category do not need to be even, just sort them based on your overall impression. Just make sure you don't rate the same video in two different categories.
 - a. Least emotional
 - b. Moderately emotional
 - c. Very emotional
2. Did you feel the screenshots were helpful in identifying the videos that you watched?
3. How did you feel after watching the videos? Just describe your overall emotional reactions as you watched the videos.
4. For the videos you categorized as "very emotional", why did you do so?
5. Had you seen any of the video clips before?
 - a. If yes, do you think you had less of an emotional impact watching it again?
6. How did you feel about the length of the overall video compilation?
 - a. Did you have any specific opinions about the length for any of the clips in particular that you watched?
7. What did you think about the sound quality of the video clips?
 - a. Do you think subtitles should be added?
8. Besides the sensitive nature of the clips, were there anything else you found potentially triggering or harmful to future viewers?
9. Do you have any other general feedback for the experimenter?
 - a. This includes any suggestions regarding the overall compilation of the videos, or on specific clips.

APPENDIX F

PILOT STUDY DEBRIEFING FORM

Accessing Emotional Impact of Social Injustice VideosWhat was the goal of this study?

The purpose of this study is to examine the emotional impact of videos depicting various social injustice issues suffered by African-Americans. I will use the feedback I receive about the videos to obtain a selection of videos that are the most emotionally impactful. Those selected videos will then be used for the next phase of the study.

This pilot study is part of a larger study that aims to understand how the availability of self-control resources can affect behavior in the context of racial discrimination. Discrimination research indicates that stereotypic judgments result from mental shortcuts that our brains take; when we lack self-control resources, we are more likely to make prejudiced decisions no matter what our racial attitudes may be. Previous studies that examine self-control resources have found that our resources are limited, and that if we carry out self-control in one task we will have fewer resources to carry out self-control effectively on another task. Many studies often use emotion regulation as a method of self-control. Emotion suppression, or maintaining a neutral facial expression while watching upsetting videos requires self-control; thus, carrying this out leaves fewer self-control resources for subsequent tasks.

Thus, it is important that I find out from my pilot study which videos have the greatest emotional impact; this will increase the likelihood that my emotion regulation manipulation in the next part of the study will be effective.

How was this tested?

In this study, you were asked to watch a series of 15 different videos all portraying some form of physical aggression on African-Americans by individuals in positions of authority. You then rated your immediate emotional reactions after each video on a short questionnaire. After all the videos, you were then interviewed to find out more detailed reactions you had about the videos and which ones you found the most emotionally impactful. All participants completed the study in the same way, except that the order of the videos shown was randomized to avoid any potential ordering effects.

Why is this important to study?

This pilot study reveals the different emotional reactions that can be elicited from instances of social injustice. While we may encounter social injustice in our life or through media, we may not often have the opportunity to examine our reactions, communicate them, or assess how we are affected emotionally. Understanding how we control our emotional reactions in response to

various depictions of social injustice can provide insight to how our self-control resources can be impacted differently.

What if I want to know more?

If you are interested in learning more about the limited self-control resources that we have, effects of emotion regulation, and the impact on discriminatory behavior, you can read:

1. Baumeister, R. F., Bratslavsky, E., Muraven, M., & Tice, D. M. (1998). Ego depletion: Is the active self a limited resource?. *Journal of personality and social psychology*, 74(5), 1252.
2. Muraven, M. (2008). Prejudice as Self-Control Failure. *Journal of Applied Social Psychology*, 38(2), 314-333.

If you would like to receive a report of this research when it is completed (or a summary of the findings), please contact Elsheba Abraham at elsheba@vt.edu.

If you have concerns about your rights as a participant in this experiment, please contact the Virginia Tech IRB at (540) 231-3732.

Thank you again for your participation.

APPENDIX G

INFORMED CONSENT FORM, THESIS STUDY: ONLINE PRE-TEST

**Informed Consent: Studying Self-Regulation through Emotions: Online Portion
IRB Approval: 18-173**

Thank you for your interest in this study. Before choosing to participate, please read the consent form below and click on the "I Agree" button at the bottom of the page if you understand the statements and freely consent to participate in the study:

Purpose The overall purpose this thesis study is to understand the role of self-regulation of emotions on subsequent behavior, and how that is influenced by different traits and beliefs that individuals have.

Procedure Today you will complete one online survey consisting of several questionnaires that pertain to your personality traits, affective traits, and value system. You will also fill out a short demographic survey. Participation in the study will take no longer than 1-hour and your results will be kept anonymous. Once you submit your answers, you may be notified to participate in the second part of the study conducted in the lab. You will have a chance to review experimental procedures then before you decide to proceed.

Risks There are no more than minimal risks involved in participation in this portion of the study.

Benefits There is potential for you to assess your personal opinions and traits as you respond to the various surveys. No promise or guarantee of benefits has been made to encourage you to participate.

Compensation Undergraduate students will be compensated for participating in this phase of the study by receiving 1 point of extra credit towards Introduction to Psychology or a psychology course of their choice.

Extent of Confidentiality of Subjects Your response will be kept strictly confidential. Only the principle investigator and the researchers identified on this IRB will have access to your responses. The soft copies of the data will be kept on locked computers requiring passwords to access them, and will be kept for 10 years.

EMOTION RESOURCE DEPLETION AND BIGOTRY

The Virginia Tech (VT) Institutional Review Board (IRB) may view the study's data for auditing purposes. The IRB is responsible for the oversight of the protection of human subjects involved in research.

Freedom to Withdraw You are free to withdraw your consent and terminate your participation at any time. Withdrawing from the study will not cause you any penalty or trouble. You are also free to decline to answer any specific items on the survey.

Questions Concerning Research Should you have any questions about this research its conduction, you may contact:

Researchers:

Neil Hauenstein, Ph.D. 540-231-5716 nhauen@vt.edu

Elsheba Abraham, B.A 608-772-9795 elsheba@vt.edu

Should you have any questions or concerns about the study's conduct or your rights as a research subject, or need to report a research-related injury or event, you may contact the Virginia Tech Institutional Review Board at irb@vt.edu or (540) 231-3732.

Approval of Research This research has been approved, as required, by the Human Subjects Committee of the Psychology Department and by the Institutional Review Board for Research Involving Human Subjects at Virginia Tech.

Subject's Consent If you are 18 years of age or older, understand the statements above, and freely consent to participate in the study, click on the "I Agree" button to begin the experiment.

APPENDIX H

ONLINE PRE-TESTS

Positive and Negative Affective Schedule

This scale consists of a number of words that describe different feelings and emotions. Read each item and then click and drag to respond to the appropriate answer.

1. Indicate to what extent you generally feel this way, that is, how you feel on average. Rate yourself on 1(Very Slightly or Not at All), 2(A Little), 3(Moderately), 4(Quite a Bit), and 5(Extremely).

Interested _____

Distressed _____

Excited _____

Upset _____

Strong _____

Guilty _____

Scared _____

Hostile _____

Enthusiastic _____

Proud _____

Irritable _____

Alert _____

Ashamed _____

Inspired _____

Nervous _____

Determined _____

Attentive _____

Jittery _____

Active _____

Afraid _____

Mini-International Personality Item Pool (Mini-IPIP)

Rate the extent to which you agree with the following items from 1(Strongly Disagree), 2(Disagree), 3(Neutral), 4(Agree), and 5(Strongly Agree):

EMOTION RESOURCE DEPLETION AND BIGOTRY

1. I am the life of the party.
2. I sympathize with others' feelings.
3. I get chores done right away.
4. I have frequent mood swings.
5. I have a vivid imagination.
6. I don't talk a lot.
7. I am not interested in other people's problems.
8. I often forget to put things back in their proper place.
9. I am relaxed most of the time.
10. I am not interested in abstract ideas.
11. I talk to a lot of different people at parties.
12. I feel others' emotions.
13. I like order.
14. I get upset easily.
15. I have difficulty understanding abstract ideas.
16. I keep in the background.
17. I am not really interested in others.
18. I make a mess of things.
19. I seldom feel blue.
20. I do not have a good imagination.

Humanitarian-Egalitarianism (HE) Scale

Rate the extent to which you agree with the statements below from *1(Strongly Disagree)*, *2(Slightly Disagree)*, *3(Disagree)*, *4(Agree)*, *5(Slightly Agree)* and *6(Strongly Agree)*:

1. One should be kind to all people.
2. One should find ways to help others less fortunate than oneself.
3. A person should be concerned about the well-being of others.
4. There should be equality for everyone—because we are all human beings.
5. Those who are unable to provide for their basic needs should be helped by others.
6. A good society is one in which people feel responsible for one another.
7. Everyone should have an equal chance and an equal say in most things.
8. Acting to protect the rights and interests of other members of the community is a major obligation for all persons.
9. In dealing with criminals the courts should recognize that many are victims of circumstances.

10. Prosperous nations have a moral obligation to share some of their wealth with poor nations.

Right-Wing Authoritarian (RWA) Scale

Please rate the statements below from 1(Very Negative) to 7(Very Positive):

1. Our country needs a powerful leader, in order to destroy the radical and immoral currents prevailing in society today.
2. Our country needs free thinkers, who will have the courage to stand up against traditional ways, even if this upsets many people.
3. The "old-fashioned ways" and "old-fashioned values" still show the best way to live.
4. Our society would be better off if we showed tolerance and understanding for untraditional values and opinions.
5. God's laws about abortion, pornography, and marriage must be strictly followed before it is too late, violations must be punished.
6. The society needs to show openness towards people thinking differently, rather than a strong leader, the world is not particularly evil or dangerous.
7. It would be best if newspapers were censored so that people would not be able to get hold of destructive and disgusting material.
8. Many good people challenge the state, criticize the church and ignore "the normal way of living."
9. Our forefathers ought to be honored more for the way they have built our society, at the same time we ought to put an end to those forces destroying it.
10. People ought to put less attention to the Bible and religion, instead they ought to develop their own moral standards.
11. There are many radical, immoral people trying to ruin things; the society ought to stop them.
12. It is better to accept bad literature than to censor it.
13. Facts show that we have to be harder against crime and sexual immorality, in order to uphold law and order.
14. The situation in the society of today would be improved if troublemakers were treated with reason and humanity.
15. If the society so wants, it is the duty of every true citizen to help eliminate the evil that poisons our country from within.

Motivation to Control Prejudice (MTCP)

EMOTION RESOURCE DEPLETION AND BIGOTRY

Please rate the extent to which you agree or disagree with the statements below from -3 (Strongly Disagree) to 3 (Strongly Agree) :

1. In today's society it is important that one not be perceived as prejudiced in any manner.
2. I always express my thoughts and feelings, regardless of how controversial they might be.
3. I get angry with myself when I have a thought or feeling that might be considered prejudiced.
4. If I were participating in a class discussion and a Black student expressed an opinion with which I disagreed, I would be hesitant to express my own viewpoint.
5. Going through life worrying about whether you might offend someone is just more trouble that it's worth.
6. It's important to me that other people not think I'm prejudiced.
7. I feel it's important to behave according to society's standards.
8. I'm careful not to offend my friends, but I don't worry about offending people I don't know or don't like.
9. I think that it is important to speak one's mind rather than to worry about offending someone.
10. It's never acceptable to express one's prejudices.
11. I feel guilty when I have a negative thought or feeling about a Black person.
12. When speaking to a Black person, it's important to me that he/she not think I'm prejudiced.
13. It bothers me a great deal when I think I've offended someone, so I'm always careful to consider other people's feelings.
14. If I have a prejudiced thought or feeling, I keep it to myself.
15. I would never tell jokes that might offend others.
16. I'm not afraid to tell others what I think, even when I know they disagree with me.
17. If someone who made me uncomfortable sat next to me on a bus, I would not hesitate to move to another seat.

Emotional Expressiveness Questionnaire (EEQ)

Please rate the statements below from 1(Never) to 7(Frequently):

1. I often tell people that I love them.
2. I show that I like someone by hugging or touching that person.
3. I often touch friends during conversations.
4. Watching television or reading a book can make me laugh out loud.
5. I laugh a lot.
6. When I am angry people around me usually know.

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7. People can tell from my facial expressions how I am feeling.
8. Whenever people do nice things for me, I feel "put on the spot" and have trouble expressing my gratitude.
9. When I really like someone they know it.
10. I often laugh so hard that my eyes water or my sides ache.
11. When I am alone, I can make myself laugh by remembering something from the past.
12. My laugh is soft and subdued.
13. If a friend surprised me with a gift, I wouldn't know how to react.
14. I apologize when I have done something wrong.
15. If someone makes me angry in a public place, I will "cause a scene."
16. I always express disappointment when things don't go as I'd like them to.

Emotion Regulation Questionnaire (ERQ)

Please rate the statements below from 1(Strongly Disagree) to 7(Strongly Agree):

1. I control my emotions by changing the way I think about the situation I'm in.
2. When I want to feel less negative emotion, I change the way I'm thinking about the situation.
3. When I want to feel more positive emotion, I change the way I'm thinking about the situation.
4. When I want to feel more positive emotion (such as joy or amusement), I change what I'm thinking about.
5. When I want to feel less negative emotion (such as sadness or anger), I change what I'm thinking about.
6. When I'm faced with a stressful situation, I make myself think about it in a way that helps me stay calm.
7. I control my emotions by not expressing them.
8. When I am feeling negative emotions, I make sure not to express them.
9. I keep my emotions to myself.
10. When I am feeling positive emotions, I am careful not to express them.

Demographics Questionnaire

1. Please indicate your age in exact years on the slider below
2. Please indicate your gender below:
 - a. Female
 - b. Male
 - c. Transgender

EMOTION RESOURCE DEPLETION AND BIGOTRY

- d. If not listed above, please specify
3. Are you a U.S. citizen?
- a. Yes
 - b. No
4. Please indicate your race/ethnicity below:
- a. Asian-American
 - b. African-American
 - c. Caucasian
 - d. Hispanic/Latinx
 - e. Native-American
 - f. Multiracial, please specify
 - g. If not listed above, please specify

APPENDIX I

INFORMED CONSENT FORM, THESIS STUDY: IN-LAB

RESEARCH SUBJECT CONSENT FORM

Title: Studying Self-Regulation through Emotions: In-Lab Portion
Protocol No.: NONE
Sponsor: NONE
Investigator: **PI:** Neil Hauenstein
 Co-Investigator: Elsheba Abraham
 Williams Hall, Drillfield Drive
 Blacksburg, VA, 24060
 United States
Daytime Phone Number: 608-772-9795
24-hour Phone Number: N/A

You are being invited to take part in a research study. A person who takes part in a research study is called a research subject, or research participant.

What should I know about this research?

- Someone will explain this research to you.
- This form sums up that explanation.
- Taking part in this research is voluntary. Whether you take part is up to you.
- You can choose not to take part. There will be no penalty or loss of benefits to which you are otherwise entitled.
- You can agree to take part and later change your mind. There will be no penalty or loss of benefits to which you are otherwise entitled.
- If you don't understand, ask questions.
- Ask all the questions you want before you decide.

Why is this research being done?

The purpose of this research is to understand the role of self-regulation of emotions on subsequent behavior, and how that is influenced by individual differences. You have already answered several questionnaires that assess your personality traits, affect, and value systems. In this part of the study, you will carry out two different tasks. First, you will watch two videos and will be instructed to either suppress your emotions while watching them or to watch them naturally. Then, you will complete a short questionnaire that assess your reactions to behaviors

in the context of race-sensitive situations. The results from this study will be used for the experimenter's thesis project purposes, and may be used further for publication and conference presentations in the future.

About 100 subjects will take part in this research, who will be Virginia Tech students aged 18 years and older and must be proficient in English.

How long will I be in this research?

We expect that your taking part in this research will last 30 minutes.

What happens to me if I agree to take part in this research?

If you choose to participate, you will be contacted by the experimenter to come into the lab in Williams Hall for the study. You will meet the experimenter at the scheduled time where the experiment procedures will be explained again in person. You will also be reminded that you will be video-recorded for part of this study.

Once all your questions and concerns have been addressed, you will be seated in front of a computer. Instructions will flash on the screen for about a minute to tell you whether you should suppress your emotions or not as you watch the following videos. The type of instructions screened for you is selected by chance (like a coin toss/drawing straws). You have a 1 out of 2 chance of being placed in either the suppress emotions or not suppress emotions group. You cannot choose your study group.

You will first watch a 3-minute documentary on Jackson Pollock. After a one minute interval, the same instructions will flash on the screen again. Next, you will watch a 9-minute compilation of social injustice videos. Each clip ranges from about 1-1.5 minutes each. Before the screening of each clip, there will be a brief description of the video's context in addition to a reminder that you can ask the experimenter to stop the video at any time. The clips will contain various forms of violence including beatings, shootings, and deaths of individuals as filmed by surveillance videos, dashboard cameras, and observers. The videos will also contain strong language, and shaky video motion. After watching this video compilation, you will have another post-film one minute break.

After watching both videos, you will be directed with a link to Qualtrics where you will complete the Diversity Engagement Test. The survey consists of 14 items that contain scenarios depicting race-sensitive issues, and you will rate your likelihood of carrying out each of the behavioral responses available. Then, you will answer a short questionnaire on the emotion regulation strategies you used during the earlier portion of the study. Once finished, you will alert the experimenter who will then debrief you on the overall purpose of the study and will have a chance to communicate any remaining concerns or questions that you may have.

EMOTION RESOURCE DEPLETION AND BIGOTRY

Finally, you will watch a 3-minute mindfulness video to help you relax and potentially address any lingering emotional reactions you may have from watching the videos. The entire session should take no more than 30 minutes.

What are my responsibilities if I take part in this research?

If you take part in this research, you will be responsible to:

- Be attentive to the experimental instructions and follow it to the best of your abilities
- To notify the experimenter at any point you feel uncomfortable and wish to stop your participation

Could being in this research hurt me?

One potential risk is the emotional discomfort experienced while watching the social injustice video compilation. Not only are acts of physical aggression depicted, many clips also contain emotional and stressful responses by the victims and other observers (e.g crying, wailing, shouting, running). The videos can also potentially trigger negative reactions from past traumatic events of injustice. You are free to leave the study at any point for any reason, and will be reminded of that option before the screening of every video clip.

The questionnaire you will complete after watching the videos may cause slight discomfort due to the sensitive nature of the questions. You will be asked to assess your potential reactions to scenarios containing racial microaggressions, in other words subtle acts of discrimination against minorities.

As an effort to address the emotional risks involved with the study, a 3-minute mindfulness video will be screened at the end of the experiment. Mindfulness is a form of meditation often used to reduce stress and anxiety levels; by completing this activity, it is hoped that you may be able to gain a sense of calm after the emotional reactions experienced due to the social injustice videos.

If additional counseling or medical treatment is needed as a result of the study, you can seek help from the Cook Counseling Center or Schiffert Health Center on campus. Any additional expenses incurred will be shouldered by you.

Will it cost me money to take part in this research?

No.

Will being in this research benefit me?

We cannot promise any benefits to you or others from your taking part in this research. However, possible benefits to you include assisting research in understanding the different reactions in the context of racial discrimination, and how that can be impacted by previous acts

of self-regulation. Answering the questionnaire measures will also present you to racially sensitive situations that you may encounter in the future, and possibly help you assess appropriate responses to such situations.

What other choices do I have besides taking part in this research?

Instead of being in this research, you may choose to participate in another study listed through the SONA online experimental system to obtain extra credit.

What happens to the information collected for this research?

Your private information and your medical record will be shared with individuals and organizations that conduct or watch over this research, including:

- The research sponsor
- People who work with the research sponsor
- The Institutional Review Board (IRB) that reviewed this research

We may publish the results of this research. However, we will keep your name and other identifying information confidential.

We protect your information from disclosure to others to the extent required by law. We cannot promise complete secrecy.

Data collected in this research might be deidentified and used for future research or distributed to another investigator for future research without your consent.

Who can answer my questions about this research?

If you have questions, concerns, or complaints, or think this research has hurt you or made you sick, talk to the research team at the phone number listed above on the first page.

This research is being overseen by an Institutional Review Board (“IRB”). An IRB is a group of people who perform independent review of research studies. You may talk to them at (800) 562-4789, help@wirb.com if:

- You have questions, concerns, or complaints that are not being answered by the research team.
- You are not getting answers from the research team.
- You cannot reach the research team.
- You want to talk to someone else about the research.
- You have questions about your rights as a research subject.

What if I am injured because of taking part in this research?

If you are injured or get sick because of being in this research, notify the experimenter immediately. You will be directed to Cook Counselling Center or Schiffert Health Center for on-campus treatment. Your insurance may be billed for this treatment. No other payment is routinely available from the experimenter.

Can I be removed from this research without my approval?

The person in charge of this research can remove you from this research without your approval.

Possible reasons for removal include:

- It is in your best interest
- You are unable to keep your scheduled appointments

We will tell you about any new information that may affect your health, welfare, or choice to stay in this research

What happens if I agree to be in this research, but I change my mind later?

If you decide to leave this research, contact the research team so that the investigator can remove you from the timeslot assigned to you

Will I be paid for taking part in this research?

For taking part in this research, you may be compensated up to a total of 1 extra credit point for your participation.

If you decide to withdraw once you have already started the experiment, you will not incur any risk. You will receive the full extra credit amount.

Your signature documents your consent to take part in this research.

Statement of Consent:

Signature of adult subject capable of consent

Date

Signature of person obtaining consent

Date

APPENDIX J

IN-LAB ONLINE QUESTIONS

DIVERSITY ENGAGEMENT TEST (DivET)

1. Your class is having presentations today, and Michael, a Black male, is presenting at this time. Your friend leans in and whispers to you, “he’s surprisingly very well spoken.”

Indicate the likelihood of you making each response from 1 (Extremely Unlikely) to 9 (Extremely Likely):

- "It’s not cool to prejudge people before you know anything about them."
- "What do you mean by that statement?"
- "I like his presentation, it’s really engaging."
- "Yea, I bet the teacher was surprised too!"

2. You are standing in a group of people waiting for the bus, and there is a strong odor of marijuana. The girl next to you turns and says, “Somebody must have pot” and suggestively directs her eyes towards a Black guy standing in the group.

Indicate the likelihood of you making each response from 1 (Extremely Unlikely) to 9 (Extremely Likely):

- “Why would you assume that he is the one with pot?”
- “Have you seen him smoke pot before?”
- “Are you sure that’s weed?”
- “Haha, you guessed it!”

3. Your boss, a Black male named Thomas, called everyone in for a project team meeting. Before the meeting started, Thomas turned to Lisa, a Black female and said, “Your naturally curly hair is beautiful, but think about straightening it for the office; it’s a more professional look.”

Indicate the likelihood of you making each response from 1 (Extremely Unlikely) to 9 (Extremely Likely):

- “Would you say the same thing to a White female with curly hair?”
- “Do you think Black women should model their personal style to be like White women?”
- “Lisa, how long does it take to straighten your hair?”
- “I agree, straightened hair looks a lot more polished.”

EMOTION RESOURCE DEPLETION AND BIGOTRY

4. You are approaching a line for getting in a club and you overhear the man at the door tell a Black female that the club is at capacity and they can't let anyone else in for a while. The woman leaves, and to your surprise the next person in-line, a White female, is admitted even though no one has left the club. Indicate the likelihood of you responding to the doorman in the following ways:

Indicate the likelihood of you making each response from 1 (Extremely Unlikely) to 9 (Extremely Likely):

- “Why did you tell that other girl that the club was at capacity when it clearly isn't?”
- “How do you decide who gains admittance to the club?”
- “Do you know how many people are inside?”
- “I come to the club often, thanks for keeping up the image.”

5. Your classmate is talking to you about scholarship applications, and says, “Black people are lucky because so many scholarships are set aside for them.”

Indicate the likelihood of you making each response from 1 (Extremely Unlikely) to 9 (Extremely Likely):

- “Are you kidding!? You really think the world is set-up so that Black folks get all the advantages!”
- “Can you think of the ways that the system is already stacked in favor of White people?”
- “Did you find some scholarships to apply to?”
- “I agree! Minority scholarships aren't needed anymore!”

6. You and your friend, a White female named Kayla, are listening to a really cool rap song on the radio, but neither of you know the artist. Kayla really wants to find out the artist and what the name of the song was. You both are sitting on a bench outside and a young Black guy is nearby and Kayla says, “You know, we should go ask him about the artist and the name of the song. I'm sure he knows.”

Indicate the likelihood of you making each response from 1 (Extremely Unlikely) to 9 (Extremely Likely):

- “Just because he is Black doesn't mean he knows rap songs!”
- “Why not ask him if he likes rap music, first.”
- “If we had that app Shazam we could have used that!”
- “Yeah, Black people have a talent for music, he probably knows.”

EMOTION RESOURCE DEPLETION AND BIGOTRY

7. You've been assigned to a team project that is meeting for the first time. In response to a question from a Black male, a White male named Eddie replies "For shizzle! It's all that!"

Indicate the likelihood of you making each response from 1 (Extremely Unlikely) to 9 (Extremely Likely):

- "Is that how you think all Black people talk?"
- "Why do you think you said that?"
- "What is my role in the project?"
- "Fo sho!"

8. You are standing on an elevator with your friend, who is a Black female. The first time the elevator stops a White male gets on and your friend does nothing. The second time, a Black male gets on the elevator and you see your friend clutch her purse tighter.

Indicate the likelihood of you making each response from 1 (Extremely Unlikely) to 9 (Extremely Likely):

- "You only clutched your purse tighter when the Black man got on the elevator."
- "Did you realize that you clutch your purse tighter when the Black man got on?"
- "I really like your purse."
- "You should zip your purse too, next time."

9. You are a member of a club collecting canned goods to donate to local food banks. In a meeting, the White club president turns to one of the only Black member, John, and tells him that he is assigned to cover specific neighborhoods. Everyone in the meeting knows that those neighborhoods are the only ones in the town with primarily minority residents.

Indicate the likelihood of you making each response from 1 (Extremely Unlikely) to 9 (Extremely Likely):

- "You shouldn't assign him those neighborhoods simply because he's Black."
- "Did you assign John those neighborhoods because you think everyone else would be uncomfortable covering them?"
- "Are all the other neighborhoods covered?"
- "Sounds like a great plan!"

10. While waiting for a friend at the front of a store, you notice that the greeter says nothing to a Black female entering the store. However, the greeter asks a White female (walking a few feet behind the Black female) if she needs help finding something.

Indicate the likelihood of you making each response from 1 (Extremely Unlikely) to 9 (Extremely Likely):

EMOTION RESOURCE DEPLETION AND BIGOTRY

- “Why didn’t you ask the Black woman if she needed assistance as well?”
- “Did you notice that you didn’t ask the Black woman if she needed help?”
- You begin to look around the store for your friend.
- “You know which customers have money to spend!”

11. You and a White friend are driving in an unfamiliar city when you decide to get some lunch. You pull into a nice-looking diner, and when you enter the crowded diner you realize that all the employees and all the customers are Black. Your White friend turns to you and says: “I’m not in the mood for soul food.”

Indicate the likelihood of you making each response from 1 (Extremely Unlikely) to 9 (Extremely Likely):

- “That’s just ignorant.”
- “Let’s check the menu, first.”
- “What are you in the mood for?”
- “Let’s get out of here.”

12. You are standing behind a White female and a Black female in the check-out line at the supermarket. The White female hands the clerk a check and the cashier finishes her check-out. Next, the Black woman also pays with a check, and the cashier asks for a picture identification before finishing the check-out.

Indicate the likelihood of you making each response from 1 (Extremely Unlikely) to 9 (Extremely Likely):

- “Why didn’t you ask for photo identification from the White woman?”
- “It’s probably a good idea to treat everyone the same when asking for photo identification.”
- Ask the clerk: “Are you having a good day?”
- “It’s good to be careful about folks bouncing checks.”

13. Your friend is seeking advice about finding a dentist. You are both looking at a directory that includes photos and biographies of local dentists. As your friend is discussing possible choices, you notice that your friend skips over a Black dentist on the list.

Indicate the likelihood of you making each response from 1 (Extremely Unlikely) to 9 (Extremely Likely):

- “You shouldn’t skip that dentist just because he is Black!”
- “Did you just skip that dentist by mistake? Or was there something you didn’t like about him?”

EMOTION RESOURCE DEPLETION AND BIGOTRY

- “There are more dentists than I thought in the area”
- “That was an easy decision!”

14. You are at the receptionist’s desk in the doctor’s office near a Black male teenager. The receptionist asked the teenager for his mother’s contact information, but you know that it is standard for them to ask for both parents contact information. After the teenager leaves, the receptionist turns to check you in.

Indicate the likelihood of you making each response from 1 (Extremely Unlikely) to 9 (Extremely Likely):

- Did you just assume that the Black teenager could only list his mother?”
- “Do you think that teenager might have been uncomfortable because you only asked for his mother’s contact information?”
- “Do you need my contact information?”
- “There are too many teenagers being raised by a single parent.”

Modulation Strategy Questionnaire

Please rate your agreement to the items below from 1 (Strongly Disagree) to 5 (Strongly Agree):

Perceived Success:

- I succeeded in not showing my emotions
- I continuously tried to hide my emotions
- I had trouble not to show my emotions

Emotional Control:

- I tried to control my emotions
- I controlled myself

Qualitative Question:

Please describe briefly any and all strategies you used to control your facial responses while watching the videos.

APPENDIX K

THESIS STUDY DEBRIEFING FORM

Studying Self-Regulation through EmotionsWhat was the goal of this study?

The purpose of this thesis study is to understand how the availability of self-control resources can affect behavior in the context of racial discrimination, and how that relationship changes with individual differences. Discrimination research indicates that stereotypic judgments result from mental shortcuts that our brains take; when we lack self-control resources, we are more likely to make prejudiced decisions no matter what our racial attitudes may be. Previous studies that examine self-control resources have found that our resources are limited, and that if we carry out self-control in one task we will have fewer resources to carry out self-control effectively on another task. Many studies often use emotion regulation as a method of self-control. Emotion suppression, or maintaining a neutral facial expression while watching upsetting videos requires self-control; thus, carrying this out leaves fewer self-control resources for subsequent tasks. Behaviors in interracial interactions is also another activity that requires self-regulation. Regardless of source of motivation to do so, individuals typically monitor their behavior in interactions with individuals of other races so as to not seem prejudiced. Thus, self-regulation in emotion suppression may affect behavioral responses in a racial context. However, this effect may be different according to the value systems that individuals have; for example, how strongly people believe in the equal treatment of others.

How was this tested?

In this study, you first completed several questionnaires online assessing your personality traits, affective traits, and value systems. You then were asked to come into the lab where you watched two videos, while either suppressing your emotions or not. Then you completed a survey about your behavioral tendencies in situations that contain racial microaggressions. All participants completed the study in the same way, except that the order of the online surveys in the first part of the study videos shown was randomized to avoid any potential ordering effects. Additionally, participants were randomly selected to conditions to either suppress their emotions or watch the videos naturally.

Why is this important to study?

This study will deepen our understanding on how our capacity for self-regulation can impact our behavior in various aspects of our lives, even if they are unrelated. It also gives us the opportunity on understanding how the unique value systems and beliefs that we have may influence the outcome of our behavior.

What if I want to know more?

If you are interested in learning more about the limited self-control resources that we have, effects of emotion regulation, and the impact on discriminatory behavior, you can read:

1. Baumeister, R. F., Bratslavsky, E., Muraven, M., & Tice, D. M. (1998). Ego depletion: Is the active self a limited resource?. *Journal of personality and social psychology*, 74(5), 1252.
2. Muraven, M. (2008). Prejudice as Self-Control Failure. *Journal of Applied Social Psychology*, 38(2), 314-333.

If you would like to receive a report of this research when it is completed (or a summary of the findings), please contact Elsheba Abraham at elsheba@vt.edu.

If you have concerns about your rights as a participant in this experiment, please contact the Virginia Tech IRB at (540) 231-3732.

Thank you again for your participation.

APPENDIX L

EMOTIONAL EXPRESSIVE CODING SYSTEM RATINGS SHEET

Name:

Video:

Emotional Expressive Coding System*Adapted from Gross & Levenson (1993; 1997)*

Please mark down everytime you see any of the coding units of behavior described in the coding scheme:

Body Movement	
Facial Movement	
Mouth Movement	

Please rate your overall impression of the frequency **and** intensity of the emotional/behavioral expressions below:

	No Reaction at All	Slightly Reactive	Moderately Reactive	Very Reactive	Extremely Reactive
Body movement	1	2	3	4	5
Facial movement	1	2	3	4	5
Mouth movement	1	2	3	4	5
Overall emotional expressivity	1	2	3	4	5

Note:

- think of “No reaction at all” as low frequency, low intensity
- think of “Slightly reactive” as low frequency, medium intensity
- think of “Moderately reactive” as medium frequency, medium intensity

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- think of “Very reactive” as medium frequency, high intensity
- think of “Extremely reactive” as high frequency, high intensity

Most reactive participant: IDXX; Least reactive participant: IDXX

Other behaviors not observed:

APPENDIX M

EMOTIONAL EXPRESSIVE CODEBOOK

Emotional Expressions Behavioral Coding Scheme*(adapted from Ekman & Rosenberg, 1997)*Coding Units of Behaviors

Category	Action	Description	
Body Movement	Moving the upper torso of the body	Shifting in seat e.g. moving backwards away from the screen	
		Moving shoulders	
	Hands are raised towards the face	Hands are used to block vision	
		Actual touching of face	
	Places head in hands		
	Taking a deep breath		
	Head movement	Face turns away from the screen	
		Head tilts	
	Facial Movement	Looking away from the screen	Eye contact is broken from the screen
		Grimacing	Face is scrunched up, twisted facial expression
Crying		Tears produced	
Moving eyebrows		Eyebrows raised (like in surprise)	
		Eyebrows brought together (like in anger)	
Moving eyelids		Eyes are widened	
		Squinting	
		Winking	

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		Closing the eyes	
		Noticeable blinking (i.e. 2 blinks in succession or more)	
Category	Action	Description	
	Moving of nose	Wrinkling of nose	
		Dilating/Compressing nostril	
	Moving of cheeks	Cheek puff	
		Cheek suck	
Mouth Movement	Frowning	Corners of lips are pulled downwards	
	Snarling	Upper lip raised (teeth may be seen)	
	Pursing lips	Lips brought together (lips may look flat)	
	Opening of mouth	Lips parted	
		Speaking to themselves (code a string of utterances just once)	
		Blowing air through their mouth	
		Jaw movement	Jaw drop (like in gasping)
			Clenching of jaw
			Moving the chin
		Playing with lips	Lip biting
		Lip licking	
	Gulping/Swallowing	Any movement of the throat	