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Special Issue: The Psychological Legacy of Barack Obama

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THE PSYCHOLOGICAL LEGACY OF BARACK OBAMA: THE IMPACT OF THE FIRST AFRICAN-AMERICAN PRESIDENT OF THE UNITED STATES ON INDIVIDUALS' SOCIAL COGNITION

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The election of Barack Obama as the first African American to be President of the United States was a momentous event. Because the U.S. constituency (including its majority, Whites) elected an individual who defied history and negative stereotypes, pundits concluded that the U.S. had entered a new “post-racial” era. Indeed, social cognition scientists adopted the “Obama effect” to classify the beneficial consequences of Obama as a single African-American exemplar on affect, cognition, and behavior, but these effects have been challenged. As we come to the conclusion of Obama’s presidency, this special issue revisits the Obama effect. Six empirical articles collectively examine the factors that create the Obama effect in the first place, and the boundary conditions of the Obama effect ameliorating stereotyping and prejudice and benefiting the social cognition of African Americans themselves. Furthermore, each article provides insight into the potential theoretical and practical implications of Obama’s legacy for psychology.

Keywords: Obama, ethnicity, race, prejudice, self, African Americans

We wish to especially thank all of the reviewers for their thoughtful comments on the articles published in this special issue.

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The history of African Americans in the United States is replete with inhumane treatment, structural disadvantages, and intergroup challenges. The arrival of African indentured servants in 1619, their and their future generations' subsequent enslavement through 1865, and the Jim Crow period that persisted through the 1950s all highlight the unfortunate milestones that African Americans have had to overcome (Takaki, 2008). The need and ensuing desire for social justice have led to significant positive changes at structural, intergroup, and interpersonal levels. One meaningful sign of this progress is the success of prominent African Americans in various professional domains including business, arts and entertainment, politics, science, sports, and social activism. Indeed, if asked to imagine such African Americans, individuals might spontaneously think of Oprah Winfrey, the business and media mogul; Thurgood Marshall, the first African-American justice on the Supreme Court of the United States; Colin Powell, the first African-American United States Secretary of State; Venus Williams, the first African-American (male or female) tennis player to be ranked number one in the world, and her sister, Serena Williams, winner of 22 singles Grand Slams and arguably the greatest athlete (male or female) of all time; and, finally, Dr. Martin Luther King, Jr., who was a Baptist minister and the widely respected activist and leader of the Civil Rights movement.

Notwithstanding the collective and powerful presence of these and countless others, perhaps the single and most significant indicator of African Americans' progress to date is Barrack Hussein Obama who made history when he became the first African American elected President of the United States. As is the case for virtually every prominent and successful African American, Obama's path to the White House was not an easy one. He grew up with a single parent (a risk factor for poor behavioral outcomes; Office of Juvenile Justice and Delinquency Prevention, 2003), struggled with the absence of his father, and experienced the negative effects of interpersonal and institutional racial discrimination on his self and identity (Obama, 2004). Despite these setbacks, Obama received a bachelor's degree in political science from Columbia University, completed law school at Harvard University, was a professor of law at the University of Chicago, and was the United States senator of the state of Illinois. Then, after long hard-fought battles against his opponents, in 2008 Obama was elected and later re-elected in 2012 as the 44th president of the United States. Media exposed the world to the momentous and historical event of a strongly identified Black man who defied all odds to obtain arguably the most influential position in the world. Moreover, because the United States constituency (including its majority, Whites) elected an African American, whose ethnic-racial group has suffered from systematic stigma throughout time, many pundits concluded that the United States had begun to move from its atrocious African-American history to a new "post-racial" era (Dyson, 2016; King, 2012).

Among social psychologists, the prominence of President Obama led to the main hypothesis that he is a single role model powerful enough to positively influence fellow African Americans and intergroup relations in general. Indeed, social cognition scientists adopted the term the "Obama effect" to classify the benefi-

cial consequences of Obama as a single significant African-American exemplar on self-perception, person perception, the development of social cognition, and the intersection of affect and cognition (Columb & Plant, 2011; Fuller-Rowell, Burrow, & Ong, 2011; Marx, Ko, & Friedman, 2009; Ong, Burrow, & Fuller-Rowell, 2012; Plant, Devine, Cox, Columb, Miller, Goplen, & Peruche, 2009). For African Americans, Obama is a strong and compelling exemplar because he has defied stereotypes on multiple levels and may serve to buffer the threat of stigma on their self-concept and its subsequent effects on behavior (Fuller-Rowell et al., 2011; Marx et al., 2009). For non-African Americans, the Obama effect can attenuate automatically activated associations between African Americans and negative evaluations, thus leading to lower levels of implicit racism (Columb & Plant, 2011; Plant et al., 2009). However, the Obama effect on social cognition has been challenged by other research (e.g., Aronson, Jannone, McGlone, & Johnson-Campbell, 2009; Schmidt & Nosek, 2010).

THIS SPECIAL ISSUE

As the world witnesses the conclusion of Obama's presidency in 2016, this special issue of *Social Cognition* sought to revisit the Obama effect and further understand its consequences on attitudes toward African Americans and the self-concept of African Americans themselves. To this end, the research in this special issue tests the contextual factors that shape the Obama effect, such as media depictions of Obama, as well as the Obama effect's underlying social cognitive processes, such as mental representations and their associative processes. Finally, the special issue tests the limitations of the Obama effect by identifying who does and does not benefit from exposure to Obama as a single positive African-American exemplar. Six articles adopted experimental and large-scale cross-sectional designs, recruited participants at different developmental stages, and measured outcomes resulting from both explicit (controlled) and implicit (automatic) social cognitive processes. Collectively, and more broadly speaking, this special issue represents new directions for research on the roles of in-group and out-group exemplars in influencing social cognitive processes.

MEDIA SHAPES THE OBAMA EFFECT

Consistent with the general hypothesis that mass media influences human thought, affect, and action via social cognitive processes (Bandura, 2001), exposure to portrayals of Obama in the news may be one plausible and important contextual source of the Obama effect. In the first empirical article of this special issue, March, Kendrick, Fritzlen, and Olson argue that, like any attitude object, attitudes toward Obama can be influenced by depictions of him presented with contextually positive or negative texts or images in news media. Thus, they posit that incidental exposure to valenced news content is automatically associated with Obama

via evaluative conditioning mechanisms. However, this effect was expected to be moderated by the strength of a perceiver's attitude toward Obama *prior to* news exposure. Individuals with relatively strong Obama attitudes were predicted to be less likely to misattribute the source of their affective evaluations of Obama as a function of how he is portrayed (because they are already aware of the source of their affect). Therefore, media depictions should be more likely to influence individuals with relatively weak and less-developed Obama attitudes. They provide support for their ideas across two experiments with high ecological validity by exposing participants to real-life portrayals of Obama found in two popular news websites, namely FoxNews.com and CNN.com, and examining the differential effects of these media representations on implicit associations between Obama and positive versus negative stimuli. This research has clear implications for one contextual factor that influences the existence and nature of the Obama effect in the first place (at least for some individuals). Specifically, the Obama effect itself is likely highly affected by Obama's portrayal in media outlets, regardless of his actual accomplishments. These findings also suggest that frequent negative representations of Obama could create negative associations with Obama that could result in a different type of Obama effect.

OBAMA EFFECT ON ATTITUDES TOWARD AFRICAN AMERICANS

The literature on the effect of out-group exemplars on attitudes toward those out-groups is predicated on the assumption that exposure to *multiple* exemplars via primary (e.g., frequent intergroup interactions) or secondary experiences (e.g., media outlets) is sufficient to alter group-attribute mental associations. Indeed, individuals with high intergroup contact and those who complete an intervention in which they read about counter-stereotypical out-group members exhibit lower levels of implicit and explicit prejudice and discrimination (e.g., Dasgupta & Greenwald, 2001; Dasgupta & Rivera, 2008). However, what is particularly compelling about the Obama effect is that Obama may serve as a *single* exemplar sufficient to influence group-based social cognitive processes. Indeed, the Obama effect was largely established in the social cognition literature when researchers demonstrated that both subtle and overt cues about Obama and/or his successes ameliorate negative perceptions and judgments of African Americans (Columb & Plant, 2011; Fuller-Rowell et al., 2011; Marx et al., 2009; Ong et al., 2012; Plant et al., 2009). The next three empirical articles in this special issue extend this research.

First, Columb and Plant revisit their previous work conducted when Obama was first elected and where they demonstrated that exposure to Obama reduced implicit anti-Black evaluative bias (Columb & Plant, 2011; Plant et al., 2009). They examine whether this Obama effect on implicit bias persists toward the end of his second and final term as president. This is a compelling goal because Obama's performance throughout his two-term presidency can shape perceivers' evaluations of him as president and, in turn, of him as a positive and counter-stereotypical African-American exemplar. If Obama as president is evaluated negatively, then

Obama may no longer act as a positive and counter-stereotypical group exemplar, and thus, exposure to Obama may be ineffective for reducing implicit prejudice. Columb and Plant's argument, however, is that regardless of his individual accomplishments (or lack thereof), his re-election and persistent presence as a powerful leader in the world are signs of significant and positive success and, thus, maintain his status as a positive exemplar of African Americans. Two experiments tested if Obama's perceived stereotypicality and perceived valence underlie an Obama effect on implicit racism, consistent with their prior research, but also on a new outcome, implicit racial stereotyping. Furthermore, they test the unique roles of valence and stereotypicality as factors underlying exemplar effects by including a second exemplar, Kobe Bryant, a well-known American basketball player who, like Obama, is perceived to be positive, but, unlike Obama, is perceived to be stereotypical of African Americans. They present findings indicating that exposure to both Obama and Bryant has a positive influence on implicit racial prejudice and stereotyping, which points to the importance of the positivity or valence of an exemplar for influencing social cognition. Altogether, their contribution to the special issue is particularly important because they experimentally decompose two dimensions linked to the social cognitive processes underlying group exemplar effects on person and group perception.

In the article that follows, Skinner and Cheadle challenge the hypothesis that the Obama effect necessarily constitutes a benefit on attitudes toward African Americans by demonstrating the conditions under which exposure to Obama may *increase* implicit prejudice against African Americans. Consistent with group threat theory, they argue that Obama as U.S. president may represent a threat to White Americans who have enjoyed relatively high status and, thus, may feel that they have something to lose after being reminded that an out-group member holds a position of power. To test their hypothesis, the authors examined White Americans' implicit racial bias following a *power threat*, which reminded participants of Obama's election as a racial milestone and thereby highlighted out-group power, a *majority threat*, which highlighted the shift in demographics by which White Americans would become the quantitative minority, or no prime (i.e., control). Their general hypothesis was that when White Americans experienced a threat to their power and status, they would express heightened implicit prejudice against African Americans relative to control. However, the authors posited that individuals who are internally motivated to respond without prejudice should be less threatened by group threats to power or status, and thus less responsive to the presented threats. Consistent with predictions, when exposed to a power threat, only participants with lower internal motivation to respond without prejudice responded with increased implicit racial prejudice relative to those in the control condition. Skinner and Cheadle's contribution to the special issue highlights the limitations of the Obama effect. Although exposure to Obama may generally benefit intergroup relations, when he is framed in terms of his relative status and power (and presumably African Americans in general are perceived as increasing in status and power), he may signal a threat to the privileged position of Whites in

the United States, at least among those who do not strongly hold egalitarianism as a deeply rooted value.

In the last of three articles on the relation between the Obama effect and attitudes toward African Americans, Schmidt and Axt follow up on an early large-sample investigation of racial attitudes immediately following Obama's election (Schmidt & Nosek, 2010). Schmidt and Nosek (2010) did not find evidence of substantive changes in explicit or implicit racial attitudes seven months after Obama was initially elected (including four months into his presidency). In their current article, Schmidt and Axt examined whether there were changes in racial attitudes during the first seven years of Obama's presidency, a timely period in which Americans should have had frequent exposure to Obama's leadership and his position on the world's stage. Following a thorough review of the mixed correlational and experimental evidence of the Obama effect on explicit and implicit racial biases, they re-examine explicit and implicit racial attitudes using a large convenience but diverse sample of American visitors to the Project Implicit website (*Ns* up to approximately 2,200,000). Furthermore, they investigated changes in implicit and explicit attitudes toward Obama and if such attitudes account for variance in attitudes toward African Americans in general. Across their analyses, they account for the possible impact of meaningful demographic variables such as political orientation, ethnic-racial identification, and age. Their findings indicated no substantive change in implicit evaluations of African Americans or of Obama during this time. Schmidt and Axt's article is an important contribution to the collective work in this special issue because it provides a naturalistic test of population-level changes in racial attitudes while the first African American serves as president of the United States. However, their data paint a different picture from the other articles on the relation between the Obama effect and implicit racial bias and implicit responses to Obama. The authors discuss reasons for the varying findings across the different approaches to examining the Obama effect and how the present work relates to other findings regarding the malleability of implicit attitudes.

OBAMA EFFECT ON THE SOCIAL COGNITION OF AFRICAN AMERICANS

The final two articles in the special issue shift the focus of the Obama effect target to African-American youth and adults. Exposure to Obama as an admired African American may be sufficiently influential to shape African Americans' self and person perceptions. Obama's remarkable and counter-stereotypic successes in academia and politics, particularly his ascendancy to the United States presidency, qualify him to be a potentially particularly effective role model. Role model studies have demonstrated that the real or imagined presence of a single positive role model can ameliorate stigmatized individuals' self-perceptions and performance behaviors (Lockwood, 2006; Marx & Goff, 2005; Marx & Roman, 2002), particularly when the role model is perceived as competent in the stereotyped domain and when his or her achievements are perceived as personally relevant and attainable (Lockwood & Kunda, 1997; Marx & Roman, 2002). To the extent that Obama meets

these conditions, he may attenuate negative stereotype effects and even improve intergroup relations by altering mental representations of the self and groups and their underlying associations.

Consistent with these ideas, Ong, Burrow, and Cerrada adopt a social broadening perspective to examine the idea that the cognitive broadening effects produced by positive emotions may extend to social perspective taking. Given the link between positive emotions and increased self-other overlap, they argue that Obama may be a source of positive emotions that in turn influence how African Americans view themselves in relation to others. That is, to the extent that Obama increases the overlap between mental representations of the self and others, African Americans should be more likely to see themselves and others as part of a larger whole. Moreover, they argue that African Americans with strong cultural socialization (i.e., experiences that promote knowledge about and pride in one's ethnic-racial heritage) should be most susceptible to an Obama effect on social broadening because they have a stronger sense of belonging with their group, higher collective self-esteem, and racial pride, which are all sources of positive emotions. Two studies provide evidence that exposure to Obama elicits positive emotions, which contribute to perceiving a greater overlap between the self and people of other races. The second study demonstrates that this effect is only observed among African Americans who are high in cultural socialization. Their research is particularly compelling because it highlights the role of affect in social cognitive processes that in turn can have downstream beneficial consequences for intergroup closeness and peaceful relations.

In the final article of the special issue, Rivera and Benitez integrate theories of social categorization and social identity to demonstrate that the Obama effect extends to changing African-American youth and adults' mental representations of the self and group stereotypes, thus reducing self-stereotyping associations. One way to change the mental representations of groups and its organization around a prototype is by introducing a group exemplar, which is a group member who separates himself or herself from the prototype. Exposure to exemplars facilitates change in existing mental representations, which then affects subsequent group perceptions and judgments. Rivera and Benitez apply these social cognitive principles to test the effect of in-group exemplars on African Americans' self-perceptions. Furthermore, they argue that the effect of in-group exemplars is contingent upon African Americans' subjective ethnic-racial identification. Specifically, because the group is more central and important to strongly identified group members, they are more likely than weakly identified group members to be sensitive to the beneficial effect of exposure to Obama as a single exemplar or multiple in-group exemplars (Obama, Oprah, etc.) on self-stereotyping judgments. Their data from two experiments suggest that Obama's historical success may prove over time to chronically inspire African Americans to look to their own group and its members when needing a buffer against the impact of stigma-based threats. In this way, structurally based interventions intended to reduce stigma and its effects may also consider the powerful impact of the mere presence of inspirational fellow in-group members.

FINAL THOUGHTS

When we first proposed to edit this *Social Cognition* issue on the Obama effect, our research goal was to further understand the role of Obama as the first African American elected President of the United States in the social cognitive processes of African-American and non-African-American individuals. In considering the impact of Obama on social cognition we believed that it was important to examine factors specific to the individual as well as the individual's broader social context because both factors (independently or jointly) can add complexity to the Obama effect. Our practical goal was to share research that can provide insight into the potential long-term implications of Obama's presidency. This goal was driven by the belief that building empirical scientific research on the role of a single exemplar in social cognitive processes is a critical antecedent to developing strong and effective policies and intervention programs. Therefore, each contribution in this special issue provides an explicit discussion on how their empirical research relates to the legacy of Barack Obama for both psychology and society in general. As Obama concludes his final year in office, our hope is that the publication of this special issue makes a valuable contribution to the analysis of Obama's legacy.

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NEWS MEDIA DEPICTIONS OF OBAMA INFLUENCE AUTOMATIC ATTITUDES: IMPLICATIONS FOR THE OBAMA EFFECT

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Positive media depictions of Obama likely contribute to the so-called “Obama effect.” However, like any attitude-object, effects of those depictions can depend on contextually positive or negative portrayals. We hypothesized that politically conservative news web sites (e.g., FoxNews.com) visually depict Obama more negatively than moderate sites (e.g., CNN.com), and that incidental exposure to such dissimilar depictions can differentially impact perceivers’ attitudes toward Obama, particularly when pre-existing attitudes are weak. In Study 1 ($n = 111$), images of Obama from FoxNews.com were rated more negatively than images of him from CNN.com. In Study 2 ($n = 215$), participants with weaker attitudes exposed to FoxNews.com images (versus all other images) evinced the most negative SC-IAT bias toward Obama. Thus, incidental exposure to valenced media portrayals can impact attitudes toward public figures. Implications for the Obama effect are discussed.

The election of Barack Obama to the presidency of the United States appears to have affected attitudes and stereotypes toward Blacks. Pervasively positive portrayals of Obama conveyed through popular media may have led to a so-called “Obama effect” (Plant et al., 2009), which, among other outcomes, manifested as reduced levels of prejudice toward Blacks. As a counter-stereotypical exemplar, popular representations of Obama challenged ubiquitous stereotypes of Blacks as lazy, relatively unintelligent, and low-achieving. Previous research suggests that such exposure to counter-stereotypical exemplars can alter (at least for short periods) Whites’ implicit attitudes toward minorities. For example, Dasgupta and

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Greenwald (2001) found that participants exposed to counter-stereotypical Black and White exemplars (e.g., Michael Jordan, Martin Luther King, Jr., vs. Ted Bundy, Al Capone) evinced less negative bias toward Blacks (or perhaps *more* negative bias toward Whites) on the Implicit Association Test (IAT).

Analogously, Plant and colleagues (2009) have found correlational evidence for the Obama effect in attitudes measured using the IAT. White participants who either thought of positive Black exemplars or, alternatively, more strongly associated Obama with positive attributes, showed reduced levels of racial bias toward Blacks. In a follow-up study, Columb and Plant (2011) showed that merely exposing participants to images of Obama attenuated the effect of previous exposure to (stereotypically) negative Black exemplars.

However, other research has failed to reproduce the Obama effect. Schmidt and Nosek (2010) examined data collected from the Project Implicit website over the course of 2.5 years and found no change in the level of IAT bias against Blacks among a very large heterogeneous sample (also see Schmidt & Axt, this issue). It is possible that the disparate populations used and likely dissimilar exposure to differentially valenced portrayals of Obama in the above studies led to contradictory results. If the Obama effect depends on the valence of his portrayal (as we contend), the populations from these studies may have been exposed to different portrayals of him. Undergraduate students at a university during the election season (as in Columb & Plant, 2011; Plant et al., 2009) likely met with disproportionately positive exposure to Obama through his campaign's extensive use of social media; indeed, Obama's popularity among college students surpassed that of other age demographics (Panetta Institute for Public Policy, 2011). Additionally, the nationally representative sample of Schmidt and Nosek (2010) was likely to contain as many Obama detractors as supporters who were also exposed to more heterogeneous depictions of him. That Schmidt and Nosek failed to see an overall change suggests that liking of Obama surged among some and plunged among others. To the extent that media influence attitudes toward Obama, it would appear that different information sources provide different portrayals of him.

CONTEXT EFFECTS ON EVALUATIVE ASSOCIATION

We argue that like any attitude-object, effects of exposures to Obama can be influenced by positive or negative portrayals, which are often determined by the context. Indeed, it has been shown that automatically activated attitudes toward Blacks are influenced by contextual valence (for a review, see Blair, 2002). For example, Wittenbrink, Judd, and Park (2001) manipulated the context in which Blacks and Whites were depicted, altering the foreground and background of images to either contain a Black or White face over a positive (e.g., church interior) or negative (e.g., dilapidated street corner) background. Negative bias toward Blacks on a sequential priming task was attenuated to Black/church versus Black/street images, while bias toward Whites was unaffected by the background. Similarly, portraying Blacks in counter-stereotypical (e.g., lawyer, churchgoer, student) ver-

sus stereotypical (e.g., prisoner, athlete) roles has been shown to ameliorate negative bias toward Blacks, providing evidence for the interactive effects of context in moderating automatic attitudes (Barden, Maddux, Petty, & Brewer, 2004). Thus, the Obama effect is likely to be influenced by the context in which he is portrayed.

Political figures are often depicted in more or less positive contexts on news websites. A political figure might, for example, be portrayed next to a very liked or disliked "other," or along with a clearly valenced overlaying text. In this context, the interactive effects of multiple elements are paramount. As Wertheimer's (1923) work on perceptual organization showed, stimuli placed in close proximity to each other in time or space may be perceived as a cluster, and therefore processed in an interactive manner. Such proximity may increase the likelihood that elements in a scene will become associated in memory. Thus, text overlaying an image (similar to those often used by news media websites) is likely to become linked to the image itself, and influence the evaluation of objects in the image.

An obvious mechanism through which proximal stimuli can influence the processing of a target is through implicit misattribution of affect. Our work and others (Hütter & Sweldens, 2013; Jones, Fazio, & Olson, 2009) has shown that elements presented simultaneously or in close proximity can generate "source confusability" regarding the affect generated by the perceptual experience such that affect from one object is misattributed to the other. Affect is more likely to be misattributed when elements are presented in close proximity and when eye-gaze shifts between them are facilitated (Jones et al., 2009). In other words, the more intertwined perceptions of multiple elements are, the more likely affect from the one will be attributed to the other. Such entwinement is readily seen in the imagery of public figures presented on news media websites. For example, some news media often make use of split-screen presentations, whereby politicians are often presented alongside half-screens of valenced material, and the use of split-screens has been shown to influence attitudes (e.g., Scheufele, Kim, & Brossard, 2007; Seiter, Abraham, & Nakagama, 1998). To the extent that an attitude object (e.g., Obama) is depicted as integral to some evaluatively charged context (e.g., valenced text), we predict that evaluative transfer is more likely.

A cursory look at depictions of President Obama on Internet news sites suggests that there is indeed entwinement of valenced objects and Obama. The present research focuses on two popular news websites: FoxNews.com and CNN.com. The former caters to a more conservative audience (Aday, 2010; Pew Research Center, 2009) while the latter caters to more progressive viewers (Pew Research Center, 2009). On the FoxNews.com website, negative images and words are often melded with depictions of Obama, while text is typically not included in CNN images of Obama (contact the author for sample main page images from FoxNews.com and CNN.com). In light of the previously reviewed studies showing how contextual elements are processed in an integrative manner, such text-image melding may facilitate implicit misattribution whereby Obama becomes associated with the negativity activated by the valenced image or word. The question of whether FoxNews.com (as compared to CNN.com) portrays Obama more negatively is an empirical one we address in the present research.

THE CURRENT WORK

Primarily, we aim to demonstrate that dissimilar depictions of Obama presented with contextually positive or negative text or images can influence perceivers' attitudes toward him. This effect would be consistent with the misattribution processes we have described. In particular, we argue that the way in which negative information is often integrated into the depictions of Obama presented on FoxNews.com can encourage source confusability, leading the negative information in the image to be misattributed to Obama.

We expect that the Obama effect is influenced by a number of factors, such as the strength of one's attitude toward Obama prior to exposure, the type of exposure (e.g., watching him give a rousing speech vs. seeing a static image and quotes), and, most germane to this study, the contextual nature in which he is portrayed. Thus, we aim to explore whether evaluations of Obama can be manipulated by altering contextual elements. Importantly, we attempt to make causal inferences via experimental manipulation, but also retain ecological validity by employing actual depictions of Obama found in popular media (i.e., news websites). More so, our dependent variable is not attitudes toward Blacks, *per se*, but attitudes toward Obama. However, given research on the Obama effect indicating that Obama's popularity and counter-stereotypicality can influence racial attitudes, understanding how attitudes toward Obama might be influenced by media portrayals is particularly important.

Two relevant clarifications are important to make. First, we assumed that people with stronger attitudes would be less likely to misattribute the source of their affect as a function of the way in which an object is depicted (because they are already aware of the source of their affect). Therefore, we predicted that media depictions would influence attitudes only among those with weaker, less-developed attitudes. Thus, we used the Need to Evaluate scale (NES; Jarvis & Petty, 1996) as an indicator of general attitude strength. Second, because misattribution of affect is thought to occur automatically and associatively (Kendrick & Olson, 2012; Gawronski, Balas, & Creighton, 2013), we expected indirect measures, which are better able than explicit measures to assess such associations (Fazio & Olson, 2003), to be most sensitive to implicit misattribution. However, most implicit measures (e.g., priming, IAT) require two naturally contrasting categories (e.g., Blacks vs. Whites), but in the case of Obama, there is no obvious contrast. Therefore, the SC-IAT was employed because it does not require a contrast category (Karpinski & Steinman, 2006).

In Study 1, participants rated a random sample of images depicting Obama collected during the same time period on the main page of FoxNews.com and CNN.com. Our goal was to provide empirical evidence that FoxNews.com and CNN.com indeed depicted Obama dissimilarly. Given FoxNews.com's reputation for catering to a more conservative audience (and hence presumably depicting Obama more negatively), we drew what should be opposing imagery from a

more moderate website (i.e., CNN.com). We predicted that FoxNews.com images of Obama would be viewed as depicting him more negatively than images from CNN.com. In Study 2, we inserted those images into an evaluative conditioning (EC) paradigm (Olson & Fazio, 2001) to assess the impact of incidental exposure to those images on perceivers' attitudes toward Obama. Here we expected that the FoxNews.com images, when presented to participants incidentally in the EC task, would lead to more negative automatic attitudes toward Obama among those with weaker attitudes.

STUDY 1

METHOD

Participants. One-hundred and eleven undergraduate students at a large southeastern American university participated in groups of 1 to 8 for partial fulfillment of course requirements.

Materials. Images were selected from the main webpage of both FoxNews.com and CNN.com. From late May to early September, 2009, parallel checks of each website's front page were conducted once nearly every weekday at the same time (approximately 8:30 a.m. EST). Images depicting Barack Obama as the main front-page image were selected from each site until 20 were acquired from each. Simple stock photos of headshots/busts were excluded under the assumption that they contain little context or emotional material. Thus, the criteria employed for image selection was that the front page image had to include Obama and a word, an object, another person, or a clearly identifiable background. The two sites met these criteria at the same rate, so the time-frame for collecting the images from each site was identical.

One qualitative difference between images sampled from CNN.com and FoxNews.com was that all images on FoxNews.com had text captions embedded within the image itself, whereas no images sampled from CNN.com contained such a feature. Therefore, to control for the potential influence such words might have, duplicate sets of the 20 FoxNews.com images were created with text blackened out. This resulted in three image sets: CNN, Fox-words, and Fox-no-words.

Procedure. Participants were seated in individual cubicles equipped with monitors and keyboards. Participants were then shown all 60 images of Obama (CNN, Fox-words, and Fox-no-words) and indicated how they felt he was depicted in each image on a scale from -2 ("Very Unfavorable") to +2 ("Very Favorable"). They were told to base these judgments on how he was objectively portrayed in each image, not on how they personally felt. Images were presented in random order without any information indicating their original source.

RESULTS AND DISCUSSION

Image ratings were analyzed using a one-factor (Media Type) repeated-measures ANOVA. Results indicated that the source of the images significantly affected the

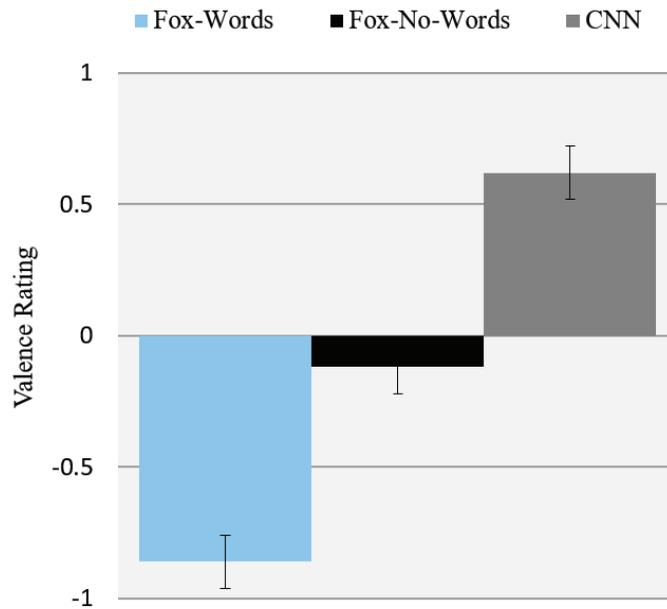


FIGURE 1. Mean ratings of images by Media Type. All means differ at $p < .01$.

ratings of how Obama was portrayed, $F(2, 109) = 253.56, p < .001, \eta_p^2 = .82$. Further, contrasts show that Fox-words images ($M = -.86, SD = .53$) were rated more negatively than images taken from CNN.com ($M = .62, SD = .55$), $F(1, 110) = 509.37, p < .001, \eta_p^2 = .82$, as well as more negatively than the Fox-no-words images with the text digitally removed ($M = -.12, SD = .52$), $F(1, 110) = 285.24, p < .001, \eta_p^2 = .72$. The Fox-no-words images were also rated more negatively than the CNN images, $F(1, 110) = 246.47, p < .001, \eta_p^2 = .69$ (see Figure 1).

Further tests confirmed that all ratings for the three media types differed significantly from the scale neutral point. CNN images were found to contain overall positive depictions of Obama, $t(110) = 11.78, p < .001, d = 2.25$, whereas the Fox-words images and the Fox-no-words images were rated as depicting Obama negatively, $t(110) = -17.21, p < .001, d = 3.28$ and $t(110) = -2.47, p = .01, d = .47$, respectively.

Thus, according to our naive participants' perceptions, images selected for use by various news websites vary systematically in how positively or negatively they portray Obama. Moreover, overlaying an individual with text (often negatively phrased statements) had the largest effect on viewers' perceptions of the Obama depictions. Participants rated these Fox-words images significantly more negatively than identical images with the words removed.

Having found empirical evidence of valence differences in the images from FoxNews.com and CNN.com, we next explored the critical question of what effects incidental exposure to such images have on peoples' attitudes toward Obama. Study 2 addressed our hypothesis that repeated exposure to valenced images com-

monly found across media websites can influence attitudes regarding Obama, particularly among those with weakly held attitudes.

STUDY 2

This study employed an evaluative conditioning (EC) paradigm to expose participants to the Obama images. EC, a change in one's attitude toward an object due to its association with other valenced items, is a pervasive source of attitudes (e.g., De Houwer, Thomas, & Baeyens, 2001; Jones, Olson, & Fazio, 2010). A typical EC paradigm pairs a novel object (the CS, e.g., a political figure) with clearly valenced stimuli (the US, e.g., positive and negative words and images). In our work (e.g., Jones, Olson, & Fazio, 2010; Olson & Fazio, 2001, 2006), and the present study, such pairings are presented under the guise of a "surveillance task," where the primary objective is to search for "target objects" not the subject of conditioning embedded in a series of filler words and images. The EC paradigm utilized by Study 2 was well suited as a vehicle for systematically exposing participants to depictions of Obama without drawing attention to the purpose of the study. This paradigm allowed us to "incidentally" expose participants to one of the three sets of Obama images situated within a task ostensibly unrelated to Obama himself. Given its paired presentation of proximal images, this EC paradigm was further useful as a tool for facilitating misattribution of affect, an important quality since we assumed that misattribution may be a mechanism underlying the attitude change brought about through incidental exposure to valenced stimuli.

We also administered the Need to Evaluate Scale as a measure of general attitude strength (NES; Jarvis & Petty, 1996). The NES measures the extent to which people spontaneously evaluate objects as good or bad. Past research has shown that individuals high versus low in need to evaluate possess stronger overall attitudes (Petty & Jarvis, 1996), report attitudes more quickly (Hermans, De Houwer, & Eelen, 2001; Petty & Jarvis, 1996; Tormala & Petty, 2001), and engage in more spontaneous implicit evaluations (Jarvis & Petty, 1996). Given these findings, we expected that NES scores may moderate the effects of valenced Obama exposures as the attitudes of individuals low in NE may be more malleable.

Previous research has also found that NE relates to several behaviors related to the political process (e.g., likelihood of using party identification to inform their evaluations, likelihood of using their own views to inform their evaluations, political engagement, voting intentions, political information-seeking behaviors, etc.; Bizer et al., 2004). That is, people high in NE tend to vote along party lines, vote more, are more informed voters, and have more extreme political attitudes.

METHOD

Participants

Two-hundred and fifteen undergraduate students at a large southeastern American university participated in groups of 1 to 8 for partial fulfillment of course re-

quirements. Four were removed from analyses for committing excessive errors on the SC-IAT (> 30%), leaving 211 for primary analyses. Participants were randomly assigned to 1 of 4 conditions based on which Obama image set they viewed: CNN, Fox-words, Fox-no-words, and a fourth, control condition, where they were shown no images of Barack Obama.

Materials and Procedure

Participants were seated in individual cubicles equipped with monitors and keyboards where they were subjected to an EC procedure designed to minimize explicit awareness of its intended purpose (for further details on the procedure, see Jones, Fazio, & Olson, 2009). They were told that they were participating in a study on “media surveillance” designed to assess how people process visual stimuli while attending to other online media content. Participants were instructed to attend to the monitor while they were shown a stream of images “taken from various online media outlets,” which included images of political figures (e.g., Mitt Romney, Charlie Crist), as well as random images from a stimulus pool (e.g., a bicycle, an electrical outlet). To reduce the salience of the Obama images’ repetition, some of these filler images were shown between 2–8 times each, and others appeared only once. Participants’ task was to be vigilant for target images (which were also political figures taken from news websites, e.g., Joe Biden) and to press the space bar as quickly as possible whenever the target appeared. Targets appeared as either words or both words and images. Targets differed by block, and were presented on the screen before each block. Participants completed five blocks that each contained 86 trials presented for 1.5 seconds, with a 1 second inter-trial interval. Targets appeared randomly eight times per block. The 20 Obama images also appeared randomly, four times per block, among the other fillers, and varied according to the condition participants were assigned. Sixteen trials were “blank” filler trials designed to disrupt the rhythmic flow of the presentation, and the remaining trials consisted of filler images (described above). Targets and fillers were identical across conditions. The 20 Obama trials were omitted for control participants, which resulted in a negligible shortening of the procedure (30 seconds).

Single Category IAT. Participants then completed the Single Category IAT (SC-IAT; Karpinski & Steinman, 2006). The SC-IAT was used to measure individuals’ automatic attitudes toward Obama. The SC-IAT is a variation of the original IAT (Greenwald, McGhee, & Schwartz, 1998) that can be used to measure attitudes toward objects that do not have a natural opposite. This allows for the measurement of evaluative associations without requiring the use of a complimentary category. Since we were more interested in absolute associations toward a single item that does not have a natural complementary category (i.e., Obama), this measure was a fitting choice.

The SC-IAT was administered using parameters from Karpinski and Steinman (2006), and consisted of three practice blocks of 10 trials each in which participants categorized positive words, negative words, and depictions of Obama, respectively, followed by two critical blocks of 60 trials each involving positive and

negative word trials interspersed with depiction of Obama trials. One such block required them to respond by pressing the space bar whenever a positive word or a depiction of Obama appeared, and another required them to respond whenever a negative word or depiction of Obama appeared. The order of critical blocks was counterbalanced across participants (a variable which produced no main effects or interactions).

Need to Evaluate Scale. Next, participants filled out several ostensibly unrelated questionnaires, among them the NES. Need to evaluate is measured on a 5-point scale from *extremely uncharacteristic* to *extremely characteristic*. It prompts participants to rate how well a series of 16 statements describes them. The statements are either related to the number of attitudes one possesses (e.g., "I form opinions about everything") or to the strength of one's opinions (e.g., "It is very important to me to hold strong opinions").

As support for our premise that NE relates to political attitude strength, a pilot study ($n = 124$) was conducted where participants were led to believe, through false feedback, that they held either relatively weak ($n = 66$) or strong ($n = 58$) political attitudes, before completing the NES. The former group showed lower NES scores ($M = 3.22$, $SD = .55$) than the latter group ($M = 3.38$, $SD = .47$), $t(122) = 1.79$, $p = .08$.

Other Measures. Participants then completed a feeling thermometer measure of their attitudes toward Obama and several filler politicians using a 0 (very cold) to 100 (very warm) scale. Participants finally completed a probe whereby they reported anything unusual they observed about the images depicting Obama during the surveillance task, along with anything else about the experiment that they wished to share.¹

RESULTS AND DISCUSSION

SC-IAT effects were computed by subtracting responses latency means of the Obama-positive blocks from those of the Obama-negative blocks, divided by the standard deviation of the participant's response latencies (after excluding error trials; see Olson & Fazio, 2004), resulting in a d -score where higher numbers indicates a pro-Obama attitude. A feeling thermometer Obama score was created by subtracting the mean of all other thermometer ratings from ratings of Obama for each participant. This index indicated a relatively negative but varied evaluation of Obama in the sample ($M = -11.6$, $SD = 33.0$), $t(208) = -5.08$, $p < .01$, $d = -.70$. Mean NES scores were computed as described in Bizer et al. (2004), which involves reverse-scoring several items and computing an overall mean such that higher scores indicate a higher need to evaluate. These scores did not vary by condition ($F < 1$). NES was treated as a continuous variable in all analyses.

1. Forty-three participants (20%) reported observing that Obama was depicted positively or negatively in accordance with the results of Study 1 (e.g., a participant in the Fox-words condition reporting that Obama seemed depicted negatively, or a participant in the CNN condition reporting that Obama seemed depicted positively). Excluding such participants altered neither the pattern of results nor reduced any of the significant effects to nonsignificant levels.

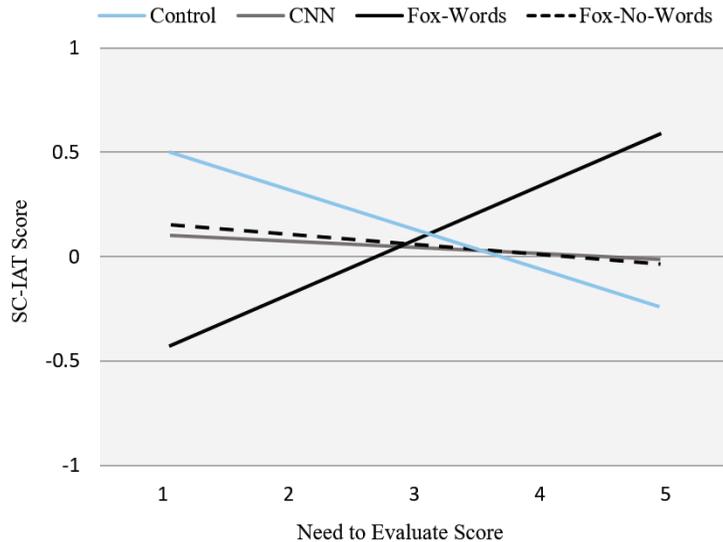


FIGURE 2. Regression lines for Need to Evaluate (NE) and SC-IAT attitude estimates by Media Type.

SC-IAT scores were analyzed using ANOVA with Media Type (CNN, Fox-words, Fox-no-words, and control) as a 4-level categorical between-subjects variable and NES scores as a continuous covariate in a model that included their interaction term. There was no main effect of Media Type, $F(3, 198) < 1$. However, the expected Media Type \times NES interaction was observed, $F(3, 198) = 2.98, p < .05$. A contrast comparing the Fox-words to all other conditions revealed a significant difference in slopes, $F(1, 198) = 7.48, p < .01$. No other conditions differed from one another (all $F_s < 1$).

Only in the Fox-words condition was there a significant relationship between NES scores and the SC-IAT, $t(51) = 2.64, p < .01, b = .35$ (see Figure 2). As expected, as NES scores decreased, participants exposed to Fox-words images evinced more negative attitudes toward Obama on the SC-IAT. However, while the NES-SC-IAT regression line showed the expected slope, its intercept was higher than expected, indicating that those with higher NES scores in the Fox-words condition evinced more positive attitudes toward Obama; we speculate on this finding in the general discussion. The control condition also showed a nonsignificant tendency such that higher NES scores were associated with more positive Obama attitudes, $t(49) = 1.49, p = .14, b = -.21$. There was no relationship between NES and attitude estimates within the CNN and Fox-no-words conditions, $t_s < 1, |b|s < .05$.

The same analyses were performed predicting feeling thermometer ratings of Obama. These analyses revealed only a main effect of NES, $F(3, 207) = 7.08, p < .01$, such that higher NES scores were associated with lower thermometer ratings of Obama, $r = -.17, p < .01$. The Media Type \times NES interaction did not approach sig-

nificance ($F < 1$), although the SC-IAT and thermometer measure showed a moderate correlation, $r = .37, p < .01$.

In sum, people lower in the need to evaluate who were exposed to unaltered FoxNews.com images of Obama came to have a more negative automatic attitude toward him. Situated within the implicit misattribution model of EC we briefly spoke of earlier, these results provide an ecologically valid demonstration of how real-world attitudes are influenced by incidental media exposures.

GENERAL DISCUSSION

Our primary aim was to investigate the impact that dissimilar images of Obama displayed on news-media websites can have in shaping the attitudes of viewers toward him. Study 1 showed that images of Obama from FoxNews.com (whether with overlaid text or without) were rated as portraying Obama more negatively than images from CNN.com. The overlaying text among all FoxNews.com images functioned to potentiate the negative manner in which Obama was depicted.

Study 2 showed that FoxNews.com images of Obama can affect viewers' automatically activated attitudes regarding Obama. Insofar as participants possessed weaker attitudes as assessed by the Need to Evaluate Scale, repeated presentations of Obama in negative contexts, as was the case with the raw images sampled from FoxNews.com, produced more negative automatic associations with Obama as assessed by the SC-IAT. Previous NE research has indicated that those who engage in less evaluation (i.e., who are low in NE) are likely to have less established political attitudes, which may include having less established evaluations of Obama. As the Obama effect hinges on positive evaluations of him, these results inform the Obama effect literature by clarifying for whom depictions of Obama can influence his likeability.

Although we observed that lower NE individuals' attitudes toward Obama became more negative after exposure to Fox News depictions of him, the location of the NES-SC-IAT regression line suggests, unexpectedly, that higher NE individuals' attitudes toward Obama became more positive after exposure to Fox News depictions. While admittedly speculative, it may be that high NE individuals actively resisted Fox News' negative depictions of Obama, leading to a contrast effect in their attitudes. Indeed, people often over-correct for perceived undue influence on their judgments (Wegener & Petty, 1997). As we have discussed, high NE individuals have stronger, more established attitudes, and actively process attitude-relevant information online as it is perceived. Low NE individuals, on the other hand, tend to use memory-based processes to retrieve information when reporting their attitudes. Thus, although our data cannot speak directly to this possibility, we suspect our high NE participants were more likely to (a) notice the attitudinal implications of the Fox News images, and (b) actively resist their influence.

Another question worthy of addressing is why, given that CNN depictions of Obama were found to be relatively positive in Study 1, did the attitudes of participants (with weaker attitudes) exposed to those CNN depictions not become

more positive? A variety of studies show the relatively unique influence negative information has over positive information to draw attention (Dijksterhuis & Aarts, 2003) and sway impressions (Skowronski & Carlston, 1989). Thus, we suspect that negative depictions of Obama had more power to influence attitudes than positive depictions because negative information is generally more impactful.

Finally, comment is in order regarding why media depictions affected attitudes as measured implicitly (via SC-IAT) but not explicitly (via feeling thermometer). This pattern is consistent with other evaluative conditioning studies where change to pre-existing attitudes was observed (e.g., Olson & Fazio, 2006). Evaluative conditioning, particularly when implicit, is thought to influence automatic and affectively oriented associations in particular (Jones et al., 2010), and implicit measures are particularly sensitive to such associations (Fazio & Olson, 2003). Because explicit reports occur “downstream” from automatic responses, other factors, like momentarily salient beliefs, have greater impact on explicit measures. Thus, the pattern of findings on the measures we employed supports our reasoning that media depictions of Obama, at least as implemented here, and at least among those with weaker attitudes, primarily influence affective associations.

WHAT IS THE OBAMA EFFECT?

It remains uncertain if the Obama effect is changing popular attitudes toward Blacks (evaluations of the object), or whether Blacks associated with Obama himself have been flexibly recategorized (object of evaluation). We recognize that as a counter-stereotypical exemplar, Obama challenges attitudes toward Blacks. However, it remains to be seen whether Obama is causing a “change in the object of judgment rather than in the judgment of an object” (Asch, 1948, p. 255). In other words, it may be that the symbolic representation of Obama, and the subsequent Obama effect, are manifestations of people’s re-categorization of Blacks into a more positively evaluated group. Thus, rather than causing a change in how the group (i.e., Blacks) is itself attitudinally represented, Obama is actually causing the associated object (i.e., certain Blacks, the self; see Rivera & Benitez, this issue) to be construed differently. While, admittedly, we do not test it, we consider the EC procedure utilized herein to have changed the attitude toward the object; by exposing participants to portrayals of Obama either with contextually negatively valenced elements or certain facial expressions, we were able to alter automatically activated attitudes toward Obama, not change how he is categorized. This is a conceptually similar procedure and outcome as Olson and Fazio (2006), who were able to change automatically activated attitudes toward Blacks by repeatedly pairing Black or White exemplars with positive or negative words. Thus, while we concur with previous postulations that the Obama effect can be a result of exposure to a counter-stereotypically positive exemplar (Columb & Plant, 2011), and while we agree that exemplar exposure matters, we contend that exemplar valence may be the primary cause of the effect (e.g., Dasgupta & Greenwald, 2001; see Columb & Plant, this issue).

In this light, it is important to note that some research approaches cause a change in the object of evaluation via re-categorization (e.g., Dasgupta & Greenwald, 2001; Mitchell, Nosek, & Banaji, 2003; Wittenbrink, Judd, & Park, 2001), while others alter the evaluation of the object (e.g., Kawakami, Dovidio, Moll, Hermsen, & Russin, 2000; Olson & Fazio, 2006). Acknowledging this divide may help to rectify some of the incongruent findings on the Obama effect (e.g., Columb & Plant, 2011 vs. Schmidt & Nosek, 2010) and serve to further our understanding of the mechanisms that underlie it. We believe this issue is an important one that deserves further study.

SOURCE CONFUSABILITY + AFFECTIVE MISATTRIBUTION = THE INTERNET?

The manner in which people consume information on the Internet has implications for how that information is processed, and hence how people are influenced by that information. Eye-tracking data shows that web users initiate their gaze on the upper-left portion of a given website (Nielsen & Pernice, 2009), precisely the location of front-page images on CNN.com and FoxNews.com. If web users' attention to the site persists, their gaze typically shifts across and down the page in an F-shaped pattern. More so, Internet users read less than a quarter of the words on a given website, and spend less than 4 seconds on nearly 20% of the pages to which they navigate (Nielsen & Pernice, 2009; see also Weinreich, Obendorf, Herder, & Mayer, 2008). When engaged in visual scanning similar to that just described, individuals have an average fixation (i.e., spatially stable gaze) duration of 300 milliseconds before their eyes saccade (i.e., rapidly shift) to another point on the display (Rayner, 1998). Elements in a scene or image are probably not processed singularly, but are instead processed interactively, where elements on the screen in close proximity are implicitly grouped into elemental clusters (Wertheimer, 1923), which can influence perceptions of each. Thus, the way in which people process website information while viewing Internet-delivered content may contribute to the "source confusability" referenced earlier (Jones et al., 2009). Given this, the Obama effect may be more susceptible to contextualized portrayals than has been previously acknowledged.

Web users epitomize the "motivated tactician" approach championed by social cognition researchers (Fiske, 2004), skimming most of the websites they visit and reading little, making ripe conditions for misattribution of text captions to adjoining images. Thus, when clearly negative text is superimposed across an image, the affect which is automatically experienced when briefly scanning the text can be misattributed to the individual saliently depicted in the picture (Hütter & Sweldens, 2013; Jones, Fazio, & Olson, 2009). Such a style of web-browsing may discourage those interested in the more thoughtful and energy-consuming modes of social influence, but it is well-suited for the sorts of influences argued to be so pervasive by implicit attitudes researchers. Indeed, previous research indicates that perceivers' attitudes toward an attitude-object can be influenced by as little as

a second or less of exposure to affect-laden content (e.g., Dijksterhuis, 2004). The Internet is rampant with such examples of clearly evaluative phrases positioned in close proximity to images. Given the manner in which images are processed (Barden et al., 2004; Davenport & Potter, 2004; Wittenbrink et al., 2001), it seems likely that implicit misattribution could produce attitude change among individuals who frequently gather information from news websites.

Another facet of the contemporary news landscape that may lend itself to implicit misattribution is the usage of split-screens during news programming, whereby multiple (and often only indirectly related) images are simultaneously presented to viewers (Scheufele, Kim, & Brossard, 2007; Seiter, Abraham, & Nakagama, 1998). For example, one such news story outlined then-candidate for president Hillary Clinton's positions regarding the war on terror by including a split-screen visual of Clinton on one side of the screen with file footage of militants engaged in training activities on the other. Undoubtedly, 9/11-related images elicit negative emotion and this emotion could certainly be implicitly misattributed to adjacent images. Similarly, it was suggested that the use of split-screen footage during the 2004 presidential debates would be harmful to George W. Bush, based largely on the injurious effects that nonverbal displays of anger and frustration had on perceptions of his performance in the first 2000 Bush-Gore debate. However, consistent with the idea of implicit misattribution, research using actual 2004 debate footage showed that exposure to negative spontaneous reactions of a candidate's opponent seen using split-screens did not cause the reactive opponent to be perceived more negatively, but rather, the negative affect created by the reactive opponent was misattributed to the actively speaking candidate (Scheufele, Kim, & Brossard, 2007; Wicks, 2007). Also consistent with the current research, Scheufele and colleagues (2007) found that this effect occurs only among individuals who have relatively weak pre-existing political attitudes.

NEWS MEDIA AND EVALUATIVE CONDITIONING

Evaluative conditioning commonly influences attitude change (e.g., De Houwer, Thomas, & Baeyens, 2001; Jones, Olson, & Fazio, 2010), which typically involves the pairing of an object (the CS) with another stimuli (the US). In an experimental setting, participants typically prefer CSs paired with positive stimuli over those paired with negative stimuli in the absence of awareness of the pairings (for a review see Jones et al., 2010). EC has proven to be a robust mechanism by which attitudes are formed and changed (Jones et al., 2010; Walther, Weil, & Langer, 2011). Granted, while we recognize that evidence for EC in ecologically valid settings is mixed (e.g., Rozin, Wrzesniewski, & Byrnes, 1998), our aim is not to claim reliable evidence for implicit EC, but to postulate that perhaps EC may be one underlying cause of both the results found here and the Obama effect itself. The repeated pairing of an attitude-object with valenced elements has been shown to alter attitudes toward the object, an effect that can persist for days (Olson & Fazio, 2006). The Obama effect may be the result of repeated exposure to pervasive positive por-

trayals of Obama, which, analogous to basic evaluative conditioning paradigms, altered attitudes toward him in a positive direction. But, as our results show, the effect can be influenced by how he is portrayed, particularly for those with weaker attitudes.

The potential for news-media websites to influence viewers' attitudes via EC, whether intentional or not, is difficult to overstate. Consider that in a given month, more than 41 million unique users arrive on the main page of CNN.com, as do more than 22 million others at FoxNews.com (Nielson Online, 2013). Both websites show "front-page" images without fail, and, given the eye-tracking data discussed earlier, such images are likely to be the first stimuli web users perceive, whether or not they decide to delve further into the site. In the real world, CS and US are not necessarily distinct; the first easily discernable aspects can serve as USs to be associated with the object as a whole. Such CS-US entwinement seems particularly likely to facilitate misattributions of affect from one stimulus to another, a mechanism shown to underlie many EC effects (e.g., Jones et al., 2009). Given what we have argued about how affect from the US can be mistakenly attributed to the CS with no effort or intention, and the data we have reported here, it would appear that Internet users' website consumption behavior is conducive to implicit EC.

THE LEGACY OF BARACK OBAMA

The Obama effect entails reduced prejudice toward Blacks among certain populations (Columb & Plant, 2011; Plant et al., 2009; however see Skinner & Cheadle, this issue). However, others have failed to replicate the Obama effect in an ostensibly more diverse sample (Schmidt & Nosek, 2010). These seemingly contradictory results likely stem from both the populations tested and the stimuli used. For instance, Plant and her colleagues relied on university students who had likely consumed affect-laden pro-Obama media during the election season (e.g., rousing convention speeches). Thus, participants in Plant's studies likely both held positive pre-existing attitudes toward Obama, but were also disproportionately exposed to primarily positive portrayals. Conversely, the (presumably nationally representative) sample of Schmidt and Nosek likely had much more varied attitudes toward Obama while also being exposed to more diverse portrayals (i.e., both positive and negative). Alternatively, Marx, Ko, and Friedman (2009) observed a stereotype threat buffering effect of exposure to Obama on Black standardized test takers. However, Aronson, Jannone, McGlone, and Johnson-Campbell (2009) failed to replicate Marx and colleagues' (2009) buffering effects, with Black students showing no performance enhancement. These seemingly disparate results may reflect the unique ways in which participants in each of these studies were exposed to Obama. In some contexts Obama was depicted very positively (e.g., college campuses; Plant et al., 2009), in others a more mixed exposure (e.g., Schmidt & Nosek, 2010), and in others a much more neutral, information-based exposure (e.g., Aronson et al., 2009). In this light, these differential depictions underscore

our postulations that the Obama effect is driven by evaluations of Obama, which are directly affected by how he is portrayed. Media portrayals can affect attitudes toward Obama through evaluative conditioning mechanisms. Thus, relatively more positive exposures (e.g., campaign speeches) result in more positive evaluative outcomes, and a larger effect. On the contrary, mixed or mundane exposures may not influence evaluations toward Obama enough to evoke an Obama effect. In this regard, we argue that the legacy of Obama, and the power of the Obama effect itself, will likely be influenced by how he is portrayed as much as by his actual accomplishments.

CONCLUSION

Nearly half a century ago, Marshall McLuhan coined the oft-quoted maxim “the medium is the message,” referring to the prospect that the method of conveying information will become more important than the content being conveyed. Recently, an on-air commentator on the Fox News television station explicitly suggested the advantageous use of a split-screen in a way reminiscent of evaluative conditioning, specifically that images of Obama be presented opposite images of John McCain, purportedly as a way of turning one of Obama’s strengths from the 2008 election into a weakness during the upcoming election (Goldberg, 2011). In a time of ever increasing political polarity among news providers, claims of bias are certainly commonplace among critics of the media (e.g., Coe et al., 2008). To be clear, while we have no evidence that the effects of these news sites’ images on viewers’ attitudes are intentional, suggestions that a negative attribute could be implicitly misattributed is a prospect about which some in the media appear keenly aware. While the findings presented here remain agnostic to such assertions, it is worth noting that, even if unintentional, measurable and potentially influential effects can result from superficial exposure, particularly among individuals with weaker pre-existing attitudes. The risk then for those most susceptible is in their unwittingly implicitly conditioning themselves via repeated exposure to the effects of valenced images. Unless the implicit effects of valenced images are acknowledged, the media itself runs the risk of becoming the message.

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THE OBAMA EFFECT SIX YEARS LATER: THE EFFECT OF EXPOSURE TO OBAMA ON IMPLICIT ANTI-BLACK EVALUATIVE BIAS AND IMPLICIT RACIAL STEREOTYPING

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Across two studies we examined whether exposure to Obama, a positive and counter-stereotypic exemplar, reduced implicit anti-Black evaluative bias and racial stereotyping. Additionally, we evaluated whether reactions to exposure to Obama were moderated by people's explicit feelings about Obama or their perceptions of his stereotypicality. In Study 2, we extended our scope to evaluate whether a positive but stereotypic Black exemplar, Kobe Bryant, had similar effects as Obama on implicit responses. We found that exposure to either Bryant or Obama, following exposure to negative Black exemplars, caused a reduction in implicit anti-Black evaluative bias and racial stereotyping, relative to a control condition. Further, we failed to find evidence that people's explicit feelings toward Obama or their perceptions of Obama's stereotypicality moderated the effect of subliminal exposure to him on implicit responses. The implications of these findings for the role of positive exemplars on implicit responses are discussed.

Keywords: implicit anti-Black evaluative bias, implicit racial stereotyping, Barack Obama, exemplars

Since the day he announced his candidacy for president of the United States, Barack Obama has been a household name not only in America, but also across the globe. Given the prominence of this highly positive and counter-stereotypic Black individual, many researchers became interested in examining the potential

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implications of exposure to Obama for people's attitudes, beliefs, and behaviors (e.g., Aronson, Jannone, McGlone, & Johnson-Campbell, 2009; Knowles, Lowery, & Schaumberg, 2009; Marx, Ko, & Friedman, 2009). Evidence during his highly publicized campaign and first term of his presidency indicated that exposure to Obama had positive implications for people's implicit attitudes toward Black people more generally (e.g., Bernstein, Young, & Claypool, 2010; Columb & Plant, 2011; Plant, Devine, Cox, Columb, Miller, Goplen, & Peruche, 2009). As Obama nears the end of his presidency, we were interested in revisiting the implications of exposure to Obama for people's implicit responses toward Black people.

THE "OBAMA EFFECT"

During the 2008 presidential primaries, researchers began noticing a significant reduction in implicit anti-Black evaluative bias and racial stereotyping for non-Black participants (Plant et al., 2009). Follow-up correlational research provided evidence of a connection between Obama and this reduction. For example, Plant and colleagues (2009) found that individuals who had lower implicit anti-Black evaluative bias and racial stereotyping were more likely to think of Obama or other positive Black exemplars when asked to list the first five thoughts that came to mind when they thought of Black people. Other researchers also provided evidence of a reduction in implicit anti-Black evaluative bias from pre- to post-election (Bernstein et al., 2010). In contrast, researchers examining large samples of implicit attitudes online found little to no change in implicit anti-Black evaluative bias levels among samples from the United States during the time of Obama's nomination or presidency (Schmidt & Axt, this issue; Schmidt & Nosek, 2010). Based on the lack of change in implicit anti-Black evaluative bias, Schmidt and Nosek (2010) concluded that constant exposure to Obama in the United States did not have an overall influence on implicit anti-Black evaluative bias for the American population.

Given the discrepant findings regarding the impact of Obama on implicit attitudes, Columb and Plant (2011) experimentally evaluated if exposure to Obama could reduce implicit anti-Black evaluative bias. However, to address this question, they had to first undo Obama's influence. That is, if the extensive exposure to Obama during his election and the early days of his presidency had caused a reduction in implicit anti-Black evaluative bias, then how could one provide evidence of this positive effect after it had already occurred? Past research had demonstrated that exposure to exemplars influence implicit biases for at least 24 hours (Dasgupta & Greenwald, 2001), and, given his prominence at the time of the research project, many participants likely had been exposed to Obama (e.g., in the media) in the recent past. In order to address this issue, Columb and Plant (2011) decided that they first had to "undo" the Obama effect to counteract the extensive exposure to Obama outside of the lab and temporarily raise implicit anti-Black evaluative bias levels to accurately assess whether or not exposure to Obama could reduce implicit anti-Black evaluative bias.

In order to examine these issues, Columb and Plant (2011) randomly assigned participants to one of three experimental conditions where they were primed with negative exemplars, negative exemplars and then Obama, or a neutral prime control condition. Specifically, participants completed a lexical decision task. Before every trial, participants in the control condition were subliminally primed with a string of Xs. In contrast, in the negative exemplar condition participants were primed with the negative exemplars (e.g., O.J. Simpson) for the first half of the trials to “undo” the Obama effect and then were primed with string of Xs for the second half of the trials. Participants in the negative exemplars and then Obama condition were primed with the negative exemplars for the first half of the trials and then primed with Obama during the second half of the trials. After the primed lexical decision task, participants completed the Implicit Association Task (IAT) assessing their preference for White people over Black people.

As expected, participants in the negative exemplar condition demonstrated significantly greater implicit anti-Black evaluative bias compared to those in the control condition, providing evidence that exposure to negative exemplars did undo the Obama effect and led to heightened implicit negativity. Consistent with the Obama effect, participants in the negative then Obama prime condition had significantly lower levels of implicit anti-Black evaluative bias than those exposed only to negative exemplars. Participants in the Obama condition had similar levels of implicit anti-Black evaluative bias as those in the control condition. The researchers concluded that exposure to Obama can reduce implicit anti-Black evaluative bias, which they argued might explain why some researchers had found a general reduction in implicit anti-Black evaluative bias levels during Obama’s presidential election.

The primary purpose of the present project was to revisit the Obama effect and evaluate if exposure to Obama reduces implicit bias at the end of his presidency. Specifically, we evaluated across two studies if exposure to Obama had an influence on both implicit anti-Black evaluative bias and implicit racial stereotyping. It was possible that we would replicate and extend previous work (e.g., Bernstein et al., 2010; Columb & Plant, 2011; Plant et al., 2009) and find that exposure to Obama would reduce implicit anti-Black evaluative bias and implicit racial stereotyping. Alternatively, it was possible that exposure to Obama would not influence people’s responses toward Black people at the end of his presidency. One reason why this may be possible is because of a change in public perception of Obama; for example, at the time this research was conducted Obama had a lower approval rating than when he began his presidency (Gallup, 2015). If, however, exposure to Obama had a positive impact on people’s implicit anti-Black evaluative and stereotypic responses, we were also interested in evaluating whether the magnitude of this impact was moderated by the positivity of people’s evaluation of Obama or their perceptions of his stereotypicality.

IMPLICATIONS OF EXPOSURE TO EXEMPLARS

Past research has demonstrated that exposure to exemplars (i.e., individuals from a social group) can alter implicit attitudes and racial stereotyping regarding that social group (e.g., Blair, Ma, & Lenton, 2001; Dasgupta & Asgari, 2004; Dasgupta & Greenwald, 2001; Rydell, Hamilton, & Devos, 2010). In contrast, exposure to exemplars does not tend to influence people's explicit attitudes toward the exemplar's social group (e.g., Columb & Plant, 2011; Dasgupta & Greenwald, 2001; Rydell et al., 2010). Several theories examining the formation and alteration of attitudes provide insight into how exemplars influence implicit attitudes (Conrey, Sherman, Gawronski, Hugenberg, & Groom, 2005; Gawronski & Bodenhausen, 2006; Rydell & McConnell, 2006). For example, the associative-propositional evaluation model (APE) argues that a change in implicit, but not explicit attitudes, occurs when a factor alters the pattern of activated thoughts toward a group but this activated information is rejected as a valid basis for conscious judgment (Gawronski & Bodenhausen, 2006). Accumulating research supports the proposition that exposure to exemplars from a social group changes what immediately comes to mind when thinking about the group, which in turn influences implicit responses toward that group (e.g., Dasgupta & Rivera, 2008; Gawronski & Bodenhausen, 2006; Gonsalkorale, Allen, Sherman, & Klauer, 2010).

Although research has begun to delve deeper into the processes and mechanisms that underlie exemplar effects (e.g., Dasgupta & Rivera, 2008; Joy-Gaba & Nosek, 2010), there are several questions yet to be addressed. First, what is it about the qualities of the exemplars that cause the shift in implicit racial biases? The exemplars selected in previous research often were selected for both their valence and stereotypicality. In other words, participants were exposed to exemplars that were generally perceived as both positive and counter to the stereotypes associated with their in-group or negative and stereotypic of their in-group. Previous work has not disentangled these two qualities to examine whether the influence of exemplars is due primarily to their positivity or to their counter-stereotypicality.

As mentioned previously, exposure to exemplars changes what immediately comes to mind when thinking about a target group (e.g., Gawronski & Bodenhausen, 2006). Applying this notion to the Obama effect, exposure to Obama may activate the traits associated with him (e.g., powerful, motivated, successful, intelligent), which may then be automatically applied to Black people generally. It is also plausible that exposure to Obama activates people's general evaluation of him as a positive individual and this positive evaluation could then be applied to Black people generally. Previous work has demonstrated that people who are subliminally exposed to positive information about an individual form more positive implicit attitudes about that individual (Rydell & McConnell, 2006; Rydell, McConnell, Mackie, & Strain, 2006). In addition, exposure to positive stereotypes about African Americans led European American participants to view African Americans as more American (Rydell et al., 2010). Thus, exposure to positive information about a group, even when that information is stereotypic, may have positive implications for people's implicit responses. These findings suggest that exposure

to a positive exemplar may be sufficient to reduce implicit bias toward that exemplar's social group. Other work has shown that exposing people to exemplars that are selected to be specifically counter-stereotypic (e.g., women leaders) can influence relevant implicit stereotyping (Dasgupta & Asgari, 2004). Thus, it is possible that either the perceived positivity or perceived counter-stereotypicality of Obama (or both) are responsible for the Obama effect on implicit responses.

These possibilities offer competing hypotheses regarding how perceptions of exemplars that diverge in their positivity and counter-stereotypicality would influence implicit anti-Black evaluative bias and implicit racial stereotyping. If the information activated after exposure to an exemplar is outcome-specific, then exposure to a positive but stereotypic exemplar should only reduce implicit evaluative bias (i.e., valence) and not implicit stereotyping about the exemplar's group. However, if the influence of exemplar exposure is more generalized either factor may influence both implicit evaluative bias and stereotyping. In that case, for example, exposure to a positive but stereotypic exemplar could reduce both implicit evaluative bias and stereotyping. In order to examine these issues, we evaluated whether perceptions of Obama's positivity and stereotypicality moderated the effects of exposure to the exemplar on implicit anti-Black evaluative bias and racial stereotyping. In our second study, we also explored the implications of exposure to an exemplar that is generally viewed positively but also stereotypically (i.e., Kobe Bryant) on both implicit anti-Black evaluative bias and racial stereotyping.

GENERAL OVERVIEW AND HYPOTHESES

There were several goals for this project. First, we wanted to evaluate whether the Obama effect was present toward the end of Obama's presidency. It was possible that Obama's lower approval ratings at the end compared to the beginning of his presidency (Gallup, 2015) would result in him not serving as a positive exemplar to reduce implicit anti-Black evaluative bias. However, we predicted that we would find an effect of exposure to Obama due to perceptions of him as a generally positive and counter-stereotypic exemplar (i.e., serving as president of the United States for two terms is undeniably an indication of career success for a politician). Second, we wanted to extend previous work on the Obama effect and examine experimentally whether exposure to Obama reduced implicit racial stereotyping in addition to implicit anti-Black evaluative bias. Therefore, across two studies we included assessments of both implicit anti-Black evaluative bias and implicit racial stereotyping.

Third, we wanted to delve into why exposure to exemplars such as Obama affect implicit anti-Black evaluative bias and racial stereotyping. More specifically, we were interested in evaluating whether explicit perceptions of the exemplars' valence and stereotypicality moderate exemplar effects on implicit anti-Black evaluative bias and racial stereotyping. We argue that one of several outcomes is possible. It is possible that the influence of evaluations of exemplars on implicit attitudes and stereotyping is specific to the most relevant dimension. In other words,

exposure to Obama would reduce implicit racial stereotyping only if he is viewed counter-stereotypically, and exposure to Obama would reduce implicit anti-Black evaluative bias only if he is viewed positively. Alternatively, it is possible that Obama's influence on implicit anti-Black evaluative bias and racial stereotyping is not dependent on him being perceived both positively and counter-stereotypically; only one dimension may be necessary and sufficient to reduce both implicit anti-Black evaluative bias and racial stereotyping.

Over the course of two studies, we evaluated how perceptions of an exemplar influence the implications of exposure to that exemplar. Specifically, we evaluated whether or not the perceived valence and perceived stereotypicality of Obama moderated the effect of exposure to Obama for people's implicit anti-Black evaluative bias and racial stereotyping. Across both studies we measured people's conscious perceptions of Obama. In Study 2, we also examined the implications of exposure to an exemplar who we selected to be discrepant in his positivity and stereotypicality. Specifically, we exposed some participants to Kobe Bryant, who pilot testing indicated was viewed positively but stereotypically on average. By examining the implications of exposure to Bryant on both implicit anti-Black evaluative bias and racial stereotyping, we could examine if a positive exemplar was sufficient to influence both forms of implicit bias. If the effect of exposure to exemplars is specific to how they are perceived on the two dimensions, then we should only see a reduction in implicit anti-Black evaluative bias (not implicit racial stereotyping) when exposed to Kobe Bryant, relative to control. However, if the effect generalizes, then we will see an effect of exposure to Bryant relative to control on both implicit anti-Black evaluative bias and racial stereotyping, mirroring the pattern of exposure to Obama.

STUDY 1

Study 1 was designed to replicate and extend past research and to evaluate whether exposure to Obama decreased implicit anti-Black evaluative bias and implicit racial stereotyping, relative to a control prime. Past research demonstrated that it was first necessary to undo the Obama effect due to frequent exposure to him through the media (Columb & Plant, 2011). In addition, because it is impossible to know to what or whom participants had been recently exposed and what may be activated based on that exposure, we thought it was helpful to have everyone start with having similar recent exposure. Therefore, we first exposed participants to a set of negative exemplars. Afterward, participants were exposed either to a control prime or Obama. We predicted that exposure to Obama after the negative exemplars would cause a significant decrease in implicit anti-Black evaluative bias and racial stereotyping relative to participants who were exposed to a control prime.

We also evaluated several potential moderators of the Obama effect, including approval of Obama's performance as president, participants' political affiliation, perceptions of Obama as stereotypic of Black people, and the positivity of participants' overall perception of Obama. Because previous work did not find that ap-

proval of Obama as president or political affiliation influenced the magnitude of the Obama effect (Columb & Plant, 2011; Plant et al., 2009), we did not predict that these factors would influence responses in the present work. We were less sure whether and how the positivity of people's feelings about Obama or their perceptions of his stereotypicality would influence the Obama effect.

In the present work, we assessed participants' stereotypic perceptions and feelings about Obama explicitly. We expected that people would be generally aware of and willing to report these feelings and beliefs on a self-report measure. The associative-propositional evaluation (APE) model argues that people are consciously aware on some level of their automatic feelings and associations and use that information when forming explicit attitudes (Gawronski & Bodenhausen, 2006). Additionally, because Obama is a political figure who receives extensive negative criticism in the media, we anticipated that people would feel relatively comfortable accurately sharing their perceptions and feelings about Obama without the fear that they would appear racist if they disapproved of him (e.g., Gaertner & Dovidio, 1986).

METHOD

Participants

One hundred and five undergraduate students at a southeastern university (82.5% self-identified as female; 65% self-identified as White, 14% African American, 13% Hispanic, 3% Asian, 5% biracial, M age = 19.48, SD = 1.56) were recruited through an online system and completed the study in the lab for either partial course credit or course extra credit.

Materials and Procedure

Exposure to Exemplars. Participants came into the lab and first completed a lexical decision task where they were presented with a string of letters that either made up a neutral word in the English language unrelated to Obama (e.g., square, bowl, vehicle) or that appeared like it could make up a word from the English language but did not (e.g., jemb, crilearn, vederle). Their task was to categorize whether the string was a word or a non-word in the English language. Participants completed two sets of 24 trials. Before each letter string, a prime was presented to the participants for 55 ms with a string of random letters as a mask before and after the prime (KQHYTPDQFPBYL and PYLDQFBYTQKPH; see Columb & Plant, 2011; Perdue, Dovidio, Gurtman, & Tyler, 1990; Perdue & Gurtman, 1990; Plant et al., 2009).

Consistent with Columb and Plant (2011), in both the control and Obama conditions, participants during the first set of trials were subliminally presented with the names of three negative exemplars (O.J. Simpson, Chris Brown, and Michael Vick) in random order. The negative exemplars were selected based on pilot testing ($n = 23$) conducted during the spring of 2015. Pilot participants were provided with a series of famous Black people and were asked to rate them on traits including how familiar they were with them (from 1 *not at all familiar* to 7 *very familiar*),

how stereotypic the exemplars were of Black people (1 = *very counter-stereotypic* to 7 = *very stereotypic*), and how positively or negatively they viewed the exemplars (from 1 *very negative* to 7 *very positive*). Using one-sample *t*-tests, we compared each of these ratings to the midpoint of the rating scales (i.e., 4) to determine whether they were rated high or low on the evaluations. All three exemplars were well known ($M = 4.91$, $ts > 3.80$, $ps < .01$), perceived as stereotypic of Black people ($M = 5.52$, $ts > 5.25$, $ps < .001$), and perceived negatively ($M = 2.55$, $ts > -2.60$, $ps < .02$). As a result, these three individuals were selected to be the negative primes. For the second set of trials, participants in the control condition were primed with a string of Xs, and participants in the Obama condition were primed with the name "Obama."

IAT Tasks. Next, participants completed two versions of the IAT in counter-balanced order. For the evaluative Black-White IAT, participants were asked to categorize as quickly as possible pictures of faces as either African American or European American while simultaneously categorizing words as either good (e.g., rainbow, gift) or bad (e.g., cancer, vomit; Greenwald, McGhee, & Schwartz, 1998). Participants completed critical blocks of trials where they simultaneously categorized each stimulus on either the race of the face or the valence of the word. For half of these critical trials, participants categorized African American faces and positive words using the same key on the keyboard, while categorizing European American faces and negative words with another key. For the other half of the critical trials, participants categorized African American faces and negative words using one key and European American faces and positive words with the other key. The order of these critical trials was counter-balanced. We used the participants' accuracy and reaction time for categorization during the critical trials for this and all other IATs in the present article to calculate a *D* score as outlined by Greenwald, Nosek, and Banaji (2003). Scores were calculated such that higher values represented a stronger association between Black people and negative words relative to White people and negative words.

The stereotype Black-White IAT was drawn from Amodio and Devine (2006) and was identical to the evaluative IAT with the exception that the positive and negative words were replaced with words that were categorized as mental (e.g., math, brainy) or physical words (e.g., athletic, run). Amodio and Devine (2006) evaluated the words for the mental and physical categories and found that both categories of words were viewed favorably. In addition, they found that the evaluative and stereotyping IATs were uncorrelated. Scores for the stereotype Black-White IAT were calculated such that higher values represent a stronger association between Black people and physical words relative to White people and physical words.

Moderating Variables. After completing the IATs participants completed a series of self-report items. Five of the items assessed the positivity of their evaluation of Obama (e.g., "I like Barack Obama"; $\alpha = .95$), while the remaining five evaluated how stereotypic they viewed Obama (e.g., "I think Obama is violent," educated [reverse scored], violent, lazy, hostile, intelligent [reverse scored]; $\alpha = .76$). Participants next completed a one-item measure assessing the degree to which they approved of Obama's performance as president (e.g., "To what degree do you ap-

prove or disapprove of the way Barack Obama is handling his job as president"). Participants responded on a 7-point scale assessing their level of (dis)agreement with the statements (from 1 *Strongly Disagree* to 7 *Strongly Agree*), and the measures were scored such that higher values reflected more positive feelings, stereotypic perceptions of Obama, and greater approval of Obama's performance as president.

Next, participants completed four questions assessing how familiar they were with each of the four exemplars used in the lexical decision task on a 1 (*not at all familiar*) to 7 (*very familiar*) scale and three items assessing how positively or negatively they perceived the three negative exemplars on a 1 (*very negative*) to 7 (*very positive*) scale. As intended, participants evaluated the negative exemplars negatively ($M = 2.84$, $SD = 1.06$) and were relatively familiar with them ($M = 4.76$, $SD = 1.50$).

Finally, participants completed a one-item measure, which asked them to select their political affiliation from a list of four options (i.e., Democrat, Republican, Independent, other), and a one-item measure assessing how liberal or conservative they perceived themselves to be overall on a 10-point scale (from 1 *very conservative* to 10 *very liberal*). Examination of the liberal/conservative response as a function of political affiliation revealed that participants who categorized themselves as Democrats reported being more liberal ($M = 7.11$, $SD = 2.13$) than the participants who categorized themselves as being from a different political party (Republican $M = 4.74$, $SD = 1.18$, Independent $M = 5.34$, $SD = 2.02$, or other $M = 5.80$, $SD = 1.69$) and the three remaining groups did not significantly differ from each other. Therefore, for analyses involving political affiliation, we categorized participants as Democrat or non-Democrat. This approach allowed us to also categorize participants as being from Obama's political party or not.

RESULTS

Eight participants (7.6%) were excluded from analyses because they reported seeing the subliminal primes during the lexical decision task, leaving 97 participants for analyses. Gender did not affect results and was therefore excluded from the reported analyses. Unless otherwise specified, all analyses were conducted with race of the participant (African American or not) and the order in which the participants completed the IATs as covariates.¹ Initial examination revealed that political affiliation did not interact with either IAT type or priming condition, $F_s < 1$, $p_s > .46$. Therefore, we report the analysis with political affiliation as an additional covariate.

Effect of Exposure Condition on Evaluative and Stereotype Race IAT

In order to evaluate if there was an effect of exposure to Obama on implicit anti-Black evaluative bias and racial stereotyping, we ran a GLM using prime condition

1. When race was included as a full factor, it did not interact with exemplar condition.

as the between-subjects factor and type of IAT as a within-subjects factor. By including both types of IATs in the same analyses, we were able to directly compare whether the Obama prime had a stronger effect on one or the other type of IAT while minimizing unnecessary statistical tests, which would inflate type 1 error.

The analyses revealed a significant effect of prime condition, such that participants in the Obama condition displayed lower levels of implicit anti-Black evaluative bias and racial stereotyping ($M = -.03$, $SE = .02$), relative to control condition participants ($M = .03$, $SE = .02$, $F[1, 92] = 5.66$, $p = .02$, $\eta_p^2 = .06$). There was no significant interaction between prime condition and the type of IAT, $F(1, 92) = .70$, $p = .41$, $\eta_p^2 = .01$, indicating that the effect of prime was similar across the two outcome measures. In other words, exposure to Obama similarly affected both implicit anti-Black evaluative bias (Obama $M = .05$, $SE = .03$; Control $M = .13$, $SE = .03$) and implicit racial stereotyping (Obama $M = -.11$, $SE = .03$; Control $M = -.08$, $SE = .02$).

Although not of primary interest for the present work, the analysis also revealed an interaction between participant race and type of IAT, $F(1, 92) = 4.18$, $p = .04$, $\eta_p^2 = .04$, such that, regardless of priming condition, Black participants had lower evaluative IAT scores than non-Black participants, $F(1, 92) = 5.30$, $p = .02$, $\eta_p^2 = .06$, but this racial difference was not significant for the stereotyping IAT, $F(1, 92) = .71$, $p = .40$, $\eta_p^2 = .008$. In addition, participants who completed the evaluative IAT first had lower scores across the two IATs than participants who completed the stereotyping IAT first, $F(1, 92) = 4.17$, $p = .04$, $\eta_p^2 = .04$. It is worth noting that using only some or none of the covariates did not alter the pattern of results.

Effect of Potential Moderators

Next, we evaluated whether the effect of exposure to Obama was moderated by participants' explicit responses regarding Obama. First, we confirmed that priming condition did not influence any of the explicit responses to Obama. Consistent with expectations, prime condition did not influence approval of Obama's performance as president, positive feelings toward Obama, or perceptions of Obama as stereotypic, $t_s < 1$, $p_s > .36$. When we compared participants' responses on each of these measures to the midpoint of 4 on each of the scales, it indicated that participants on average reported slightly approving of the job that Obama was doing, $t(96) = -2.05$, $p = .04$ (overall $M = 4.36$, $SD = 1.73$), feeling somewhat positively toward Obama, $t(96) = 3.50$, $p = .001$ (overall $M = 4.60$, $SD = 1.69$), and viewing Obama as low in stereotypicality, $t(96) = -26.56$, $p < .001$ (overall $M = 1.97$, $SD = 0.75$). These findings indicate that, on average, Obama is still explicitly viewed as a positive, counter-stereotypic exemplar.

In order to examine whether explicit approval of Obama influenced the magnitude of the Obama effect, the GLM from above was repeated with approval of Obama as a continuous between-subjects factor. Approval of Obama did not interact with prime condition to predict implicit anti-Black evaluative bias and racial stereotyping, $F(1, 90) = 0.63$, $p = .43$. We also conducted parallel analyses to see if perceptions of Obama as stereotypic or if the positivity of participants' feelings toward Obama interacted with prime condition to predict implicit anti-Black evaluative bias and racial stereotyping.

ative bias and racial stereotyping. Neither perceptions of Obama's stereotypicality, $F(1, 90) = 0.30, p = .86$, nor the positivity of participants' feelings about Obama, $F(1, 90) = 1.11, p = .29$, interacted with prime condition to predict their implicit responses.

DISCUSSION

Study 1 replicated previous work, demonstrating that after exposure to negative Black exemplars, exposure to Obama decreased implicit anti-Black evaluative bias relative to a control prime. Additionally, it extended previous research by demonstrating that exposure to Obama compared to a control prime decreased implicit racial stereotyping at a similar rate as the exposure decreased implicit anti-Black evaluative bias. These effects were not contingent on participants' approval of Obama's performance as president or their political affiliation, demonstrating that the effect of exposure to Obama is similar regardless of these factors.

In the present study, we failed to find evidence that the positivity or stereotypicality of participants' perceptions of Obama moderated the Obama effect. It is possible that how an individual personally feels or thinks about the exemplar at an explicit level may not play a central role when it comes to being subliminally exposed to exemplars, a point we come back to in our general discussion. However, it is also possible that there was not enough variance in perceptions of Obama to detect moderation. In particular, participants generally viewed Obama as counter to the stereotype of Black men (i.e., there was both a low mean and low standard deviation for perceptions of Obama's stereotypicality). It is possible that we may not have seen a moderating influence of stereotypic perceptions because the majority of our participants believed he was counter-stereotypic. In addition, it may be that Obama's positive influence on implicit anti-Black evaluative bias and racial stereotyping is due to him being counter-stereotypical. To examine these issues, in the next study we added a third condition in which participants were exposed to a positive but stereotypic Black exemplar (i.e., Kobe Bryant).

STUDY 2

Study 2 had two primary goals. First, we wanted to replicate the findings from Study 1 and provide additional evidence that after exposure to the negative exemplars, exposure to Obama reduced implicit anti-Black evaluative bias and racial stereotyping when compared to a control condition. Second, we wanted to evaluate experimentally if the stereotypicality of an exemplar impacts the extent to which that exemplar influences implicit anti-Black evaluative bias and racial stereotyping. Therefore, after exposure to the negative Black exemplars, some participants were primed with Kobe Bryant, who pilot testing indicated was generally perceived as positive but stereotypic of Black people. If the effect of exemplar exposure on implicit attitudes is primarily affected by the overall positivity of the

exemplar and the effect of exposure to exemplars on implicit stereotyping is primarily affected by how stereotypic the exemplar is, then exposure to a positive but stereotypic exemplar should decrease implicit anti-Black evaluative bias but not implicit racial stereotyping. Alternatively, if the stereotypicality of the exemplar is key, then exposure to Obama should reduce both implicit anti-Black evaluative bias and racial stereotyping but exposure to Bryant should not influence either response. In contrast, if the positivity of an exemplar is the important factor, then exposure to Bryant would have a similar effect as exposure to Obama on implicit anti-Black evaluative bias and implicit racial stereotyping, and we should see that exposure to Obama and Bryant would decrease implicit anti-Black evaluative bias and racial stereotyping at similar levels, compared to the control condition.

METHOD

Participants

One hundred and sixty undergraduate students at a southeastern university (79% self-identified as female; 66% self-identified as White, 8% African American, 21% Hispanic, 5% Asian, M age = 19.82, SD = 1.29) were recruited through an online system and completed the study in the lab for either partial course credit or course extra credit.

Materials and Procedure

Exposure to Exemplars. Participants entered the lab and completed the same lexical decision task as Study 1 with one change. For this study, we added a third condition where participants were exposed to the negative exemplars for the first set of trials and then were exposed to the name "Kobe Bryant" for the second set of trials. We selected Kobe Bryant as a positive but stereotypic Black exemplar based on pilot testing. Pilot participants ($n = 23$) rated Kobe Bryant on how they felt about him (from 1 *very negative* to 7 *very positive*) and how stereotypic they felt he was of Black people (1 = *very counter-stereotypic* to 7 = *very stereotypic*). One sample t -tests comparing responses to the midpoint value of 4 revealed that Bryant on average was perceived positively ($M = 4.91$), $t(22) = 3.89$, $p = .001$, but stereotypic of Black people ($M = 5.35$), $t(22) = 4.51$, $p < .001$.

IATs and Moderating Variables. Following the primed lexical decision task, participants completed the evaluative Black-White IAT and stereotype Black-White IAT from Study 1. Participants then completed the same self-report measures as in Study 1, but this time participants completed them for both Obama and Kobe Bryant. Specifically, participants completed a question about how much they approved of Obama's and Bryant's performance in their profession (i.e., as president or as a basketball player). In addition, they responded to questions assessing their perceptions of how stereotypic (i.e., educated [reverse scored], violent, lazy, hostile, intelligent [reverse scored]) of Black people Obama ($\alpha = .86$) and Bryant ($\alpha = .77$) are and the positivity of their feelings about Obama ($\alpha = .96$) and Bryant ($\alpha = .88$). Participants responded on a 7-point scale assessing their level of (dis)agreement with the statements (from 1 *Strongly Disagree* to 7 *Strongly Agree*). Partici-

participants next completed a question assessing how familiar they were with each of the exemplars and how they felt about each of the exemplars using the same items and scale from Study 1. Finally, they reported their political affiliation and how liberal or conservative they were using the same items and scale from Study 1.

RESULTS

Eleven participants (6.9%) reported being aware of the exemplars they were exposed to during the lexical decision task and were dropped from analyses, leaving us with 149 participants. Gender did not affect results and was, therefore, excluded from the reported analyses. Again, all analyses were conducted with race of the participant (African American or not) and the order in which the participants completed the IATs as covariates. Unlike in Study 1, initial examination revealed that political affiliation did marginally interact with priming condition, $F(2, 140) = 3.04, p = .051; \eta_p^2 = .04$.² Therefore, we report the analysis with political affiliation as an additional factor.

Exposure Condition on Implicit Anti-Black Evaluative Bias and Racial Stereotyping

We first ran a GLM to evaluate whether exposure to Obama or Kobe Bryant influenced implicit anti-Black evaluative bias and racial stereotyping; this GLM included priming condition and political affiliation as between-subjects factors and type of IAT as a within-subjects factor. There was a main effect of participant race, such that Black participants tended to report lower levels of implicit anti-Black evaluative bias and racial stereotyping overall, $F(1, 140) = 7.23, p = .008, \eta_p^2 = .05$. In addition, replicating Study 1, we found a main effect of prime condition, $F(2, 140) = 3.77, p = .025, \eta_p^2 = .05$ (see Figure 1). Planned contrasts indicated that participants were responding with similar levels of implicit anti-Black evaluative bias and racial stereotyping when they were primed with either Kobe Bryant ($M = .09, SE = .03$) or Obama ($M = .15, SE = .02$), $p = .11, 95\% CI [-.124, .012]$. However, the positive prime conditions (Obama and Kobe Bryant combined, $M = .12, SE = .02$) differed significantly from the control condition ($M = .19, SE = .02$), $p = .025, 95\% CI [.006, .126]$. In other words, exposure to Obama or Kobe Bryant similarly affected

2. Examination of the Democrats and non-Democrats separately revealed that prime condition was having an effect on the Democrats but not the non-Democrats. For the Democrats, there was a main effect of prime condition, $F(2, 38) = 5.92, p = .006, \eta_p^2 = .24$. Planned contrasts indicated that participants were responding with similar levels of implicit racial bias when they were primed with either Kobe Bryant ($M = .05, SE = .04$) or Obama ($M = .13, SE = .04$), $p = .15, 95\% CI [-.186, .030]$. However, the positive prime conditions (Obama and Kobe Bryant combined) differed significantly from the control condition ($M = .23, SE = .04$), $p = .003, 95\% CI [.053, .240]$. In contrast for the non-Democrats, the main effect of prime condition did not approach significance, $F(2, 100) = .44, p = .64, \eta_p^2 = .009$. Although interesting, we would caution readers from taking too much stock in this particular finding, particularly since it was a marginal interaction in one of two studies whereas the main effect of exposure condition was significant in both studies and in previous research (Columb & Plant, 2011).

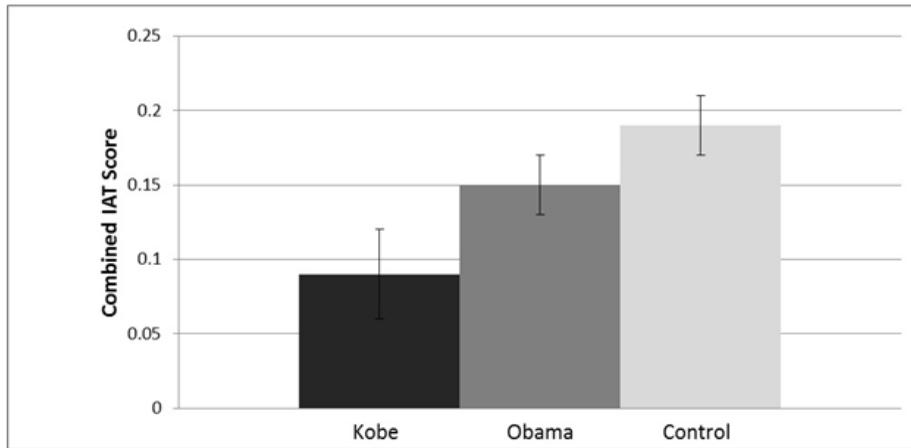


FIGURE 1. The effect of priming condition on combined evaluative and stereotype D score with error bars indicating the 95% confidence intervals.

both implicit anti-Black evaluative bias (Obama $M = .17$, $SE = .03$; Kobe Bryant $M = .15$, $SE = .04$; Control $M = .20$, $SE = .03$) and implicit racial stereotyping (Obama $M = .13$, $SE = .02$; Kobe Bryant $M = .11$, $SE = .03$; Control $M = .17$, $SE = .03$).

Evaluation of Exemplars and Potential Moderators

In order to examine the role of participant's perceptions of the positive exemplars, we first examined whether prime condition influenced participants' approval of, feelings toward, or perceptions of the stereotypicality of Obama or Kobe Bryant. Although we did not anticipate condition effects, we were generally interested in how our participants explicitly evaluated the two exemplars. We also examined whether the effects of response to the exemplars varied as a function of political affiliation. We initially conducted a series of mixed model GLM analyses with exemplar (Obama vs. Bryant) as the within-subjects factor and prime condition and political affiliation as the between-subjects factors. However, there was no evidence of any main effects or interactions involving prime condition, all $F_s < 1.88$, $p_s > .17$. Therefore, we report the analyses without prime condition included but it is worth noting that including prime condition did not affect the outcome of these analyses.

Overall, participants reported approving more of the job that Bryant was doing as a basketball player than of the job that Obama was doing as president, $F(1, 147) = 13.52$, $p < .001$, $\eta_p^2 = .08$. In addition, Democrats overall approved of the exemplars more than non-Democrats, $F(1, 147) = 11.54$, $p = .001$, $\eta_p^2 = .07$. However, as one might expect, these lower order effects were qualified by an interaction between exemplar and affiliation, $F(1, 147) = 17.06$, $p < .001$, $\eta_p^2 = .10$. Follow-up paired samples t -tests on the Democrats and non-Democrats separately revealed

that the Democrats approved of Obama ($M = 5.32$, $SD = 1.58$) and Bryant ($M = 5.23$, $SD = 1.41$) equally, $t(42) = .26$, $p = .80$. In contrast, non-Democrats approved of Bryant's professional performance ($M = 5.42$, $SD = 1.37$) more than Obama's performance ($M = 3.81$, $SD = 1.80$), $t(105) = -7.38$, $p < .001$.

Analysis of the positivity of participants' feelings about the exemplars revealed that, overall, Democrats reported feeling more positively toward the exemplars than did the non-Democrats, $F(1, 147) = 30.66$, $p < .001$, $\eta_p^2 = .17$. This main effect was qualified by an interaction between exemplar and affiliation, $F(1, 147) = 21.28$, $p < .001$, $\eta_p^2 = .13$. Follow-up paired samples t -tests revealed that the Democrats felt more positively toward Obama ($M = 5.78$, $SD = 1.48$) than Bryant ($M = 4.88$, $SD = .99$), $t(42) = 3.36$, $p = .002$. In contrast, non-Democrats felt more positively toward Bryant ($M = 4.73$, $SD = 1.22$) than Obama ($M = 3.84$, $SD = 1.87$), $t(105) = -4.00$, $p < .001$.

Examination of participants' perceptions of the stereotypicality of the exemplars revealed that, overall, participants rated Bryant as more stereotypic than Obama, $F(1, 147) = 106.75$, $p < .001$, $\eta_p^2 = .42$. In addition, non-Democrats tended to evaluate both exemplars as more stereotypic than Democrats did, $F(1, 147) = 4.75$, $p = .031$, $\eta_p^2 = .03$. These main effects were qualified by the interaction between exemplar and political affiliation, $F(1, 147) = 8.90$, $p < .01$, $\eta_p^2 = .06$. Follow-up paired samples t -tests revealed that the Democrats perceived a greater difference between the stereotypicality of the exemplars and rated Obama much less stereotypic ($M = 1.68$, $SD = .61$) than Bryant ($M = 2.99$, $SD = .92$), $t(42) = -9.34$, $p < .001$, whereas this difference was somewhat smaller for the non-Democrats (Obama $M = 2.27$, $SD = 1.06$; Bryant $M = 2.99$, $SD = .90$), $t(105) = -6.47$, $p < .001$. Considered another way, Democrats perceived Obama as less stereotypic than did non-Democrats, $t(147) = -3.43$, $p = .001$, whereas Democrats and non-Democrats perceived Bryant as similarly stereotypic, $t(147) = -.04$, $p < .97$.

We next evaluated whether the effect of prime condition or the marginal interaction between prime condition and political orientation were moderated by approval of Obama ratings, perceptions of Obama as stereotypic of Black people, and feelings toward Obama. We failed to find any effects involving these three variables, all F s < 1.34 , $ps > .25$. These data replicated the findings from Study 1 that indicated the effect of exposure to Obama on implicit anti-Black evaluative bias and racial stereotyping was not influenced by conscious perceptions of Obama.

DISCUSSION

In Study 2, we provided additional evidence that after exposure to negative Black exemplars, exposure to Obama reduced implicit anti-Black evaluative bias and racial stereotyping relative to a control prime. We also found evidence that after exposure to negative Black exemplars, exposure to a positive but stereotypic exemplar, Kobe Bryant, also reduced implicit anti-Black evaluative bias and racial stereotyping compared to a control prime. This, combined with the lack of significant moderating effects of perceptions of stereotypicality, provide evidence that

the perceived stereotypicality of the exemplar does not seem to play a central role when being exposed to exemplars.

GENERAL DISCUSSION

Over two studies, we demonstrated that exposure to positive Black exemplars caused a reduction in implicit anti-Black evaluative bias and implicit racial stereotyping. In Study 1, we exposed all participants to negative and stereotypic Black exemplars before exposing them to either Obama or a control prime. Using this procedure, we found that exposure to Barack Obama, who our participants generally viewed positively and perceived as counter to the stereotypes regarding Black people, reduced implicit anti-Black evaluative bias and racial stereotyping compared to a control prime. We expanded this finding in Study 2 by demonstrating that after exposure to negative Black exemplars, exposure to Obama had a similarly positive effect on implicit anti-Black evaluative bias and racial stereotyping as exposure to Kobe Bryant, who participants generally also felt positively toward but viewed as more (although not highly) stereotypic of Black people. In contrast, after exposure to the negative exemplars, exposure to Obama and Bryant resulted in lower levels of implicit anti-Black evaluative bias and racial stereotyping compared to the control prime condition.

Additionally, across both studies we failed to find evidence that the positivity of participants' explicit evaluation of Obama or their perceptions of how stereotypic Obama is of Black people moderated the effect of prime exposure on implicit responses. In addition, in Study 2, although participants did not rate Bryant as high in stereotypicality as our pilot participants had, he was rated as more stereotypic than Obama on average. Yet, the effects of exposure to Bryant on implicit anti-Black evaluative bias and racial stereotyping were as strong (or slightly—though not significantly—stronger) for exposure to Bryant compared to Obama. Together these findings suggest two theoretical points about the influence of exposure to exemplars on implicit attitudes and stereotyping. First, it appears that an exemplar does not need to be perceived as both positive and counter-stereotypic to have an effect on both implicit attitudes and stereotyping. This helps clear up an important issue in research on exemplars, which has typically used exemplars that are both positive in valence and counter-stereotypic of the target group (e.g., Columb & Plant, 2011; Dasgupta & Greenwald, 2001; Joy-Gaba & Nosek, 2010). These findings suggest that counter-stereotypicality may not be a key or required factor for exemplar exposure. Valence (and perhaps success) may be more important than degree of stereotypicality. It is worth noting that Kobe Bryant is highly successful in a domain that is stereotypic of Black people (athletics and specifically basketball). Although being athletic is stereotypic, it is generally perceived as a positive stereotype, and this data supports the notion that positive stereotypes may have bias-reducing implications for implicit responses (see also Rydell et al., 2010). Future research should evaluate the implications of exposure to other types of exemplars for implicit attitudes and stereotyping. For example, it would be important

to explore the implications of exposure to exemplars who are perceived negatively but counter-stereotypic or exemplars who are viewed positively but who are perceived as engaging in more negative stereotypic behavior.

Second, the fact that participants' explicit perceptions of Obama did not moderate the impact of exposure to Obama on implicit anti-Black evaluative bias and racial stereotyping suggests that conscious perceptions may not play a pivotal role in explaining why exposure to exemplars influences implicit attitudes and stereotyping. Past research has theorized that exemplars influence implicit attitudes and stereotyping because the exemplars are perceived as positive and counter to the present stereotype of the exemplars' social group (e.g., Dasgupta & Greenwald, 2001; Gawronski & Bodenhausen, 2006). We suggest that, instead of explicit perceptions, implicit perceptions may play an important role in how people's implicit responses are shaped by exemplars. In other words, how people automatically perceive Obama or Bryant (i.e., their personal, automatic associations with each man) may more directly predict the impact that exposure to each man would have on their implicit anti-Black evaluative bias and racial stereotyping. Alternatively, it is possible that exemplar effects may not have anything to do with personal perceptions, regardless of if they are conscious or automatic. Instead, some other factor, such as perceived success, societal acceptance, or peer or cultural perceptions of exemplars as good or bad, may play a more pivotal role.

LIMITATIONS AND FUTURE DIRECTIONS

Although the data across our two studies show a consistent story of exposure to positive Black exemplars reducing implicit anti-Black evaluative bias and racial stereotyping, there are a few limitations. First, the two studies used similar methodologies. In both studies, participants were exposed to exemplars subliminally through a lexical decision task. Future research would benefit from using other manipulations, particularly manipulations where the participants have to consciously categorize the positive exemplars based on the target category. It is possible we may see a stronger effect of exposure to Obama or other positive exemplars with such a manipulation (see Joy-Gaba & Nosek, 2010).

In future work, it would also be interesting to examine alternative control primes. The prime used in both of the present studies was a string of Xs, which is undoubtedly neutral with respect to valence and its relevance toward racial biases and associations. One could question what would happen if we had instead used a control prime that matches the valence of the exemplars but is unrelated to Black people (e.g., a calming sunset). Although an interesting question and worthy of examination, we do not anticipate that it would have influenced our results. The current studies used implicit association tasks, where people categorized both Black and White faces and categories of words. It seems unlikely that exposure to a positive prime would lead people to more easily associate positive (or mental) with Black and negative (or physical) with White than the reverse.

Although this article provides additional evidence that exposure to a positive racial exemplar can reduce implicit anti-Black evaluative bias and racial stereotyping, it does not address why some past researchers did not find a change in implicit anti-Black evaluative bias levels during the time of Obama's election or presidency (Schmidt & Nosek, 2010; also see Schmidt & Axt, this issue) whereas others did (e.g., Bernstein et al., 2010; Plant et al., 2009). The reasons for these differences could have something to do with the sampling techniques (i.e., data collection on campus among college students vs. volunteers online). Alternatively, it could be due to procedural differences (e.g., instructions or information provided about the IAT being an assessment of racial bias). Future research would benefit by evaluating potential moderators that may explain these differences.

Although the present work contributes to our understanding of exemplar effects, some questions about the processes and mechanisms underlying exemplar effects remain. First, we did find evidence that an exemplar does not need to be highly counter-stereotypic as long as he or she is viewed positively in order to affect implicit attitudes and stereotyping. However, as noted above, it remains to be seen if exposure to a counter-stereotypic exemplar that is viewed negatively would result in the same effect. If such an exemplar does reduce implicit evaluative bias and stereotyping, this would provide evidence that either change in valence or stereotypicality, not just valence, can cause a change in implicit evaluative biases and stereotyping. Second, future research would also benefit in further evaluating why exemplars influence implicit biases. Previous research theorized that the effect of exemplars involves the qualities of the exemplars used (i.e., positive and counter-stereotypic). However, our data suggest that this may not be the case at a conscious level. As we noted previously, it is quite possible that implicit perceptions of the exemplars may be critical in determining their influence on implicit responses regarding the exemplar's social group. However, if that is not the case, then future research would need to explore alternative possibilities.

Future research on exemplars may also benefit from evaluating other political figures that are currently going through the 2016 nomination process. For example, Hillary Clinton is the 2016 Democratic presidential nominee. She is a White woman, which is a demographic not stereotypically associated with politics or leadership positions generally. However, due to past exposure in the media, perceptions of Hillary Clinton are more polarized than other commonly used exemplars such as Obama at the beginning of his presidency. Due to these polarized perceptions, it is possible we may see a more moderated influence of exposure to Clinton on implicit attitudes and stereotyping of women than we did with Obama for race, which could provide a clue to better understanding exposure to exemplar effects.

THE LEGACY OF BARACK OBAMA

Since the time of his historic campaign and eventual election as the first African American president of the United States, psychologists have been eager to explore the implications of Obama for people's intergroup responses (e.g., Cooper, 2009).

Thus, one important legacy of Obama is that his appearance on the political scene and successful campaign for president of the United States fostered great interest among the psychological community on issues related to his prominence and impact on people's psychological functioning. As a result, much has been learned about the positive and negative ramifications of exposure to Obama. Moreover, our understanding into the implications of exemplars more generally has developed and expanded in important ways.

Our own past and present work indicates that exposure to Obama, a positive, successful, and counter-stereotypic exemplar, can positively impact people's implicit responses immediately after exposure (e.g., Columb & Plant, 2011; the present work). However, even if the impact of a single exposure to Obama is somewhat fleeting, the implications of such exposure may accumulate with time. If so, the associations people have with somewhat more novel, positive exemplars such as Obama may over time replace the previous negative and stereotypic associations and lead to a long-term, meaningful drop in implicit anti-Black evaluative bias and racial stereotyping.

In our second study, we also found evidence that exposure to Kobe Bryant, a positive but somewhat stereotypic Black exemplar, also led to a reduction in implicit anti-Black evaluative bias and racial stereotyping. The efficacy of Bryant to influence these responses points to the value of having multiple, prominent positive exemplars that are in the public eye. Having a greater variety of positive exemplars, that is people who excel across a range of skills and professions (e.g., Neil deGrasse Tyson, Barack Obama, Desmond Tutu, Kobe Bryant, and Morgan Freeman), may help to challenge racial bias and stereotyping as people are exposed to more variable positive exemplars. The impact of the present and the next generations of prominent and positive (male and female) Black exemplars may have a particularly significant impact on younger people. Young people's attitudes and stereotypes may be more easily shifted and less rooted in the bias and stereotypes from the past than the attitudes of adults. For the younger generation, trailblazers such as Obama have challenged the stereotypes and perceptions of Black people as these attitudes and beliefs have been developed, which may have positive implications for their beliefs and openness to change.

We do not anticipate that the "Obama effect" is limited to Obama, and we suspect that any positive exemplar holds the promise of positively shifting people's implicit perceptions of social groups. We would argue, however, that one reason why the Obama effect may have emerged with such prominence is because his campaign and election created a special situation whereby the first thing that came to people's minds when they thought of Black men was Obama, which reduced immediate implicit anti-Black evaluative bias (Columb & Plant, 2011; Plant et al., 2009). However, these changes may be quite fleeting and were not obvious across all examinations, suggesting the presence of important moderators or factors related to the experimental context that may have played a role.

Despite its potentially fleeting influence, during the beginning of Obama's presidency, we found general levels of implicit anti-Black evaluative bias that were distinctly lower than they had been years before (Plant et al., 2009). We suspect

that the impact of Obama was likely due to the sheer volume of exposure opportunities to Obama that Americans experienced when he became the presidential Democratic nominee and the first African American president. The research Obama inspired through his high salience and the knowledge gained from this research will continue to inform psychologists about the role exemplars play in altering implicit biases. The present work provides hope that as exemplars from other under-represented groups take on salient roles and receive media attention, unconscious biases about these groups will decrease and be less likely to impact people's judgments and decision making.

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THE “OBAMA EFFECT”? PRIMING CONTEMPORARY RACIAL MILESTONES INCREASES IMPLICIT RACIAL BIAS AMONG WHITES

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This research was designed to test if priming the election of President Obama as a contemporary racial milestone would increase implicit racial bias among White Americans. Participants ($N = 202$) were randomly assigned to one of three conditions: a power threat prime (Obama), a majority threat prime (shifting racial demographics of the U.S.), or no prime, before completing an implicit measure of positive and negative associations with Whites and Blacks. Consistent with group threat theory, both group threat primes increased implicit anti-Black bias. In the power threat prime (Obama) condition, only those with lower internal motivation to respond without prejudice showed elevated implicit bias. Findings indicate that framing Obama as a racial pioneer elicits group threat reactions among Whites with low internal motivation to respond without prejudice, increasing implicit anti-Black bias.

Keywords: implicit bias, internal motivation to respond without prejudice, racial prejudice, group threat, Obama

In the years since Barack Obama was elected President of the United States, a number of studies have provided evidence that he has had a positive impact on racial attitudes in the U.S. (e.g., Columb & Plant, 2011; Columb & Plant, this issue; Plant et al., 2009). The aptly named “Obama effect” has been associated with, among other things, reduced racial prejudice (Bernstein, Young, & Claypool, 2010; Plant et al., 2009). Researchers reported a notable drop in implicit anti-Black bias during Barack Obama’s 2008 presidential campaign (Plant et al., 2009) and imme-

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diately following his election (Bernstein et al., 2010). Yet, analysis of much larger and more representative datasets collected by Project Implicit showed only a very modest decrease in implicit anti-Black bias from the time Obama announced his candidacy through his inauguration (Schmidt & Nosek, 2010) and little change in implicit anti-Black bias during his presidency (Schmidt & Axt, this issue). Nonetheless, experimental work conducted by Columb and Plant (2011) showed that subliminally priming participants with the name "Obama" reduced implicit anti-Black bias. Taken together, these findings are consistent with evidence indicating that exposure to positive exemplars can reduce implicit bias (Dasgupta & Greenwald, 2001). Indeed, Plant and colleagues' (2009) results showed that lower implicit anti-Black bias and stereotyping were associated with the cognitive accessibility of positive Black exemplars. Overall, the results from these studies suggest that Barack Obama is a positive counter-stereotypical exemplar who has served to shift negative cultural associations with Black people to be more positive (Plant et al., 2009).

However, it is important to consider that the election of President Obama could also represent a threat to the relative position of power historically held by Whites in the U.S. Although all groups have the potential to experience out-group threat, the link between out-group threat and negative attitudes toward out-group members is particularly strong among high status groups (Riek, Mania, & Gaertner, 2006), perhaps because they have the most to lose (Stephan, Ybarra, & Morrison, 2009). Group threat theory proposes that members of the societally dominant group will respond with prejudice when they feel that members of a subordinate group are threatening their position (Quillian, 1995, 1996). Most of the research in this area has focused on relative size of the subordinate group, such that increases in the size of the subordinate group predict increased out-group bias among members of the dominant group (e.g., Danbold & Huo, 2015; Quillian, 1996). For example, people that are primed to think of their group as a statistical minority (e.g., Schaller & Abeyesinghe, 2006) demonstrate more out-group prejudice. Similar findings were observed when White Americans were primed with Census-projected demographic estimates for the U.S. population, revealing that Whites will no longer be the majority group in the relatively near future (Craig & Richeson, 2014). Results showed that threats to Whites' majority status increased both implicit and explicit bias against multiple racial out-groups.

The foundational work upon which group threat theory was built conceptualized group threat broadly as any (implicit or explicit) challenges to the privileges and position of the dominant group (Blumer, 1958; Quillian, 1995). For example, national political office has largely been limited to Whites in the U.S. In 2015, the U.S. Senate and House of Representatives were among the most diverse in U.S. history, yet 94% of the Senate and 80% of the House of Representatives were White (Bump, 2015). Thus, increasing inclusion of non-Whites in national government positions may pose a threat to Whites' nearly exclusive hold on such positions of power. The election of Barack Obama, the first non-White president in U.S. his-

tory, typifies this threat. The presidency is the single most powerful position in the U.S., and in 2014 *Forbes* ranked President Obama the second most powerful person in the world (Howard, 2014). Group threat theory suggests that highlighting the historic importance of the election of President Obama as a racial milestone may threaten the dominant position of Whites in the U.S. government, thereby increasing racial bias. Although the threat posed by political progress has yet to be examined in the psychological literature, sociologists have argued that increased political power and mobilization by a minority group is perceived as a threat to the majority group—resulting in heightened out-group bias in the majority group (Blalock, 1967; D'Alessio, Stolzenberg, & Eitle, 2002).

We predicted that the election of President Obama may activate group threat, yet the effect of such threats to White power and privilege likely vary across individuals (Quillian, 1995). For instance, Whites who are internally motivated to act without racial prejudice and hold racially inclusive attitudes should not be threatened by increases in the size or power of racial minority groups. Thus, internal motivation to respond without prejudice (IMS; Plant & Devine, 1998) may be a particularly important predictor of responses to contemporary racial milestones (i.e., threats to the power or majority status held by Whites). Plant and Devine (1998) developed a scale to assess two distinct motivations to respond without prejudice, internal and external. They argue that people can be motivated to respond without prejudice based on egalitarian ideals and internalized non-bias (IMS) and based on outside social pressure and avoidance of social sanctions (EMS). Increased internal motivation predicts lower levels of explicit (Plant & Devine, 1998) and implicit racial bias (Hausmann & Ryan, 2004).

Although explanations for the relationship between IMS and implicit bias are not entirely clear, evidence suggests that low implicit bias is not the product of increased effort to overcome bias on implicit measures (Devine, Plant, Amodio, Harmon-Jones, & Vance, 2002). Some have argued that chronic internalized motivation to be non-prejudiced leads to a highly efficient automated process of overcoming existing biased associations, whereas others have argued that this chronic internalization prevents these biased associations from developing (Devine et al., 2002; Hausmann & Ryan, 2004). Recent research using the Quadruple Process model (a technique for dissociating implicit processes) indicates that high IMS participants actually have less activation of biased associations than low IMS participants (Gonsalkorale, Sherman, Allen, Klauer, & Amodio, 2011). In other words, high IMS participants seem to have less biased implicit associations than those with lower IMS, consistent with the argument that the development of biased associations is inhibited among high IMS participants.

Given the association between IMS and implicit racial bias, we focused on the extent to which internal motivation, in particular, moderates the relationship between threats to majority status or group power and implicit bias. Because Whites who score high on IMS have a chronic internalized motivation to be non-prejudiced, we predicted that they would not experience group threat, thus they would not show increased implicit bias in response to threats to group majority status or power. In contrast, those with less internalized motivation to respond without

prejudice would likely experience threat in response to reminders of the increasing size or power of racial out-groups, resulting in increased implicit racial bias.

THE CURRENT RESEARCH

In the current research we examined whether increases in out-group power (hereafter referred to as a power threat) or size (hereafter referred to as a majority threat) would lead to increased racial bias, consistent with group threat theory. We included a majority threat condition to replicate previous findings (Craig & Richeson, 2014) and to provide a comparison for the power threat prime. We hypothesized that the *power threat* posed by the election of President Obama and the *majority threat* posed by the impending demographic shift in the U.S. would lead to an increase in implicit racial bias (relative to a control condition) among White Americans. The second goal of this research was to investigate the moderating role of individual differences in IMS (Plant & Devine, 1998). Our primary prediction was that Whites with low IMS (relative to those with high IMS) would be most affected by group threats, as evidenced by increased implicit racial bias.

METHOD

PARTICIPANTS

To ensure an adequate sample of White participants and sufficient power to test our hypotheses, we targeted 300 Mechanical Turk workers for participation in this study. Mechanical Turk is an online workforce of over 100,000 people who complete tasks in exchange for monetary compensation (Pontin, 2007). Empirical investigation of data produced by the Mechanical Turk workforce indicates that samples are more representative than typical college samples and are at least equally reliable (Buhrmester, Kwang, & Gosling, 2011). We received complete data from a total of 277 participants, of which 68 self-identified as a race or ethnicity other than White. Seven of the remaining participants (3 from the power threat condition, 2 from the majority threat condition, and 2 from the control condition) were excluded from analysis because they responded in under 300 ms on more than 10% of trials, they responded incorrectly on more than 30% of all trials, or they responded incorrectly on more than 40% of trials in either IAT block (Nosek et al., 2007). The final sample included 202 non-Hispanic White adult (69% women) U.S. community members (M age = 37.53, SD = 13.37). Participants were compensated \$0.50 for participating in the study.

MATERIALS AND PROCEDURE

The university's Institutional Review Board approved all materials and procedures. This study comprised a one-way between groups design with three levels

(majority threat, power threat, no threat control). Participants accessed the study online and provided consent before moving on to one of the three randomly assigned conditions.

Prime Conditions. Excerpts from two articles that previously appeared in a major media news outlet were used to prime group threat. To manipulate power threat we selected an article on the historic importance of the election of President Obama. An article on the projected minority-majority population shift in the U.S. was used to manipulate majority threat (Craig & Richeson, 2014). Full articles were originally published in *The New York Times* in 2008 (Open Science Framework <https://osf.io/apw7j> for article excerpts). In the control condition participants proceeded directly to the dependent measures.

Motivation to Respond Without Prejudice. After reading the article (or immediately, for participants in the control condition) participants were asked to complete the internal (IMS) and external (EMS)¹ motivation to respond without prejudice scales (Plant & Devine, 1998). The IMS scale consists of five items rated on a scale from 1 (strongly disagree) to 9 (strongly agree). It includes items such as "I am personally motivated by my beliefs to be non-prejudiced toward Black people." The IMS scale showed adequate reliability (Cronbach's alpha = .91) and IMS did not differ by condition ($F = 1.09, p = .339$).

Implicit Association Test. Next, participants provided demographic information and moved on to complete the Black-White Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998), a computerized categorization task that measures implicit associations between the social categories "White" and "Black" and the concepts "positive" and "negative." Participants completed two blocks (Black-positive/White-negative and White-positive/Black-negative) of 80 trials, each preceded by a series of training trials in which participants practiced categorizing targets in the correct locations. Category labels appeared in the upper left and right hand corners of the computer screen and participants used the "e" and "i" keys on the keyboard to categorize target stimuli into the left or right category, respectively. The category "positive" always appeared on the left and the category "negative" always appeared on the right, thus only the location of social target categories varied across blocks. IAT stimuli consisted of grey-scale images of Black and White faces, positive words (e.g., peace, happiness), and negative words (e.g., death, hatred). A red "X" appeared in the center of the screen immediately following an incorrect categorization, indicating to participants that a mistake was made. Participants were then required to correctly categorize the target before moving on to the next trial.

RESULTS

SCORING AND ANALYSIS STRATEGY

The most common approach to IAT analysis involves the calculation of *D*-scores, standardized effect sizes for each participant (Greenwald, Nosek, & Banaji, 2003).

1. All information about the EMS scale and findings is reported in the Appendix.

Yet, this approach reduces statistical power and removes meaningful variance by reducing the hundreds of data points that make up the IAT to a single data point per participant (Van Bavel & Cunningham, 2009). Multilevel modeling provides an appropriate alternative that does not suffer from these limitations because it incorporates and adjusts for each participant's reaction time on each individual trial using random effects of both participants and stimuli, greatly reducing Type I error rates (Judd, Westfall, & Kenny, 2012). Consequently, because the multilevel modeling approach leverages both within- and between-person variation in reaction times (Curran, Lee, Howard, Lane, & MacCallum, 2012), its use is becoming increasingly common in social psychology (e.g., Cho & Knowles, 2013; Van Bavel, Packer, Haas, & Cunningham, 2012; Zayas, Greenwald, & Osterhout, 2011) and has now been applied successfully to implicit bias data (e.g., Dunham, Baron, & Banaji, 2006; Skinner & Hudac, 2017; Van Bavel & Cunningham, 2009). In the current study the SAS PROC MIXED procedure (with Satterthwaite *df*) was used to implement multilevel models with random effects for both participants and IAT stimuli following the procedures outlined by Judd, Westfall, and Kenny (2012). Prior to analysis, reaction times more than 1.5 times the interquartile range above the third quartile and 1.5 times the interquartile range below the first quartile were identified as outliers (Tukey, 1977). This approach to outlier elimination produces a non-skewed distribution of reaction times, unlike some other approaches (e.g., removing reaction times faster than 300 ms or slower than 10,000 ms). Using this approach, 7.04% of trials were identified as outliers and removed.

EFFECTS OF PRIME ON IMPLICIT BIAS

First, we tested the main effects of between-subjects prime condition (power = 0, majority = 1, control = 2) and mean-centered IMS (see Appendix for exploratory EMS findings; $M = 7.13$, $SD = 1.93$) on implicit bias. Overall there was a significant IAT effect, $F(1, 30000) = 988.82$, $p < .001$, 95% CI [56.89, 73.19], indicating a general anti-Black bias consistent with previous work showing that most Whites demonstrate at least some pro-White bias (Nosek, Banaji, & Greenwald, 2002). There was a main effect of condition on implicit bias, $F(2, 30000) = 5.34$, $p = .005$. As predicted, participants showed greater anti-Black bias in the power threat condition than in the control condition, $t(30000) = 2.03$, $p = .042$, 95% CI [0.42, 23.26]. Participants showed greater anti-Black bias in the majority threat condition than in the control condition as well, $t(30000) = 3.23$, $p = .001$, 95% CI [7.54, 30.81]. The main effect of IMS was also significant, $F(1, 30000) = 58.87$, $p < .001$, 95% CI [-12.20, -7.24], such that as IMS increased implicit anti-Black bias decreased.

Next, to test the moderating role of IMS we added the interaction between IMS and condition to the model. As predicted, an interaction between IMS and condition emerged, $F(2, 30000) = 19.07$, $p < .001$. As seen in Figure 1, as IMS increased, implicit anti-Black bias decreased in the power threat condition ($B = -20.46$, $SE = 2.47$), $t(30000) = -8.30$, $p < .001$, 95% CI [-25.30, -15.63]. At high levels of IMS (1 SD

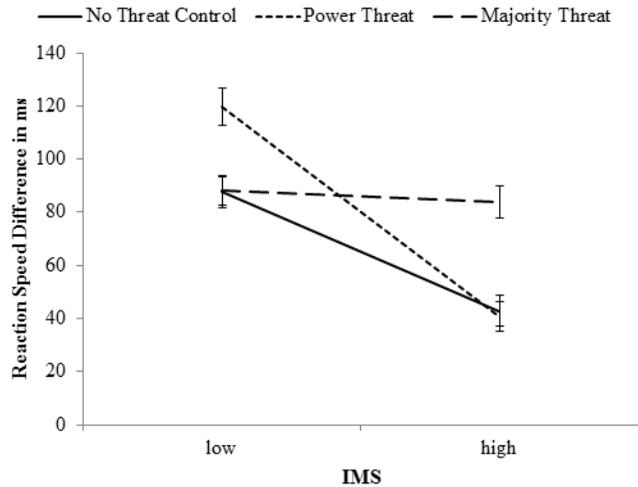


FIGURE 1. Implicit anti-Black bias as a function of internal motivation to respond without prejudice (IMS) with standard error bars, by experimental condition. Low IMS is one standard deviation below the mean and high IMS is one standard deviation above the mean. Higher values (i.e., larger reaction time differences) indicate stronger anti-Black bias.

above the mean), implicit anti-Black bias was no higher in the power threat condition than in the control condition ($B = -2.05$, $SE = 8.18$, $p = .802$). However, at low levels of IMS (1 SD below the mean), participants in the power threat condition showed greater implicit anti-Black bias than participants in the control condition ($B = -32.15$, $SE = 9.12$, $p < .001$). In contrast, the interaction between IMS and implicit bias was nonsignificant in the majority threat condition ($B = -1.16$, $SE = 1.99$), $t(30000) = -0.58$, $p = .560$, 95% CI [-5.07, 2.74]. In other words, in the majority threat condition IMS was unrelated to implicit bias. This finding is particularly striking given that IMS significantly predicted implicit bias in the control condition ($B = -11.60$, $SE = 2.19$), $t(30000) = -5.29$, $p < .001$, 95% CI [-15.90, -7.30]. In the majority threat condition, at high levels of IMS, participants showed significantly more implicit anti-Black bias than those in the control condition ($B = 41.01$, $SE = 8.38$, $p < .001$) and the power threat condition ($B = 43.06$, $SE = 8.28$, $p < .001$). At low levels of IMS, participants in the majority threat condition showed no more implicit anti-Black bias than those in the control condition ($B = 0.71$, $SE = 8.11$, $p = .930$), and significantly less implicit anti-Black bias than those in the power threat condition ($B = -31.44$, $SE = 8.75$, $p < .001$).

DISCUSSION

The goal of the current study was to re-examine the “Obama effect” to determine whether reminders of President Obama always have a positive impact on implicit racial bias. Consistent with group threat theory, we hypothesized that framing

President Obama as a racial trailblazer threatens the political power traditionally held by Whites. Thus, we predicted that framing a discussion of President Obama in this way would elicit group threat among Whites, resulting in increased implicit racial bias, particularly among those with low internal motivation to respond without prejudice. Results of the current study indicate that priming the election of Barack Obama as a contemporary racial milestone increases implicit racial bias among Whites. Moreover, consistent with the hypothesis that internal motivation to respond without prejudice would moderate the effect of the power threat (Obama) prime, only those with lower internal motivation to respond without prejudice showed an increase in implicit bias. Current findings suggest that, among those with lower internal motivation to respond without prejudice, framing President Obama as a racial trailblazer elicits group threat, resulting in elevated levels of implicit racial bias.

The current findings could appear to be in contrast with previous research indicating that priming participants with President Obama reduced anti-Black bias (Columb & Plant, 2011). Yet, we submit that our findings actually complement previous work by providing a more nuanced understanding of the “Obama effect.” Given President Obama’s status as a well-respected counter-stereotypical exemplar, priming participants to think about Obama in general (e.g., priming the name “Obama”) could understandably lead to a reduction in racial stereotyping and prejudice. However, if White Americans are primed to think about Barack Obama as a contemporary racial pioneer who has broken down racial barriers, it could elicit group threat and result in increased implicit racial bias. The article excerpt used in the current study presented President Obama’s election in a positive way, emphasizing the relevance of his election to American racial progress and the breaking down of racial barriers. These findings suggest that for Whites, thinking about shifts in the power held by racial out-groups elicits defensive reactions even when messages are positive—particularly among those that are low in IMS. Thus, the way Obama’s presidency and other contemporary racial milestones are framed may dictate the effect such discussions have on racial biases.

We hasten to add that our findings do not mean we should not celebrate the accomplishments of minority group members. Only those with lower internal motivation to respond without prejudice showed a defensive reaction (i.e., increased implicit racial bias) in response to our power threat manipulation. Those with high internal motivation to respond without prejudice showed no increase in implicit racial bias. Tweaking the framing of such discussions to highlight superordinate group identities (e.g., nationality) may help buffer group threat experienced by those with lower internal motivation to respond without prejudice by encouraging them to recategorize racial minority group members as part of the in-group (Gaertner, Dovidio, Anastasio, Bachman, & Rust, 1993). For example, university students show lower levels of implicit racial bias when IAT stimuli consist of targets labeled as fellow students at their university (Scroggins, Mackie, Allen, & Sherman, 2016). Thus, priming a superordinate group identity or framing discussions of racial milestones in the context of superordinate identities might mitigate

the tendency toward defensive reactions to such messages. Future research should examine whether priming common identities can moderate the group threat effects observed in the current study.

Previous research shows that White communities with more racial diversity tend to show higher levels of racial bias (Quillian, 1996; Rae, Newheiser, & Olson, 2015). Through the lens of group threat theory, as the proportion of racial minority group members in a community increases they are perceived as a greater threat to the position held by the dominant group (Quillian, 1995). Recent empirical work confirms that priming participants with the threat of a growing minority out-group increases implicit racial bias (Craig & Richeson, 2014; Danbold & Huo, 2015). Quillian (1995) argues that group threat results from “challenges to the dominant group’s exclusive claim to privileges” (p. 588). Yet, to our knowledge, no research has examined the effect of increasing social and political power held by racial out-groups. This lack of attention may be because racial minority group members have largely been excluded from national political office in the U.S. In fact, 2008 was the first year a non-White candidate appeared on the U.S. presidential ballot representing one of the two dominant political parties. Yet, the current findings show that referencing the historical importance and framing the election of President Obama as a racial milestone increases implicit anti-Black bias among Whites, especially those who are lower in internal motivation to respond without prejudice.

Consistent with previous literature (Hausmann & Ryan, 2004), as internal motivation to respond without prejudice increased, implicit racial bias decreased. This relationship was particularly strong in the power threat condition, such that the relationship between internal motivation to respond without prejudice and implicit bias was strengthened. Thus, at low levels of internal motivation to respond without prejudice, participants in the power threat condition showed the most implicit bias. At high levels of internal motivation to respond without prejudice participants in the power threat condition showed no more implicit racial bias than control participants. In contrast, the majority threat condition attenuated the relationship between internal motivation to respond without prejudice and implicit bias, such that it was no longer statistically significant. Thus, although participants with high internal motivation to respond without prejudice generally exhibit less implicit racial bias, in the shifting demographics condition participants with high internal motivation showed no less implicit bias than participants with low internal motivation.

It is noteworthy that the moderating role of internal motivation to respond without prejudice varied quite dramatically between the two threat manipulation conditions, indicating that different types of participants reacted defensively to different types of primes (power threat vs. majority threat). In light of the current evidence we cannot be certain whether the patterns observed in the power threat condition and the majority threat condition are specific to the experimental stimuli or types of threats those stimuli represent more broadly. In other words, the observed relationship between internal motivation to respond without prejudice and

implicit bias in the power threat condition may be indicative of a general effect of threats to group power or specifically related to President Obama. For example, among participants with high internal motivation to respond without prejudice, President Obama may be seen as a symbol of “post-racial” America. Thus, his election may elicit feelings of pride and national accomplishment. In other words, his election may be seen as a signal of racial progress that is consistent with their non-prejudiced values. Shifting demographics, on the other hand, are not likely to elicit these feelings because individuals have no influence on such patterns of abstract, large-scale population change. Moreover, shifts in demographics may leave Whites feeling left out of the changes the nation is making. Although we cannot be certain about why the shifting demographics prime disrupted the typically observed relationship between IMS and IAT scores, it could be because low IMS participants have a chronically heightened sense of group majority threat. In other words, in contemporary America, low IMS Whites may generally be more aware of and concerned about the increasing size of the non-White population. Thus, the shifting demographics prime may have had little added impact on low IMS Whites if these issues are already chronically salient to them. Additional research using multiple or alternative threats to group power will be critical in developing our understanding of these issues.

The primes used in the current study were excerpts of articles that were previously published in a major news outlet (i.e., *The New York Times*), thus the effects observed here possess a high degree of ecological validity. According to a 2013 Pew Research report, The New York Times Company has the second largest readership of any online American newspaper in the world (Edmonds, Guskin, Mitchell, & Jurkowitz, 2013). Therefore, it is likely that many White Americans have been exposed to these threat primes in the context of their daily lives. More generally, research has established evidence of racial bias and stereotyping in mainstream journalism. For example, relative to Whites, Black criminal perpetrators tend to be overrepresented and Black victims tend to be underrepresented in news coverage (Bjornstrom, Kaufman, Peterson, & Slater, 2011). Moreover, exposure to racially stereotypical media exemplars increases stereotype endorsement and prejudicial attitudes (Ramasubramanian, 2011). Our findings are striking given that exposure to ostensibly neutral, or arguably pro-diversity media coverage increased implicit racial bias. In other words, our research provides evidence that seemingly pro-diversity media may backfire, increasing racial bias despite the equity principles often guiding dissemination of such messages.

It is important to note some limitations of the current research. Participants completed the motivation to respond without prejudice scales immediately after the prime and immediately before completing the IAT. Although we found no evidence that prime impacted IMS levels, it is possible that completing the IMS scale (or completing the IMS scale following the prime) impacted implicit bias. Future research could utilize a mass screening procedure to obtain IMS scores, which would allow the effect of prime to be completely isolated. We also recognize that the IAT is not a perfect measure of implicit bias. For example, it is influenced

by cognitive control abilities (Siegel, Dougherty, & Huber, 2012) and has the potential to be faked (De Houwer, Beckers, & Moors, 2007; Wallaert, Ward, & Mann, 2010). Additional research utilizing other implicit and behavioral measures will aid in understanding these effects and their implications for real world behavior. Another important point involves the strength of the two prime effects. Although the majority threat condition appeared to produce somewhat stronger effects, we want to caution readers against drawing conclusions from this. These findings were produced in response to single examples of majority and power threats—thus we cannot know whether majority threats generally produce larger reactions. For this reason we have attempted to limit comparisons of the strength of the two effects, instead focusing on their deviations from control and interactions with IMS.

THE LEGACY OF BARACK OBAMA

The current data suggest that the legacy of Barack Obama on the social cognition of White Americans is complex. Given Obama's status and success he will contribute to a growing pool of public figures who defy racial stereotypes and elicit positive racial associations. Increasing exposure to such positive exemplars over time may lead to a reduction in racial bias. However, to the extent that society focuses on the racial significance of Obama's accomplishments he may continue to signal a threat to the privileged position of Whites in the United States. Given that Obama is the first elected president of the United States who self-identifies as Black, it is likely that his race and its significance within the historical context will become an enduring part of his legacy. From this perspective, Obama may be a lasting reminder of the erosion of Whites' exclusive hold on power in the U.S. Yet, not all White Americans appear to be threatened by the election of President Obama. Results suggest that the Obama prime primarily increased bias among those with low internal motivation to respond without prejudice. Thus, especially among White Americans who are not highly motivated to control prejudice, Obama may pose an enduring threat to their racial privilege, elevating implicit racial bias.

APPENDIX

The EMS scale was included for exploratory purposes. The EMS scale consists of five items rated on a scale from 1 (strongly disagree) to 9 (strongly agree). The EMS scale includes items such as "I attempt to appear non-prejudiced toward Black people in order to avoid disapproval from others." The EMS scale was not influenced by condition, $F = 0.25$, $p = .776$.

We examined the effects of EMS by adding mean-centered EMS ($M = 4.19$, $SD = 2.13$) and all interactions with IAT and condition to the model reported in the main article. This exploratory analysis revealed a main effect of EMS, $F(1, 30000) = 12.85$, $p < .001$, such that as EMS increased, implicit anti-Black bias increased. The effect

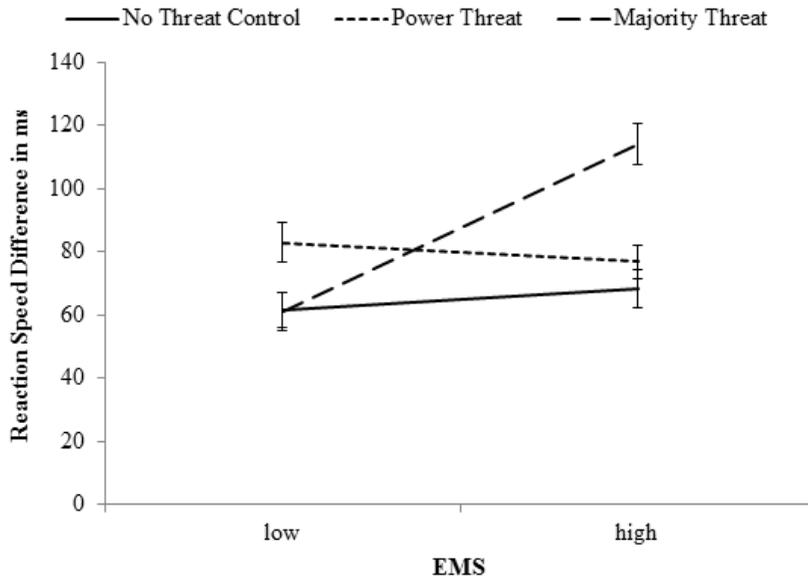


FIGURE S1. Implicit anti-Black bias as a function of external motivation to respond without prejudice (EMS) with standard error bars, by experimental condition. Low EMS is one standard deviation below the mean and high EMS is one standard deviation above the mean. Higher values (i.e., larger reaction time differences) indicate stronger anti-Black bias.

of EMS was qualified by an interaction between EMS and condition, $F(2, 30000) = 11.82, p < .001$. As seen in Figure S1, participants in the majority threat condition drove the relationship between EMS and implicit bias. In the majority threat condition EMS significantly predicted implicit anti-Black bias ($B = 12.42, SE = 2.24$), $t(30000) = 5.55, p < .001, 95\% CI [8.04, 16.81]$. At high levels of EMS (1 *SD* above the mean) participants in the majority threat condition showed significantly more bias than those in the control condition ($B = 45.09, SE = 8.81$), $t(30000) = 5.12, p < .001, 95\% CI [27.83, 62.36]$, and the power threat condition ($B = 36.07, SE = 8.49$), $t(30000) = 4.25, p < .001, 95\% CI [52.71, 19.43]$. At low levels of EMS (1 *SD* below the mean) participants in the majority threat condition showed no more bias than those in the control condition ($B = -0.89, SE = 8.39$), $t(30000) = -0.11, p = .916, 95\% CI [-17.33, 15.56]$. In the power threat condition EMS was not significantly related to implicit bias ($B = -1.43, SE = 1.90$), $t(30000) = -0.75, p = .452, 95\% CI [-5.17, 2.30]$. At high levels of EMS the power threat condition did not differ from the control condition ($B = 9.02, SE = 8.00$), $t(30000) = 1.13, p = .260, 95\% CI [-6.66, 24.71]$. However, at low levels of EMS, participants in the power threat condition showed significantly more implicit anti-Black bias than participants in the majority threat condition ($B = 22.58, SE = 8.72$), $t(30000) = 2.59, p = .010, 95\% CI [5.48, 39.68]$, and the control condition ($B = 21.70, SE = 8.38$), $t(30000) = 2.59, p = .010, 95\% CI [5.26, 38.13]$. In the control condition EMS was also unrelated to implicit bias ($B = 1.56, SE = 1.90$), $t(30000) = 0.82, p = .413, 95\% CI [-2.17, 5.29]$.

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IMPLICIT AND EXPLICIT ATTITUDES TOWARD AFRICAN AMERICANS AND BARACK OBAMA DID NOT SUBSTANTIVELY CHANGE DURING OBAMA'S PRESIDENCY

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Barack Obama is perhaps the most well-known exemplar of African Americans. However, the extent to which he has impacted attitudes toward African Americans remains unclear. Using cross-sectional data ($N > 2,200,000$), the present study examined changes in racial attitudes and attitudes toward Obama during the first seven years of Obama's presidency. Attitudes showed no evidence of substantive change. After accounting for shifts in sample demographics, results showed an increase in implicit anti-Black attitudes and no change in explicit anti-Black attitudes. Participation date explained only 0.01% of the variance in implicit attitudes. Corresponding analyses of attitudes toward Obama ($N > 210,000$) indicated no change in implicit attitudes but increasing negativity toward Obama in explicit attitudes. Date accounted for only 0.01% of explicit attitude variance. Daily and monthly means across both samples were largely unrelated. Attitudes toward African Americans in general and Obama specifically showed little change or correspondence during Obama's presidency.

Keywords: Barack Obama, implicit attitudes, explicit attitudes, attitude malleability

From the academy to the newsroom, the 2008 election of Barack Obama as president of the United States has been regarded as proof of Americans' changing social attitudes. Aside from its political implications, Obama's election was perceived by

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many as indicative of improving race relations in the United States. The day after Obama won the presidency in 2008, the *New York Times* wrote, "Obama Elected President as Racial Barrier Falls" (Nagourney, 2008). Abroad, the *Philippine Daily Inquirer* declared simply, "Black in White House" (2008). For some, Obama's election even signaled the end of racism in the United States: writing for *Forbes*, John McWhorter argued that Obama's presidency meant that racism in the United States was no longer a "serious problem" (McWhorter, 2008).

Whether or not Obama's election was reflective of racial progress in 2008, or his 2012 re-election a sign of continued progress, racial inequalities still exist in areas such as law enforcement, wages, and healthcare (for a review, see The Leadership Conference, 2014). However, the extent to which Obama has impacted racial attitudes remains unclear.

OBAMA AS BLACK EXEMPLAR

Given Obama's status as one of the world's most recognizable and powerful people who identifies as Black, many researchers have used opinions and perceptions of Obama to understand attitudes toward Black people in general (e.g., Hutchings, 2009; Welch & Sigelman, 2011). This work has focused on measures of both explicit attitudes, in which responses are controlled and within conscious awareness, and implicit attitudes, in which responses may be automatic and reflect unconscious associations (Greenwald & Banaji, 1995). For instance, previous work has found consistent relationships between implicit and explicit racial attitudes and opinions of Obama. In a sample of over 1,000 online participants during the week before the 2008 election (Greenwald, Smith, Sriram, Bar-Anan, & Nosek, 2009), willingness to vote for Obama was weakly but reliably related to more positive implicit attitudes toward African Americans, measured by both the Brief Implicit Association Test (BIAT; $r = .17$; Sriram & Greenwald, 2009) and the Affect Misattribution Procedure (AMP; $r = .11$; Payne, Cheng, Govorun, & Stewart, 2005). Voting intentions were also related to explicit racial attitudes, measured through feeling thermometers ($r = .21$) and Symbolic Racism ($r = .42$; Henry & Sears, 2012). Similarly, greater intentions to vote for Obama were associated with lower scores on a measure of racial resentment (Kinder & Sanders, 1996) in an online sample ($N = 1,177$; Craemer, Shaw, Edwards, & Jefferson, 2013).

Such work has revealed that implicit and explicit racial attitudes about Black people in general predict perceptions of Obama; individuals with more negative implicit and explicit attitudes toward Black people are also more likely to hold more negative opinions toward Obama. These analyses are only correlational, so determining causality is difficult. Participants may have used their attitudes toward Obama to partly form more general attitudes about all Black people. Alternatively, participants may have used their existing racial attitudes in the formation of their attitudes toward Obama. In support of this second interpretation, a recent study using panel data found that racial attitudes measured before Obama's election (assessed in January 2008) predicted later disapproval of Obama's presiden-

cy, even after controlling for political orientation (Lundberg, Payne, Krosnick, & Pasek, 2015). Moreover, racial attitudes measured in early 2008 became stronger predictors of perceptions of Obama further into his presidency. While previous research is not conclusive, racial attitudes about Black people in general likely preceded attitudes toward Obama. Thus the most plausible interpretation of existing data is that pre-existing general racial attitudes shaped specific attitudes about Obama (see Greenwald et al., 2009 for a similar interpretation). However, the reverse relationship is less clear: how has Obama shaped racial attitudes?

The current theoretical accounts and empirical studies concerning the influence of Obama on racial attitudes have produced mixed results. In fact, evidence has supported three seemingly inconsistent outcomes: that Obama's election has (1) reduced anti-Black racial attitudes, (2) increased anti-Black racial attitudes, or (3) left racial attitudes unaffected. In the following sections, we briefly review the existing literature supporting each of these outcomes.

OBAMA HAS REDUCED ANTI-BLACK RACIAL ATTITUDES

Studies that find Obama has reduced anti-Black racial attitudes are consistent with an exemplar-based model of social judgment (Smith & Zarate, 1992), in which perceptions of groups are influenced by the accessibility of individual exemplars. Exposure to a highly salient, positive exemplar from one group can then be expected to reduce negativity toward the group as a whole. Such exposure to positive, counter-stereotypic exemplars has previously been shown to reduce implicit racial bias against Black people. In one study (Dasgupta & Greenwald, 2001), participants read descriptions of positive Black and negative White figures (e.g., Denzel Washington and Timothy McVeigh). This manipulation reduced anti-Black bias on the Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998) both immediately and 24 hours after the session, but did not produce any changes in explicit racial attitudes. A large study comparing interventions on reducing implicit racial bias (Lai et al., 2014) also found that practicing the IAT with counter-stereotypic exemplars as stimuli reduced implicit bias against Black people on a standard race IAT taken immediately after the practice IAT ($d = 0.40$). Related studies investigating "social tuning" have shown that changes in implicit attitudes can occur in the absence of exposure to negative White exemplars; interactions with a friendly Black experimenter wearing an "Eracism" shirt reduced implicit bias against Black people on both an IAT and an evaluative priming task (Sinclair, Lowery, Hardin, & Colangelo, 2005).

These exposures to counter-stereotypic exemplars and Black experimenters were brief yet capable of shifting anti-Black implicit racial attitudes. The inference that Obama's presidency could have also influenced racial attitudes follows from such results. To the extent that Barack Obama is viewed as a positive exemplar of African Americans, the prolonged exposure to Obama that most Americans experienced may have potentially reduced anti-Black attitudes implicitly and perhaps explicitly.

Researchers have reported some evidence that exposure to Obama reduces anti-Black racial attitudes, a result often called the “Obama effect.” In Plant et al. (2009), undergraduates in two samples demonstrated no evidence of anti-Black implicit racial bias during the Fall 2008 semester, when Obama’s election campaign was at its height, despite strong anti-Black implicit biases being found in similar samples from earlier years. This reduction in implicit bias during the fall of 2008 was strongest for those participants who listed Obama or another positive Black exemplar when prompted to write down their first five thoughts about Black people. Similarly, anti-Black implicit bias (but not explicit bias) was significantly reduced following Obama’s win when participants completed measures of racial bias both the week before and the week after Obama’s first election (Bernstein, Young, & Claypool, 2010).

While these studies revealed changes in implicit but not explicit anti-Black attitudes during Obama’s election, separate work has found evidence of reduced explicit anti-Black prejudice during the same time period. Data from over 1,800 participants completing multiple interview sessions in a national, representative sample showed a small but reliable decrease in explicit racial bias between July 2008 and January 2009 ($d = 0.14$; Goldman, 2012). This result was found despite separate analyses that revealed no evidence of change in racial attitudes from samples covering the previous 16 years. Furthermore, this reduction in explicit racial bias during the second half of 2008 was strongest among participants who likely experienced more exposure to Obama (e.g., had a greater interest in politics, watched more television programs related to politics, or lived in states that aired more Obama-related commercials).

Finally, additional support for the “Obama effect” has come from follow-up studies that experimentally manipulated exposure to Obama. For instance, exposing participants to images of Obama was shown to offset the increased implicit racial bias created from viewing negative Black exemplars (e.g., O. J. Simpson; Columb & Plant, 2011; Columb & Plant, this issue). This experimental design provided causal evidence that exposure to Obama can lessen anti-Black implicit attitudes.

The “Obama effect” is an intuitive and optimistic finding. Even people who did not support Obama politically may be heartened by lowered explicit and implicit anti-Black attitudes resulting from his election. According to the “Obama effect” and theories concerning the influence of counter-stereotypic exemplars, implicit and explicit racial attitudes should have become less anti-Black during Obama’s presidency. However, the evidence supporting the idea that Obama’s election has created a reduction in racial prejudice must be interpreted alongside seemingly conflicting accounts indicating that Obama’s presidency has led to an *increase* in anti-Black bias and those that find no evidence of racial attitude change.

OBAMA HAS INCREASED ANTI-BLACK RACIAL ATTITUDES

Group Threat Theory (Blumer, 1958) presents an alternative account of attitude change, in which prejudice increases when out-groups are either perceived as posing economic threats or growing in size (Quillian, 1995). Previous research provides some support for this conception of intergroup relations; for instance, higher estimates of Black and Hispanic populations were associated with more explicit bias toward these groups (Alba, Rumbaut, & Marotz, 2005). Likewise, one experiment found that presenting White participants with an article stating that ethnic and racial minorities will outnumber White people in 30 years increased explicit and implicit racial bias (Craig & Richeson, 2014; see also Skinner & Cheadle, this issue). Another study found that White participants had higher levels of in-group bias in a dictator game after reading about the rising Hispanic population (Abascal, 2015). From this perspective, Obama's election (and re-election) could have signaled that White people were losing influence, prompting greater negativity toward Black people.

Indeed, studies focusing on Obama specifically have found heightened racial bias during his election and presidency. Survey data from 2008 to 2012 found small increases in anti-Black bias both implicitly (on the AMP) and explicitly (on Symbolic Racism; Pasek, Stark, Krosnick, Tompson, & Payne, 2014). Higher negativity toward Black people on both attitude measures was also related to lower support of Obama and lower intention to vote for his re-election. A separate study found that endorsement of race-related equality programs such as affirmative action were lower in the weeks following Obama's re-election (Gaither, Wilton, & Young, 2014). These results indicate that Obama's election may have been perceived among some White people as signaling a reduction in their political or social power, leading to greater prejudice against Black people in general (see Skinner & Cheadle, this issue, for evidence suggesting that exposure to Obama can increase implicit racial bias among those low in motivation to respond without prejudice).

Negative evaluations of Obama himself could also negatively influence racial attitudes. For some groups (e.g., conservatives), Obama may be a counter-stereotypic exemplar of African Americans but is certainly not viewed positively (e.g., Maxwell & Parent, 2012). Obama's political position precludes universal positivity. To the degree that he is negatively evaluated more than African Americans in general, Obama could be increasing anti-Black implicit and explicit bias among certain groups. Given that those same groups may already have higher than average anti-Black bias (Nosek et al., 2007), Obama could merely be strengthening existing negative attitudes. Moreover, with national approval ratings of Obama decreasing during his presidency for even liberals and African Americans (data analyzed from Gallup, 2015), groups with initially positive associations with Obama could be decreasing in their positivity toward him and consequently toward African Americans in general. According to Group Threat Theory, implicit and explicit

racial attitudes should have become more anti-Black during Obama's presidency, particularly given the reported negative trends in perceptions of Obama.

OBAMA HAS LEFT ANTI-BLACK RACIAL ATTITUDES UNAFFECTED

A final perspective regarding the impact of Obama's presidency on racial attitudes comes from work on subtyping (e.g., Weber & Crocker, 1983). Subtyping occurs when people protect their existing beliefs about groups by interpreting contradictory information as not applicable to the group as a whole (Fiske, Neuberg, Beattie, & Milberg, 1987). For instance, a positive exemplar from a negatively stereotyped group may be placed into a subcategory of that group to avoid re-evaluating the group as a whole. This account would predict that even repeated exposure to a positive Black figure such as Obama may be ineffective in changing an individual's racial attitudes because Obama will be "subtyped" and not believed to exemplify Black people in general.

This process of subtyping may help explain recent evidence that the effectiveness of exposure to counter-stereotypic exemplars in reducing implicit racial bias was perhaps initially overstated. While four studies using over 1,500 online and undergraduate participants (Joy-Gaba & Nosek, 2010) replicated the effect that viewing counter-stereotypic race exemplars reduced implicit racial bias, the magnitude of the effect ($d = 0.13$) was less than one sixth the size of that found in the original study ($d = 0.82$; Dasgupta & Greenwald, 2001). Though the studies used different stimuli and scoring methods, the drastically reduced effect of exposure to counter-stereotypic exemplars could be the result of such exemplars not being encoded by participants as representative of Black people in general. Similarly, other forms of subtyping could lead the race of an exemplar to become secondary to his or her more salient features. If Obama were considered as non-representative of Black people or his position as president prevented him from being strongly associated with "Black," then exposure to Obama may be ineffective at changing racial attitudes.

Related work has shown that even when positive exemplars are encoded as representative of the Black population, changes in implicit racial attitudes from viewing positive Black exemplars may not persist over time. A follow-up to the Lai et al. (2014) experiment mentioned earlier compared multiple interventions aimed at lowering implicit bias and replicated the reduction of implicit bias following practice with counter-stereotypic exemplars ($d = 0.38$). However, the interventions were no longer reliably effective when implicit attitudes were measured more than 24 hours later ($d = 0.11$; Lai et al., 2016). These more recent results suggest that exposure to counter-stereotypic exemplars may prove ineffective at changing racial attitudes when exemplars are not perceived as representative of the larger group. Even when attitudinal change occurs in the short term, it may not persist in the absence of recent and salient exposure to exemplars.

Other experiments concerning the impact of exposure to Obama have also found mixed or no evidence for behavioral or attitude change. For example, in a

test of “stereotype lift” (in which reminders of positive stereotypes increase relevant task performance; Walton & Cohen, 2003), Black participants prompted to think of Obama showed no improvement on tests of verbal ability compared to a control condition (Aronson, Jannone, McGlone, & Johnson-Campbell, 2009). This experimental result contradicted earlier correlational research suggesting that greater exposure to Obama was associated with increased verbal ability among Black participants (Marx, Ko, & Friedman, 2009). In a study concerning racial attitudes specifically, non-Black participants primed to think about Obama showed no differences in implicit racial bias compared to participants primed with Oprah or nature (Lybarger & Monteith, 2011).

Finally, in the largest investigation of racial attitudes during Obama’s presidential campaign (Schmidt & Nosek, 2010), cross-sectional data from over 400,000 online participants showed no evidence of meaningful change in explicit or implicit racial attitudes between September 2006 and May 2009. Though the effects were statistically significant given the sample size, date accounted for only 0.001% of the variance in implicit attitudes and 0.01% of the variance in explicit attitudes. Moreover, implicit and explicit racial attitudes were unrelated to greater mentions of Obama in the media and did not substantively change during salient moments in Obama’s campaign (e.g., earning the Democratic nomination, winning the election).

A number of plausible explanations may account for such null results. For example, participants may have “subtyped” Obama as not representative of Black people in general. Or, even if Obama were perceived as representative of Black people, the biggest moments of his campaign may still have not been salient enough to alter racial attitudes (i.e., participants were not explicitly reminded of Obama during the study session). Lastly, the malleability of racial attitudes created by exposure to Obama may be confined to short-term laboratory interventions. As a result of such factors, implicit and explicit racial attitudes should have shown no change during subsequent years in Obama’s presidency.

THE PRESENT WORK

Previous studies have provided conflicting correlational and experimental evidence to suggest that Obama has reduced anti-black bias, increased bias, or left racial attitudes unchanged. In the present work, we explored explicit and implicit racial attitudes using a large convenience sample of American visitors to the Project Implicit website ($N > 2,200,000$). First, we investigated whether evidence of change in either implicit or explicit racial attitudes can be found during the first seven years of Obama’s presidency, from January 2009 to December 2015. The Schmidt and Nosek (2010) analyses stopped at May 11, 2009, seven months after Obama was elected and four months after he took office. Though these early analyses found no evidence of substantive explicit or implicit racial attitude change during Obama’s campaign and first election, changes in racial attitudes may have occurred further into Obama’s presidency.

In a separate sample ($N > 210,000$), we also investigated changes in responses to implicit and explicit measures that specifically focused on attitudes toward Obama (e.g., a presidential preference IAT measuring evaluations toward Obama relative to recent presidents). We examined these measures for evidence of change in attitudes toward Obama over the seven years of data collection.

For both the race task and presidents task, we analyzed the impact of select demographics on attitudes. Political orientation could be a key determinant of the impact Obama has had on individual racial attitudes. For instance, a lack of change in the aggregate could be the result of reduced anti-Black attitudes among liberals, who likely view Obama as a positive Black exemplar, and increased anti-Black attitudes among conservatives, who likely evaluate Obama negatively or view Obama's election as a political or even social threat. Including participant political orientation in the analysis may help uncover the psychological processes underlying individual changes in racial attitudes. We also analyzed whether changes in racial attitudes and attitudes toward Obama were moderated by participant race; for example, White participants may have shown larger attitude change than Black participants given their higher initial anti-Black attitudes. Alternatively, racially identifying with Obama could increase his impact on racial attitudes.

Finally, we investigated relationships between racial attitudes and attitudes toward Obama more directly. By creating datasets with the daily means for both tasks, we can see if implicit and explicit attitudes toward Obama are correlated with implicit and explicit racial attitudes. Given an exemplar model of attitude change, variation in evaluations of Obama, whether positive or negative, may be associated with related changes in racial attitudes.

The methods outlined above allow us to leverage a large and diverse sample of participants to examine changes in attitude measures over a notable time span. Having a Black president serves as a naturalistic test of the influence of exemplars on racial attitudes. By examining attitudes toward Obama and those toward Black people concurrently, we may capture an important cultural shift in attitudes. However, such correlational methods will not imply causality if attitudes do appear to change over time. Additionally, our convenience sample does not represent the nation as a whole. Nonetheless, our analyses can shed light on the question of how racial attitudes have changed during Obama's presidency.

METHOD

PARTICIPANTS

Participants included all visitors to the Project Implicit demonstration website who were U.S. citizens and completed relevant measures for the "Race IAT" ($N = 2,289,796$) or "Presidents IAT" ($N = 219,170$) tasks between January 20, 2009 and December 31, 2015.¹ This date range represents the day of Barack Obama's inauguration until nearly seven years into his presidency (2,536 days). The end date was

1. Relevant measures for the presidents task did not appear until June 15, 2009.

TABLE 1. Demographics of the Race Task and Presidents Task Samples

	Race Task				Presidents Task			
	<i>M</i>	<i>SD</i>	<i>n</i>	%	<i>M</i>	<i>SD</i>	<i>n</i>	%
Age	26.49	11.62			29.52	13.62		
0–17			696227	30.41			60938	27.80
18–29			1056097	46.12			90246	41.18
30–49			411504	17.97			46425	21.18
50–69			119949	5.24			20299	9.26
70 and above			6019	0.26			1262	0.58
Gender								
Male			776749	40.57			93892	51.03
Female			1138038	59.43			90119	48.97
Race								
American Indian/Alaskan Native			12632	0.67			1181	0.65
East Asian			63812	3.37			4778	2.62
South Asian			49382	2.60			3910	2.15
Native Hawaiian/Pacific Islander			11603	0.61			714	0.39
Black/African American			213628	11.27			12419	6.81
White			1319164	69.57			143707	78.84
Multiracial–White/Black			49429	2.61			2198	1.21
Multiracial–Other			104770	5.53			7068	3.88
Other/Unknown			71747	3.78			6296	3.45
Ethnicity								
Hispanic/Latino			193218	10.39			14101	7.96
Not Hispanic/Latino			1541911	82.90			154340	87.15
Unknown			124828	6.71			8654	4.89
Education	5.71	2.14			6.24	2.28		
Some High School or Less			325972	17.01			22688	12.53
High School Degree			151159	7.89			13560	7.49
Some College			683623	35.67			50762	28.06
College Degree			376164	19.63			45157	24.95
Some Advanced Schooling			131185	6.85			13100	7.24
Advanced Degree			243664	12.71			35716	19.72
Political Ideology	4.50	1.61			4.51	1.83		
Strongly Conservative			72995	3.85			11815	6.50
Moderately Conservative			186093	9.82			23288	12.82
Slightly Conservative			147800	7.80			15257	8.40
Neutral			666246	35.15			40755	22.43
Slightly Liberal			197216	10.40			20179	11.10
Moderately Liberal			395576	20.87			42241	23.25
Strongly Liberal			229658	12.12			28176	15.51

selected to match the most recent public posting of the Project Implicit demonstration data (Xu, Nosek, & Greenwald, 2014).

The race task averaged 913 sessions per day; the minimum number of sessions per day was 0 (due to server errors and updates), and the maximum number of sessions per day was 47,375. For the presidents task, sessions per day ranged from 5 to 3,322 with a mean of 92. The middle 80% of daily sample sizes ranged from 285 to 1,500 for the race task, and from 31 to 153 for the presidents task.

See Table 1 for a demographic breakdown of both samples. Likely due to the extremely large sample sizes, all demographic variables in both samples demonstrated significant change over the course of the data collection. Notably, the race task sample became more liberal ($\eta_p^2 = .01$), more educated ($\eta_p^2 = .004$), and younger ($\eta_p^2 = .004$) over time; the presidents task sample became more liberal ($\eta_p^2 = .004$) and educated ($\eta_p^2 = .002$) over time.

MATERIALS

Race Task. The race task included explicit and implicit attitude measures evaluating European Americans and African Americans. Explicit attitudes were measured on a 7-point Likert scale ranging from “I strongly prefer African Americans to European Americans” (scored as -3) to “I strongly prefer European Americans to African Americans” (scored as 3), with a midpoint of “I like European Americans and African Americans equally” (scored as 0).

Implicit racial attitudes were assessed using a 7-block IAT measuring association strengths between the concepts African American and European American and the attributes pleasant and unpleasant. Participants categorized words and pictures that represented the concepts and categories using two response keys. In the critical blocks, either White faces were paired with pleasant words and Black faces were paired with unpleasant words, or White faces were paired with unpleasant words and Black faces were paired with pleasant words. The response latencies for the two different pairing combinations were compared. If participants were faster to pair White with pleasant and Black with unpleasant than White with unpleasant and Black with pleasant, we assumed that they implicitly preferred European Americans over African Americans.

The pairing order of the critical blocks was randomized between subjects. This procedure follows the recommendations of Nosek, Greenwald, and Banaji (2007). The IAT was scored following the guidelines of Greenwald, Nosek, and Banaji (2003) such that more positive values indicated a stronger implicit association between European American and pleasant and African American and unpleasant. IAT scores were retained if fewer than 10% of the response trials had a latency less than 300 milliseconds and error rates were below 30% overall or 40% for any response block, as recommended in Greenwald, Nosek, and Banaji (2003; 14.59% total scores were excluded from the race IAT).

Presidents Task. The presidents task included explicit and implicit attitude measures evaluating Barack Obama and former presidents. Participants were ran-

domly assigned to compare Obama individually to either Bush, Clinton, Jefferson, Kennedy, Lincoln, Nixon, Reagan, or Roosevelt; or to compare Obama to recent presidents as a category (Clinton, Ford, Nixon, Carter, and Reagan). For the explicit measure, the response options ranged from 3, indicating a strong preference for the other president or presidents (e.g., "I strongly prefer George W. Bush to Barack Obama"), to -3, indicating a strong preference for Obama (e.g., "I strongly prefer Barack Obama to George W. Bush"), with 0 as the midpoint on the 7-point Likert scale (e.g., "I like Barack Obama and George W. Bush equally").

The layout and scoring of the presidents IAT were identical to the race IAT. Participants sorted photos representing Obama and another president or presidents at the same time as words representing good and bad. The category labels for the task included each president's first and last names (e.g., "Barack Obama"), "Recent Presidents," and "Good" and "Bad."² The presidents task was scored such that more positive scores on implicit and explicit attitudes measures indicated more positive implicit associations with Obama. Based on exclusion criteria, 15.49% of scores were not included in analyses.

Demographics and Date. As part of both tasks, participants responded to items assessing their age, gender, race, ethnicity, education level, political orientation, and country/region of primary citizenship. Age was measured in years. The gender item initially included Male and Female, but additional options were added near the end of data collection; for consistency, we chose to represent only "Male" and "Female" responses in analyses. The race item included the following responses: American Indian/Alaska Native, East Asian, South Asian, Native Hawaiian or other Pacific Islander, Black or African American, White, More than one race-Black/White, More than one race-Other, and Other or Unknown. The responses on the ethnicity item were: Hispanic or Latino, Not Hispanic or Latino, and Unknown. Political orientation was measured with a 7-point scale ranging from "Strongly conservative" to "Strongly liberal," with "Neutral" as a midpoint. For subgroup analyses, liberals were defined as anyone who identified as slightly, moderately, or strongly liberal and conservatives as those who identified as slightly, moderately, or strongly conservative. Education included the options: elementary school, junior high, some high school, high school graduate, some college; associate's degree, bachelor's degree, some graduate school, master's degree, M.B.A., J.D., M.D., Ph.D., and other advanced degree.³ The citizenship item was used to exclude participants who were not U.S. citizens. Finally, date was automatically coded to the second that the session was started and used in analyses as a by-second continuous variable.

2. While the category labels were not race relevant, the stimulus pictures may have highlighted the racial differences between Obama and any comparison president or presidents. Using less or more race relevant stimuli or categories would likely influence how implicit attitudes toward Obama correspond to racial attitudes more generally. However, since the focus of our article is change over time, this impact is not a methodological concern.

3. While technically a categorical measure, education was recoded to reflect increasing educational attainment and added to regression models as a continuous variable. This treatment has been used in other analyses of Project Implicit data (e.g., Nosek et al., 2007; Westgate, Riskind, & Nosek, 2015).

PROCEDURE

Participants visited <https://implicit.harvard.edu/> and chose to take the “Race IAT” or “Presidents IAT” test. Those who chose the presidents task were randomly assigned to a comparison president or presidents. Order of the IAT, explicit attitude measures, and demographics were randomized.

RESULTS

All data, materials, and analysis syntax are available at <https://osf.io/6t53f/>.

RACIAL ATTITUDES

Participants showed an overall preference for European Americans over African Americans on both implicit ($M = 0.32$; $SD = 0.43$; $t[1802933] = 987.85$, $p < .001$, $d = 0.74$, 95% CI [0.318, 0.319]) and explicit attitude measures ($M = 0.29$; $SD = 1.06$; $t[1994213] = 389.33$, $p < .001$, $d = 0.27$, 95% CI [0.29, 0.30]). Implicit and explicit racial attitudes were positively correlated, $r = .31$, 95% CI [0.311, 0.313], a level of implicit-explicit correspondence similar to previous analyses (e.g., Bar-Anan & Nosek, 2014; Nosek et al., 2007; Schmidt & Nosek, 2010).

Variation Over Time. To test whether the magnitude of implicit racial attitudes changed as a function of time during Obama’s presidency, we regressed session date on IAT score. The results indicated that implicit racial bias decreased over time, $F(1, 1802932) = 1876.73$, $p < .001$, $B = -2 \times 10^{-10}$, $R^2 = .001$ (see Figure 1). Explicit racial bias also decreased over time, $F(1, 1994211) = 3192.03$, $p < .001$, $B = -1 \times 10^{-10}$, $R^2 = .002$.⁴ While statistically significant, these effects were small, as date accounted for only 0.1% of the variance in implicit and 0.2% of the variance in explicit attitudes.

Any effects of date on implicit and explicit attitudes could potentially be explained by demographic changes in our convenience sample over time. For instance, liberals tend to have less anti-Black implicit and explicit attitudes than conservatives (e.g., Nosek et al., 2007). As a result, an increase in the number of liberal participants over time could lead to a general decrease in anti-Black attitudes that was only the result of demographic changes in our sample and not of changes in attitudes. As noted earlier, the race task participants became younger, more educated, and more liberal over the course of data collection. Importantly, youth, education, and liberalism all predict lower implicit and explicit anti-Black bias (Nosek et al., 2007). To control for such changes in sample demographics

4. Adding political ideology and race to the model predicting implicit attitudes from date increased model fit ($R^2 = .10$) but did not impact the effect of date, $F(1, 1802932) = 1106.11$, $p < .001$, $B = -2 \times 10^{-10}$, $\eta_p^2 = .001$. Similarly, the fit of the model predicting explicit attitudes from date increased with the addition of political ideology and race, $R^2 = .20$. However, the effect of date remained the same, $F(1, 1994211) = 1729.15$, $p < .001$, $B = -1 \times 10^{-10}$, $\eta_p^2 = .001$.

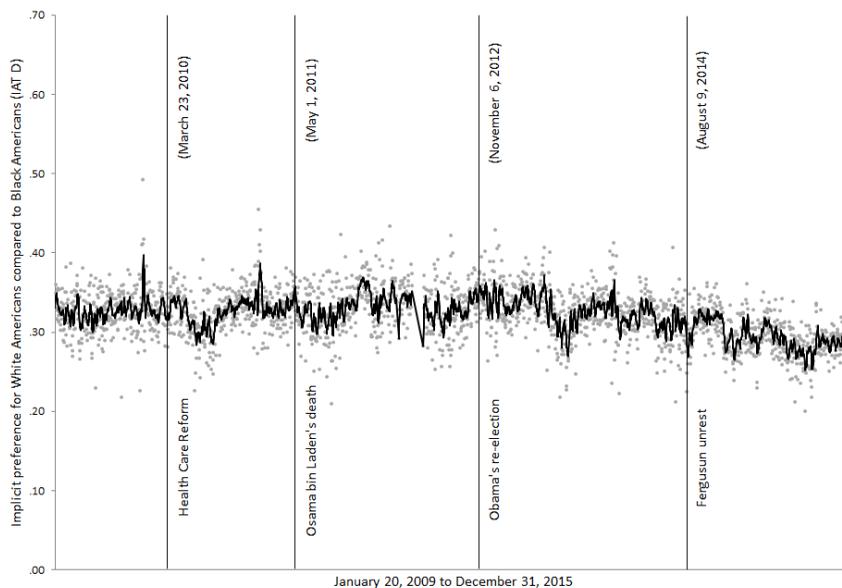


FIGURE 1. Mean daily Race IAT effects and during Obama's presidency where $n > 10$.
 Note. Gray dots indicate daily means and the black line represents a 7-day moving average.

across data collection, we employed hierarchical linear regression. In the model predicting implicit attitudes from date, we added demographics in Step 2 and date by demographics interactions in Step 3.⁵ Including these predictors reversed the main effect of date, $F(1, 1802932) = 127.71, B < 5 \times 10^{-10}, p < .001, \eta_p^2 = .0001$. In other words, after controlling for changing sample demographics, implicit anti-Black bias increased during the Obama presidency, but this effect was small (date explained an additional 0.01% of the variance in implicit attitudes). See Table 2 for a summary of the hierarchical model.

Next, we examined whether changes in sample demographics influenced the variation in explicit racial attitudes over time. After adding demographics and date by demographic interactions into the regression predicting explicit racial attitudes from date, the overall effect of date on explicit racial attitudes was no longer significant, $F(1, 1994211) = 2.72, p = .099, \eta_p^2 < .0001$. Explicit racial attitudes no longer appeared to be becoming less anti-Black once we controlled for potential demographic shifts. See Table 3 for a model summary.

Demographic Moderators. Given the small overall variation in racial attitudes we observed over time, we next investigated whether those attitudes were more malleable within sample subgroups. We examined main effects and relationships with date for Black ($n = 213,628$) and White ($n = 1,319,164$) participants. Black participants demonstrated weak pro-Black attitudes implicitly ($M = -0.04, SD = 0.44, t[171609] = -34.40, p < .001, d = 0.09, 95\% \text{ CI } [-0.038, -0.034]$) and stronger pro-Black attitudes explicitly ($M = -0.89, SD = 1.29, t[195757] = -305.82, p < .001, d = 0.69, 95\% \text{ CI } [-0.90, -0.89]$), while White participants demonstrated anti-Black attitudes

5. In all of our hierarchical models, age, political ideology, and education were included as continuous variables; gender, race, and ethnicity were included as categorical variables.

TABLE 2. Hierarchical Linear Regression ($n = 1,802,934$) Predicting Implicit Racial Attitudes from January 20, 2009 to December 31, 2015 (Step 1), Demographic Variables (added in Step 2), and their Interactions (added in Step 3)

Predictor	<i>df</i>	η^2	<i>F</i>	<i>p</i>	<i>R</i> ²
Step 1					0.0010
Date	1	0.001040	1876.73	< 0.0001	
Step 2					0.1066
Date	1	0.000486	975.43	< 0.0001	
Age	1	0.000241	481.47	< 0.0001	
Gender	1	0.001441	2892.83	< 0.0001	
Ethnicity	2	0.000351	352.04	< 0.0001	
Race	8	0.064875	17382.6	< 0.0001	
Political Orientation	1	0.005172	10421.0	< 0.0001	
Education	1	0.000008	15.64	< 0.0001	
Step 3					0.1073
Date	1	0.000064	127.71	< 0.0001	
Age	1	0.000003	5.52	0.0168	
Gender	1	< 0.000005	0.67	0.4114	
Ethnicity	2	0.000006	6.41	0.0016	
Race	8	0.000644	161.62	< 0.0001	
Political Orientation	1	0.000109	218.71	< 0.0001	
Education	1	0.000026	51.66	< 0.0001	
Date × Age	1	0.000001	2.16	0.1417	
Date × Gender	1	0.000005	9.33	0.0023	
Date × Ethnicity	2	0.000004	3.61	0.0271	
Date × Race	8	0.000284	71.11	< 0.0001	
Date × Political Orientation	1	0.000182	364.33	< 0.0001	
Date × Education	1	0.000025	49.41	< 0.0001	

Note. Numbers indicate summary statistics across the sample. Age, political ideology, and education were included in the model as continuous variables; gender, race, and ethnicity were included as categorical variables.

both implicitly ($M = 0.39$, $SD = 0.41$, $t[1089142] = 992.88$, $p < .001$, $d = 0.95$, 95% CI [0.387, 0.389]) and explicitly ($M = 0.51$, $SD = 0.89$, $t[1222912] = 698.55$, $p < .001$, $d = 0.57$, 95% CI [0.507, 0.510]). Comparisons between Black and White participants showed large differences on implicit, $t(220966) = -376.25$, $p < .001$, $d = 1.60$, 95% CI [-0.43, -0.42], and explicit racial attitudes, $t(226727) = -462.76$, $p < .001$, $d = 1.94$, 95% CI [-1.41, -1.40].

Black participants showed no change in implicit bias over time, $F(1, 171608) = 0.86$, $p = .354$, and a decrease in explicit pro-Black attitudes over time, $F(1, 195756) = 710.32$, $p < .001$, $B = 1 \times 10^{-9}$, $R^2 = .004$. However, these results appear to be artifacts of demographic shifts. Including demographics and date by demographic interactions in the model revealed an increase in anti-Black attitudes over time for Black participants both implicitly, $F(1, 171608) = 22.29$, $p < .001$, $B = 5 \times 10^{-10}$, $\eta_p^2 = .0001$, and explicitly, $F(1, 195756) = 114.74$, $p < .001$, $B = 3 \times 10^{-9}$, $\eta_p^2 = .001$.

In the first step of a hierarchical regression, White participants showed a decrease in implicit anti-Black bias over time, $F(1, 1089142) = 2338.08$, $p < .001$, $B = -2 \times 10^{-10}$, $R^2 = .002$. Including demographics and their interactions with date into the model reversed the direction of the effect, such that anti-Black implicit attitudes increased over time, $F(1, 1089141) = 38.22$, $p < .001$, $B = 2 \times 10^{-10}$, $\eta_p^2 = .00004$. White

TABLE 3. Hierarchical Linear Regression ($n = 1,994,213$) Predicting Explicit Racial Attitudes from January 20, 2009 to December 31, 2015 (Step 1), Demographic Variables (added in Step 2), and their Interactions (added in Step 3)

Predictor	<i>df</i>	ηp^2	<i>F</i>	<i>p</i>	<i>R</i> ²
Step 1					0.0016
Date	1	0.00160	3192.03	< 0.0001	
Step 2					0.2021
Date	1	0.00057	1417.16	< 0.0001	
Age	1	0.00010	243.94	< 0.0001	
Gender	1	0.00406	10190.1	< 0.0001	
Ethnicity	2	0.00041	514.17	< 0.0001	
Race	8	0.11367	40110.9	< 0.0001	
Political Orientation	1	0.01459	37055.5	< 0.0001	
Education	1	0.00018	440.63	< 0.0001	
Step 3					0.2040
Date	1	< 0.000005	2.72	0.0992	
Age	1	0.00005	126.37	< 0.0001	
Gender	1	0.00024	590.82	< 0.0001	
Ethnicity	2	0.00002	22.04	< 0.0001	
Race	8	0.00227	714.82	< 0.0001	
Political Orientation	1	0.00001	15.09	0.0001	
Education	1	0.00004	97.59	< 0.0001	
Date × Age	1	0.00005	113.98	< 0.0001	
Date × Gender	1	0.00016	404.28	< 0.0001	
Date × Ethnicity	2	0.00002	19.47	< 0.0001	
Date × Race	8	0.00112	352.90	< 0.0001	
Date × Political Orientation	1	0.00006	145.74	< 0.0001	
Date × Education	1	0.00003	82.33	< 0.0001	

Note. Numbers indicate summary statistics across the sample. Age, political ideology, and education were included in the model as continuous variables; gender, race, and ethnicity were included as categorical variables.

participants demonstrated a decrease in explicit anti-Black attitudes over time, $F(1, 1222911) = 6439.43, p < .001, B = -1 \times 10^{-9}, R^2 = .005$, and this effect persisted after including demographics and their interactions with date into the regression, $F(1, 1222910) = 57.44, p < .001, B = -1 \times 10^{-9}, \eta_p^2 = .0001$.

Next, we investigated if malleability of racial attitudes varied among liberal ($n = 822,450$) and conservative ($n = 738,971$) participants. Liberals demonstrated anti-Black implicit ($M = 0.29, SD = 0.44, t[677250] = 541.02, p < .001, d = 0.66, 95\% CI [0.290, 0.291]$) and explicit attitudes ($M = 0.19, SD = 0.98, t[769297] = 169.85, p < .001, d = 0.19, 95\% CI [0.187, 0.192]$) as did conservatives (Implicit: $M = 0.36, SD = 0.43, t[589317] = 651.84, p < .001, d = 0.84, 95\% CI [0.360, 0.362]$; Explicit: $M = 0.49, SD = 1.14, t[610862] = 335.17, p < .001, d = 0.42, 95\% CI [0.485, 0.491]$). Conservatives showed stronger anti-Black attitudes than liberals both implicitly, ($t[1.25 \times 10^6] = -93.00, p < .001, d = -0.17, 95\% CI [-0.073, -0.070]$) and explicitly ($t[1.21 \times 10^6] = -162.84, p < .001, d = -0.30, 95\% CI [-0.302, -0.295]$).

For liberals, implicit racial bias seemed to decrease over time, $F(1, 677249) = 1249.19, p < .001, B = -3 \times 10^{-10}, R^2 = .002$, but this effect reversed to indicate a slight increase over time when demographics and their interactions with date were included in the regression, $F(1, 677249) = 18.74, p < .001, B < 5 \times 10^{-10}, \eta_p^2 = .00002$.

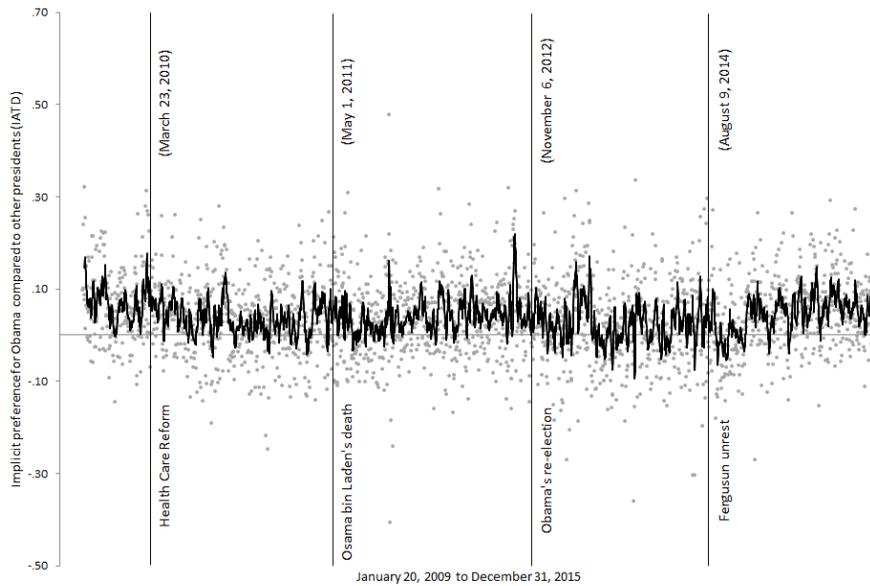


FIGURE 2. Mean daily Presidents' IAT effects during Obama's presidency.
 Note: Gray dots indicate daily means and the black line represents a 7-day moving average.

Liberals' explicit racial attitudes similarly appeared to become less anti-Black over time, $F(1, 769296) = 1584.33, p < .001, B = -1 \times 10^{-10}, R^2 = .002$, but this effect was no longer significant when demographics and demographic by date interactions were included in the model, $F(1, 769296) = 1.40, p = .251, \eta_p^2 < .00001$.

Regressions initially indicated that conservatives' implicit anti-Black bias decreased over time, $F(1, 589316) = 477.62, B = -2 \times 10^{-10}, p < .001, R^2 = .001$, as did their explicit anti-Black bias, $F(1, 610860) = 3011.53, p < .001, B = -1 \times 10^{-9}, R^2 = .005$. When demographics and date by demographic interactions were included in the models, conservatives demonstrated the opposite effect for implicit attitudes, showing an increase in anti-Black bias, $F(1, 589316) = 16.86, p < .001, B = 1 \times 10^{-10}, \eta_p^2 = .00003$, but explicit attitudes still showed a slight decrease in anti-Black bias, $F(1, 610860) = 6.64, p = .006, B > -5 \times 10^{-10}, \eta_p^2 = .00001$.

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Participants displayed a small overall preference for Obama compared to other presidents both implicitly ($M = 0.05, SD = 0.46, t[171021] = 42.53, p < .001, d = 0.11, 95\% \text{ CI } [0.04, 0.05]$) and explicitly ($M = 0.23, SD = 2.05, t[188239] = 48.76, p < .001, d = 0.11, 95\% \text{ CI } [0.22, 0.24]$). Implicit and explicit attitudes toward Obama were positively correlated ($r = .54, p < .001, 95\% \text{ CI } [0.54, 0.55]$).

Variation Over Time. Regressing session date on IAT D score suggested that implicit attitudes toward Obama became more positive over time, $F(1, 171020) = 17.46, p < .001, B = 1 \times 10^{-10}, R^2 = .0001$ (see Figure 2). A regression predicting ex-

TABLE 4. Hierarchical Linear Regression ($n = 171,022$) Predicting Implicit Attitudes Toward Obama from June 15, 2009 to December 31, 2015 (Step 1), Demographic Variables (added in Step 2), and their Interactions (added in Step 3)

Predictor	<i>df</i>	η_p^2	<i>F</i>	<i>p</i>	<i>R</i> ²
Step 1					0.000102
Date	1	0.00010	17.46	< 0.0001	
Step 2					0.209505
Date	1	0.00023	49.62	< 0.0001	
Age	1	0.00034	72.57	< 0.0001	
Gender	1	0.00026	54.90	< 0.0001	
Ethnicity	2	0.00006	6.18	0.0021	
Race	8	0.01393	376.86	< 0.0001	
Political Orientation	1	0.12256	29801.4	< 0.0001	
Education	1	0.00018	38.57	< 0.0001	
Step 3					0.209641
Date	1	< 0.000005	0.15	0.6977	
Age	1	0.00001	1.30	0.2548	
Gender	1	0.00004	8.47	0.0036	
Ethnicity	2	0.00002	2.13	0.1191	
Race	8	0.00005	1.36	0.2088	
Political Orientation	1	0.00017	37.19	< 0.0001	
Education	1	< 0.000005	0.30	0.5819	
Date × Age	1	< 0.000005	0.66	0.4163	
Date × Gender	1	0.00003	6.94	0.0084	
Date × Ethnicity	2	0.00002	2.38	0.0928	
Date × Race	8	0.00003	0.78	0.6165	
Date × Political Orientation	1	< 0.000005	0.17	0.6822	
Date × Education	1	< 0.000005	0.10	0.7526	

Note. Numbers indicate summary statistics across the sample. Age, political ideology, and education were included in the model as continuous variables; gender, race, and ethnicity were included as categorical variables.

Implicit attitudes from date suggested that explicit attitudes toward Obama did not change over time, $F(1, 188238) = 0.07$, $p = .790$, $R^2 < .0001$.⁶

Given that the stability or change in attitudes toward Obama could potentially be impacted by demographic shifts in our sample, we included demographics in Step 2 and demographic by date interactions in Step 3 of hierarchical regressions predicting attitudes from date. Including demographics and their interactions with date in the model at Step 3 eliminated the effect of date on implicit attitudes, $F(1, 171020) = 0.15$, $p = .698$, $\eta_p^2 < .00001$. See Table 4 for a model summary.

We found a decrease in explicit positivity toward Obama over time after demographics and their interactions were included in the model in Step 3, $F(1, 188238) = 33.70$, $p < .001$, $B = -2 \times 10^{-9}$, $\eta_p^2 = .0001$. Controlling for demographic shifts revealed that explicit attitudes toward Obama became slightly more negative over time. See Table 5 for a summary of the hierarchical model statistics.

6. Adding political ideology and race to the model predicting attitudes toward Obama increased model fit both implicitly ($R^2 = .21$) and explicitly ($R^2 = .37$). Both effects of date were slightly impacted by this addition (Implicit: $F[1, 171020] = 49.18$, $p < .001$, $B = -1 \times 10^{-10}$, $\eta_p^2 = .0002$; Explicit: $F[1, 188238] = 359.54$, $p < .001$, $B = -1 \times 10^{-9}$, $\eta_p^2 = .001$.)

TABLE 5. Hierarchical Linear Regression ($n = 188,240$) Predicting Explicit Attitudes Toward Obama from June 15, 2009 to December 31, 2015 (Step 1), Demographic Variables (added in Step 2), and their Interactions (added in Step 3)

Predictor	<i>df</i>	η^2	<i>F</i>	<i>p</i>	<i>R</i> ²
Step 1					< 0.0000005
Date	1	< 0.000005	0.07	0.7904	
Step 2					0.378152
Date	1	0.00117	354.23	< 0.0001	
Age	1	0.00005	15.51	< 0.0001	
Gender	1	0.00167	507.85	< 0.0001	
Ethnicity	2	0.00062	93.91	< 0.0001	
Race	8	0.02917	1137.59	< 0.0001	
Political Orientation	1	0.20099	76184.9	< 0.0001	
Education	1	0.00074	223.83	< 0.0001	
Step 3					0.378318
Date	1	0.00011	33.70	< 0.0001	
Age	1	< 0.000005	0.10	0.7571	
Gender	1	< 0.000005	0.07	0.7925	
Ethnicity	2	0.00004	5.47	0.0042	
Race	8	0.00013	5.08	< 0.0001	
Political Orientation	1	0.00026	78.29	< 0.0001	
Education	1	< 0.000005	0.47	0.4938	
Date × Age	1	< 0.000005	0.03	0.8732	
Date × Gender	1	< 0.000005	1.23	0.2680	
Date × Ethnicity	2	0.00005	6.87	0.0010	
Date × Race	8	0.00005	2.06	0.0355	
Date × Political Orientation	1	0.00001	2.44	0.1180	
Date × Education	1	0.00001	1.56	0.2121	

Note. Numbers indicate summary statistics across the sample. Age, political ideology, and education were included in the model as continuous variables; gender, race, and ethnicity were included as categorical variables.

Demographic Moderators. To see if variation in attitudes toward Obama showed more malleability within sub-demographic samples, we next explored implicit and explicit attitude change for Black ($n = 12,419$) and White ($n = 143,707$) participants separately. Black participants demonstrated a strong implicit preference for Obama over other presidents ($M = 0.30$, $SD = 0.40$, $t[9820] = 73.09$, $p < .001$, $d = 0.75$, 95% CI [0.29, 0.30]), and White participants demonstrated a slight implicit preference for Obama ($M = 0.02$, $SD = 0.46$, $t[116755] = 14.95$, $p < .001$, $d = 0.04$, 95% CI [0.004, 0.010]). Implicit attitudes toward Obama were more positive for Black than for White participants, $t(12097) = 64.61$, $p < .001$, $d = 1.17$, 95% CI [0.27, 0.28]. Black participants explicitly preferred Obama over other presidents ($M = 1.75$, $SD = 1.53$, $t[11366] = 121.76$, $p < .001$, $d = 1.14$, 95% CI [1.72, 1.78]), while White participants demonstrated a slight explicit preference for Obama ($M = 0.03$, $SD = 2.06$, $t[132087] = 5.83$, $p < .001$, $d = 0.01$, 95% CI [-0.06, -0.03]). Explicit attitudes toward Obama were more positive for Black than for White participants, $t(15133) = 111.16$, $p < .001$, $d = 1.81$, 95% CI [1.69, 1.75].

In a regression predicting implicit attitudes from date, Black participants' attitudes were not impacted by date, $F(1, 9809) = 1.27$, $p = .259$, $R^2 = .0001$. This effect remained nonsignificant when demographics and date by demographic in-

teractions were included in the regression, $F(1, 9809) = 1.33, p = .249, \eta_p^2 = .00001$. Explicitly, Black participants showed a decrease in positivity toward Obama over time, $F(1, 11365) = 34.41, p < .001, B = -1 \times 10^{-9}, R^2 = .003$; this effect remained once we accounted for demographics and date by demographic interactions, $F(1, 11365) = 6.18, p = .013, B > -5 \times 10^{-9}, \eta_p^2 = .0005$. White participants demonstrated slight increasing positivity toward Obama over time implicitly ($F[1, 116754] = 23.85, p < .001, B = 1 \times 10^{-10}, R^2 = .0001$) and explicitly ($F[1, 132086] = 4.63, p = .031, B < 5 \times 10^{-10}, R^2 = .00004$). When including demographics and date by demographic interactions, the implicit effect was no longer reliable, $F(1, 116754) = 0.15, p = .696, \eta_p^2 < .00001$, while the explicit effect reversed to show that White participants were becoming more negative toward Obama over time, $F(1, 132086) = 15.09, p < .001, B = -2 \times 10^{-10}, \eta_p^2 = .0001$.

Finally, we investigated the patterns of stability and change in attitudes toward Obama among liberals ($n = 90,596$) and conservatives ($n = 87,819$). Overall, liberals implicitly preferred Obama over other presidents ($M = 0.22, SD = 0.41, t[73630] = 145.65, p < .001, d = 0.54, 95\% \text{ CI } [0.218, 0.223]$), while conservatives implicitly preferred other presidents to Obama ($M = -0.13, SD = 0.42, t[65353] = -76.97, p < .001, d = 0.31, 95\% \text{ CI } [-0.14, -0.13]$). Explicitly, liberals preferred Obama ($M = 1.24, SD = 1.66, t[83699] = 216.50, p < .001, d = 0.75, 95\% \text{ CI } [1.23, 1.26]$), while conservatives preferred other presidents ($M = -0.94, SD = 1.98, t[67145] = -122.71, p < .001, d = 0.47, 95\% \text{ CI } [-1.53, -1.50]$). Liberals held more positive attitudes toward Obama than conservatives both implicitly ($t[133219] = 153.37, p < .001, d = 0.84, 95\% \text{ CI } [0.35, 0.36]$) and explicitly ($t[130792] = 228.10, p < .001, d = 1.26, 95\% \text{ CI } [2.16, 2.20]$).

Liberals showed a small decrease in implicit positivity toward Obama over time, $F(1, 73629) = 18.85, p < .001, B = -1 \times 10^{-10}, R^2 = .0003$, but conservatives remained unchanged in their implicit attitudes, $F(1, 65351) = 1.09, p < .001, R^2 = .00002$. Date was not significant in predicting implicit attitudes for liberals or conservatives when demographics and date by demographics interactions were included in the models, all $ps > .100$, and all $\eta_p^2s < .00003$. Explicit attitudes decreased in positivity for liberals, $F(1, 83698) = 83.14, p < .001, B = -1 \times 10^{-8}, R^2 = .003$, but not for conservatives, who slightly increased in positivity toward Obama explicitly, $F(1, 67143) = 5.81, p < .001, B < 1 \times 10^{-9}, R^2 = .0001$. Once we accounted for demographic shifts, date was no longer significant in predicting implicit attitudes for conservatives, $F(1, 65351) = 0.90, p = .342, \eta_p^2 < .00001$, but the liberal decrease in explicit positivity remained reliable, $F(1, 83698) = 23.27, p < .001, B = -1 \times 10^{-8}, \eta_p^2 = .0003$.

RELATIONSHIP BETWEEN RACIAL ATTITUDES AND OBAMA ATTITUDES

To further explore the relationship between attitudes toward African Americans and those toward Obama, we calculated daily means for both the race and Obama tasks. Then, we ran a series of regressions predicting daily racial attitudes from the date of the study session. Daily implicit attitudes toward Obama negatively predicted daily implicit racial attitudes, $F(1, 2356) = 14.42, p = .0002, B = -0.05, 95\% \text{ CI } [-0.07, -0.02], R^2 = .010$. Daily explicit attitudes to-

TABLE 6. Hierarchical Linear Regression ($n = 2,358$) Predicting Daily Implicit Racial Attitudes from Attitudes Toward Obama from June 15, 2009 to December 31, 2015 (Step 1) and Daily Demographics (added in Step 2)

Predictor	ηp^2	F	p	R^2
Step 1				0.006082
Implicit Attitude toward Obama	0.00608	14.42	0.0002	
Step 2				0.323607
Implicit Attitude toward Obama	0.00044	1.51	0.2187	
Age (Presidents Task)	0.00029	0.98	0.3233	
Gender (Presidents Task)	0.00036	1.22	0.2693	
Ethnicity - Hispanic (Presidents Task)	0.00001	0.02	0.8868	
Ethnicity - Non-Hispanic (Presidents Task)	< 0.000005	0.01	0.9101	
Race - American Indian (Presidents Task)	0.00008	0.28	0.5952	
Race - East Asian (Presidents Task)	0.00042	1.45	0.2291	
Race - American Indian (Presidents Task)	0.00001	0.02	0.8759	
Race - Pacific Islander (Presidents Task)	0.00002	0.05	0.8163	
Race - Black (Presidents Task)	0.00001	0.02	0.8916	
Race - White (Presidents Task)	0.00003	0.10	0.7542	
Race - Black/White Biracial (Presidents Task)	0.00008	0.29	0.5909	
Race - Other Multiracial (Presidents Task)	< 0.000005	0.01	0.9298	
Political Orientation (Presidents Task)	0.00001	0.03	0.8739	
Education (Presidents Task)	< 0.000005	0.00	0.9732	
Age (Race Task)	0.00137	4.67	0.0307	
Gender (Race Task)	0.01939	67.60	< 0.0001	
Ethnicity - Hispanic (Race Task)	0.00752	25.92	< 0.0001	
Ethnicity - Non-Hispanic (Race Task)	0.02651	93.12	< 0.0001	
Race - American Indian (Race Task)	0.00110	3.78	0.0521	
Race - East Asian (Race Task)	0.04700	168.63	< 0.0001	
Race - South Asian (Race Task)	0.06474	236.65	< 0.0001	
Race - Pacific Islander (Race Task)	0.00338	11.61	0.0007	
Race - Black (Race Task)	0.00995	34.38	< 0.0001	
Race - White (Race Task)	0.09851	373.60	< 0.0001	
Race - Black/White (Race Task)	0.00582	20.02	< 0.0001	
Race - Other Multiracial (Race Task)	0.01638	56.95	< 0.0001	
Political Orientation (Race Task)	0.03383	119.73	< 0.0001	
Education (Race Task)	0.00281	9.62	0.0019	

Note. Numbers indicate summary statistics across the sample. Categorical demographic variables were dummy coded then averaged by day to create new variables.

ward Obama also negatively predicted daily explicit racial attitudes, $F(1, 2360) = 7.08$, $p = .008$, $B = -0.02$, 95% CI [-0.02, -0.004], $R^2 = .003$. Given our scoring, these results indicate that more positive attitudes toward Obama were weakly associated with more positive attitudes toward Black people in general. We used the same analysis strategy with monthly means for implicit and explicit racial and Obama attitudes. Monthly implicit attitudes toward Obama negatively predicted monthly implicit racial attitudes, $F(1, 78) = 12.96$, $p = .0006$, $B = -0.26$, 95% CI [-0.41, -0.12], $R^2 = .14$. However, monthly explicit attitudes toward Obama did not predict monthly explicit racial attitudes, $F(1, 78) = 2.81$, $p = .098$. On a month-by-month scale, implicit but not explicit positivity to-

TABLE 7. Hierarchical Linear Regression ($n = 2,361$) Predicting Daily Explicit Racial Attitudes from Attitudes Toward Obama from June 15, 2009 to December 31, 2015 (Step 1) and Daily Demographics (added in Step 2)

Predictor	η^2	F	p	R^2
Step 1				0.002994
Explicit Attitude toward Obama	0.00299	7.08	0.0078	
Step 2				0.407566
Explicit Attitude toward Obama	0.00090	4.49	0.0341	
Age (Presidents Task)	0.00011	0.58	0.4482	
Gender (Presidents Task)	0.00016	3.21	0.0733	
Ethnicity - Hispanic (Presidents Task)	0.00017	0.86	0.3541	
Ethnicity - Non-Hispanic (Presidents Task)	0.00011	0.01	0.4507	
Race - American Indian (Presidents Task)	0.00040	1.99	0.1583	
Race - East Asian (Presidents Task)	0.00011	0.57	0.4501	
Race - American Indian (Presidents Task)	0.00003	0.16	0.6900	
Race - Pacific Islander (Presidents Task)	0.00003	0.16	0.6909	
Race - Black (Presidents Task)	0.00021	0.60	0.4382	
Race - White (Presidents Task)	0.00008	0.42	0.5164	
Race - Black/White Biracial (Presidents Task)	0.00005	0.25	0.6167	
Race - Other Multiracial (Presidents Task)	0.00006	0.28	0.5940	
Political Orientation (Presidents Task)	0.00040	2.01	0.1559	
Education (Presidents Task)	0.00037	1.83	0.1758	
Age (Race Task)	0.00059	2.97	0.0849	
Gender (Race Task)	0.00016	0.81	0.3697	
Ethnicity - Hispanic (Race Task)	0.00066	3.33	0.0681	
Ethnicity - Non-Hispanic (Race Task)	0.00625	31.51	< 0.0001	
Race - American Indian (Race Task)	< 0.000005	0.00	0.9795	
Race - East Asian (Race Task)	0.01028	52.03	< 0.0001	
Race - South Asian (Race Task)	0.01114	56.43	< 0.0001	
Race - Pacific Islander (Race Task)	0.00002	0.10	0.7509	
Race - Black (Race Task)	0.07478	404.78	< 0.0001	
Race - White (Race Task)	0.00056	2.81	0.0940	
Race - Black/White (Race Task)	0.02624	134.95	< 0.0001	
Race - Other Multiracial (Race Task)	0.00135	6.77	0.0093	
Political Orientation (Race Task)	0.01925	98.30	< 0.0001	
Education (Race Task)	0.00439	22.09	< 0.0001	

Note. Numbers indicate summary statistics across the sample. Categorical demographic variables were dummy coded then averaged by day to create new variables.

ward Obama was associated with more positive attitudes toward Black people. Notably, these analyses between mean daily and monthly racial and Obama attitudes do not account for parallel demographic shifts in each sample. For instance, days on which larger numbers of liberal participants visited the Project Implicit website would have resulted in both more positive attitudes toward Obama and less negative attitudes toward African Americans in general (Nosek et al., 2007), a selection bias that could create a relationship in means between the two tasks that is only caused by changes in sample demographics. To control for possible changes in sample demographics across data collection, we derived daily and monthly means or proportions from our demographic variables

in both samples. Specifically, we ran hierarchical linear regressions predicting each day's mean racial attitudes from that day's Obama attitudes in Step 1. We included each day's average age, political orientation, educational attainment, and proportion of participants from each gender, racial, or ethnic category across both study samples in Step 2. We ran the same analyses for monthly means. After adding these demographic variables, the relationship between daily implicit attitudes became nonsignificant, $F(1, 2356) = 1.51, p = .219, \eta_p^2 = .0004$, while explicit daily Obama attitudes *positively* predicted explicit daily racial attitudes, $F(1, 2359) = 4.49, p = .034, B = 0.01, 95\% \text{ CI } [0.001, 0.023], \eta_p^2 = .001$, reversing the direction of the earlier effect. See Table 6 and Table 7 for a summary of these results. The analysis of monthly means produced similar effects. After controlling for sample demographics, implicit monthly attitudes were no longer reliably related, $F(1, 77) = 1.87, p = .178, \eta_p^2 = .004$, and explicit monthly Obama attitudes positively predicted explicit monthly racial attitudes, $F(1, 77) = 6.68, p = .013, B = 0.07, 95\% \text{ CI } [0.02, 0.12], \eta_p^2 = .01$. These analyses suggest that once accounting for changes in sample demographics, there was no relationship between daily and monthly means for implicit attitudes, but that days or months with more positive explicit attitudes toward Obama were associated with more negative attitudes toward Black people in general.

GENERAL DISCUSSION

Using a large online convenience sample, we tested whether implicit and explicit attitudes toward Black people in general and Obama specifically changed over almost seven years following Obama's first presidential election. After accounting for shifts in sample demographics, we found evidence that implicit negativity toward African Americans slightly increased over time. These findings held for Black participants, White participants, liberals, and conservatives. Across the entire sample, explicit racial attitudes showed no change in negativity toward African Americans once we accounted for demographic shifts. However, White and conservative participants decreased in explicit anti-Black bias, while Black participants became less pro-Black and liberals showed no change.

A similar analysis of implicit attitudes toward Obama showed little evidence of change over the course of data collection. Overall, implicit attitudes toward Obama did not change over time after accounting for demographic shifts. Black, White, and conservative participants' implicit attitudes likewise remained the same. Only liberals showed an effect—a slight decrease in implicit positivity toward Obama. We found a small but reliable effect indicating that explicit attitudes toward Obama became more negative over the course of his presidency. Black participants, White participants, and liberals also demonstrated decreasing explicit positivity toward Obama, but conservatives did not.

While statistically significant, any observed changes in implicit or explicit attitudes were small. For instance, the largest effect of time on attitudes toward Obama or Black people explained only 0.06% of the variance in attitudes. When

we controlled for changes in sample demographics, the average significant effect explained only an additional 0.02% of the variance in attitudes. To place this effect size in context, one would need roughly 50,000 participants to achieve 80% power in a two-condition, between-subjects design for detecting an effect of equal size. Such small effects support the interpretation that implicit and explicit attitudes, both toward Black people in general and Obama specifically, did not substantively change over time in our data.

Finally, daily and monthly means of implicit and explicit positivity toward Obama were associated with daily and monthly means of anti-Black implicit and explicit bias. These results initially appear consistent with a possible "Obama effect," as more positive attitudes toward Obama predicted more positive attitudes toward Black people in general. However, these results should not be overstated. First, this regression analysis cannot determine causality; just as Obama may have altered attitudes toward Black people, perhaps attitudes toward Black people in general created changes in attitudes toward Obama specifically. Second, including daily or monthly demographics in the regression analyses eliminated (for implicit attitudes) or reversed (for explicit attitudes) the relationships between daily and monthly means in attitudes. In fact, this analysis strategy supported a reversal of the "Obama effect" for explicit attitudes, as days and months with more positive attitudes toward Obama were related to days and months with more negative attitudes toward Black people.

EXPLICIT AND IMPLICIT ATTITUDES CAN AND DO CHANGE

The lack of substantive change in racial attitudes found in this study does not qualify attitude malleability in general. Implicit and explicit changes in racial attitudes can be found consistently in previous research (see Lai, Hoffman, & Nosek, 2013 for a review). Our findings are particularly interesting in light of recent work showing reductions in implicit and explicit anti-gay attitudes over time (Westgate, Riskind, & Nosek, 2015). Participants from a large, cross-sectional convenience sample ($N = 683,976$) showed a 13% reduction in implicit and 26% reduction in explicit anti-gay attitudes between February 2006 and August 2013. Relative to our own analyses, these results show that attitudes toward gay people changed at over 10 times the rate implicitly and 100 times the rate explicitly as attitudes toward Black people over a comparable length of time.⁷

Substantive changes in attitudes toward homosexuals from a similar sample and time period naturally leads to the question of why parallel change was not found in racial attitudes during Obama's presidency. Several cultural explanations for this discrepancy are plausible. First, large cultural shifts in racial attitudes may have occurred before our data collection started. As was pointed out in the Schmidt and Nosek (2010) investigation of racial attitudes during Obama's first

7. Comparisons based on effects from Step 3 hierarchical regressions including date and date by demographic interactions.

presidential campaign, the mere fact that Obama was elected indicates that Americans' attitudes toward Black people have changed significantly over time. Indeed, analyses of racial attitudes in previous decades showed large changes in evaluations of Black people (e.g., Madon et al., 2001). For example, while 4% of White people approved of Black-White marriages in 1958, 75% approved them in 2007 (Gallup, 2007). These transformations in racial attitudes may have been caused by (or caused) large societal changes in the treatment of African Americans, such as the Civil Rights Act of 1964. A similar cultural shift may be occurring over the past decade in attitudes toward homosexuals, a time period that has also brought changes in the rights afforded to gay people.

Second, Obama's impact on perceived racial progress may have been initially overstated. Whereas Obama has become the world's most powerful Black politician, his election was preceded by the appointment of several other prominent Black figures (e.g., Condoleezza Rice, Clarence Thomas, and Colin Powell). Changes in racial attitudes may have occurred after many Americans realized that Black people occupied some of the highest positions in government. As a result, Obama's election may not have been as effective at changing racial attitudes as it might have been in the absence of these earlier instances of salient Black political figures.

Third, Obama may not have changed attitudes toward Black people in general over time because attitudes toward Obama himself showed little change over time. If positivity toward Obama does impact positivity toward African Americans generally, and positivity toward Obama is not changing, neither should positivity toward African Americans. Further, given the research demonstrating that Obama's rise to power also had little impact on racial attitudes (Schmidt & Nosek, 2010), we cannot claim that any positivity toward Obama had already influenced racial attitudes before his first election. Evidence of lasting change in racial attitudes that could be attributed to Obama may take significantly longer than the time period investigated here to emerge. Indeed, many presidents see a sizable increase in approval once they leave office (Gallup, 2013). As perceptions of Obama potentially become more positive in the years to come, so too may attitudes toward African Americans in general.

Finally, Obama's presidency did not change attitudes toward Black people because many people may not view Obama as representative of Black people in general. Some people may view Obama as Black, but subtype him (Weber & Crocker, 1983), thereby preventing evaluations of Obama from generalizing to Black people as a category. Others may *literally* not view Obama as Black. One recent survey found that 52% of White respondents preferred to label Obama as "mixed race" instead of Black (Pew Research Center, 2010), compared to the 55% of Black respondents who labeled Obama as Black. Perceiving Obama as not fully belonging to the category of Black people would severely limit his capacity to change attitudes toward Black people in general.

THEORETICAL IMPLICATIONS

As discussed in the Introduction, racial attitudes during Obama's presidency may have: (1) become less anti-Black, (2) become more anti-Black, or (3) remained the same. Evidence for each of these predictions implies a different perspective regarding the process of attitude change. Given the nature of our data (a cross-sectional convenience sample), reaching any conclusions about these predictions is difficult. Much of the research reviewed in support of each of these three predictions was experimental in design, so the same processes may not apply to our correlational study. Further, a nearly null result should not be interpreted as confirmatory of any one model of attitude change.

So, what, if anything, can we conclude from these data? An exemplar-based account of attitude change would predict a decrease in anti-Black attitudes, but we can generate competing predictions over whether this change should have occurred among liberals (whose positive opinion toward Obama could then lead to attitudinal changes toward Black people in general) or conservatives (who are more likely to hold negative perceptions of Black people in general, meaning exposure to Obama countered racial expectations and led to greater attitude change; Goldman, 2012). Regardless, we found no evidence of substantive attitude change in liberals' or conservatives' explicit or implicit racial attitudes, with the largest influence of time in these analyses explaining .003% of the variance in attitudes. Exposure to Obama as a counter-stereotypic exemplar did not produce the type of change (substantively more positivity toward African Americans) in this study that has been found in previous investigations (e.g., Columb & Plant, 2011; Columb & Plant, this issue). This analysis of the impact of the Obama presidency on racial attitudes suggests that attitudes toward both groups and individuals may not be as malleable as often assumed. If anything, our findings appear to support a subtyping account of attitude change, wherein Obama is not impacting racial attitudes because he is not judged to be representative of African Americans. However, given other possible interpretations of our results, we cannot offer this mechanism definitively.

FUTURE DIRECTIONS

These data offer several avenues for future research. Perhaps most obviously, our analysis ends 13 months before Obama will leave office, while our key measures continue to collect data. Though a larger change in attitudes toward African Americans during this last period of Obama's presidency may occur, we have no reason to anticipate unprecedented malleability.

One potentially promising avenue for future work would involve investigating whether heightened change in racial attitudes occurred among children raised during Obama's presidency. In a recent analysis of anti-Semitic attitudes among Germans alive during the Third Reich, children between the ages of 6 and 15 were the most likely to express negative opinions toward Jews when measured more

than 50 years later (Voigtländer & Voth, 2015). These findings are consistent with developmental research illustrating a similar critical period for intergroup attitude formation (e.g., Enesco, Navarro, Paradela, & Guerrero, 2005). Our sample included some participants from the upper end of this age range (8.6% of race task participants were 15 or younger when Obama was first elected), but future work may look for evidence of change in racial attitudes among a larger sample of younger participants who grew up during Obama's presidency.

LIMITATIONS

The correlational and cross-sectional nature of our analyses prevents any discussion of either causality or the lack thereof. Moreover, these data did not come from a representative sample of Americans, and whether the same results would occur in a more representative sample is unclear. In addition, our participants likely completed these measures knowing that they were participating in studies dealing with implicit bias, and in the case of the race IAT, were aware that most participants show implicit preferences for White people over Black people. This information certainly skewed our sample toward individuals more interested in and comfortable with the notion of implicit bias, and may have also altered participants' motivation during the task. While these factors likely altered mean-level implicit and explicit attitudes, they are less likely to have impacted attitude change over time because they were present throughout data collection.

In addition, the near-null results observed here could actually be masking real but conflicting influences on racial attitudes. For example, the weakened economy that existed during much of Obama's two terms may have increased anti-Black attitudes even as Obama's presidency itself reduced anti-Black attitudes. Alternatively, our unpromising results may have been produced from both weaker anti-Black attitudes created through positive exemplar effects (Dasgupta & Greenwald, 2001) among some participants and stronger anti-Black attitudes created through perceived group threat (Blumer, 1958) among other participants.

These concerns can be partly addressed by our inclusion of demographic variables and their interactions with date. Any large-scale influence that reliably altered racial attitudes would most likely differentially influence the demographic groups included in our analysis (such as people of differing education levels, ages, races, or political orientations). However, our examination of subgroup trends revealed only small or absent effects. Additionally, the largest effect size for any of the date by demographic interactions included in the analyses was $\eta_p^2 = .001$. In short, changes within the demographic groups analyzed here do not seem to matter much in determining the overall change (or lack thereof) in explicit or implicit racial attitudes.

However, variables not present in our analyses (e.g., indicators of the economic climate, feelings of personal safety) may have shown competing effects of increases and decreases on racial attitudes had they been included. Indeed, other articles in this special issue point toward such variables that may be key to understanding

when changes in racial attitudes occur, such as negative media exposure to Obama (March, Kendrick, Fritzlen, & Olson, this issue) or threats to one's status (Skinner & Cheadle, this issue). Including such variables in future data collection will be informative in determining whether influences that create racial attitude change in an experimental context are also associated with attitude changes in correlational data.

A final limitation is that we cannot know the extent to which Obama was accessible when participants completed the racial attitude measures. We attempted to address this concern by analyzing attitudes before and after major events in Obama's presidency, and again found no substantial changes in implicit or explicit evaluations of Black people or Obama specifically. We compared implicit and explicit attitudes around important dates in the Obama presidency (e.g., the death of Osama bin Laden, the passing of healthcare reform, his 2012 re-election), and found no evidence for substantive change in attitudes (for analyses, see the online supplement at <https://osf.io/h26ux/>). Although Obama was likely to be more salient on such days, these events may still not be as influential as experimental manipulations that directly expose participants to Obama and then assess racial attitudes (e.g., Columb & Plant, 2011). While changes in attitudes toward Black people may arise when Obama is made highly accessible, this requirement would severely limit the generalizability of such findings.

THE LEGACY OF BARACK OBAMA

While the election of Barack Obama has not heralded the end of racism in America, the symbolic impact of the first Black president is nevertheless powerful. For generations to come, Obama will likely serve as a role model for African Americans; despite widespread anti-Black implicit and explicit attitudes, a Black person can attain "the highest office in the land." Though Obama has undoubtedly changed the public discourse about race, our findings call into question whether Obama has fundamentally changed individual social cognitive processes.

For the individuals in our sample, racial evaluations did not substantively change during the first seven years of Obama's presidency. The presidency of Obama served as a naturalistic study of whether prolonged exposure to a counter-stereotypic exemplar can influence implicit and explicit attitudes. According to our data, such malleability is highly limited. Based on our findings alone, Obama's impact on social cognition appears minimal. However, these data have limitations that may constrain the generalizability of our results to other domains of social cognition research.

Barack Obama's election signaled that Americans' racial attitudes have undergone a large transformation over the past several decades. However, the enduring presence of explicit and implicit anti-Black attitudes throughout his presidency suggests that further interventions are needed before the nation is free of racial bias. Our data suggest that Obama's election may be remembered less as a catalyst and more as a byproduct of changes in attitudes toward Black people. Racial

bias remains a continual, prominent part of the national conversation. The current state of race relations in the United States may ignite further efforts to enact changes to policies and attitudes in the future. These forces, combined with the cultural changes that allowed for Obama's election, may further erode prevailing anti-Black attitudes in the decades to come.

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SEEING THE OTHER IN THE SELF: THE IMPACT OF BARACK OBAMA AND CULTURAL SOCIALIZATION ON PERCEPTIONS OF SELF-OTHER OVERLAP AMONG AFRICAN AMERICANS

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Past research has suggested that the cognitive broadening produced by positive emotions may extend to social contexts. Building on this evidence, two experiments conducted one year post-election examined the extent to which increased social perspective taking occurs after exposure to Obama. Experiment 1 demonstrated that African Americans exposed to Obama showed more inclusive social perceptions of self and others, even beyond that associated with another highly successful African-American exemplar (Oprah Winfrey). Mediation analyses provided support for the causal role of positive emotions in social perspective taking. Experiment 2 replicated the findings of Experiment 1 and demonstrated that exposure to Obama led to reports of greater self-other overlap with people of other races, but only among African Americans high in cultural socialization. Implications of these findings for the role of positive emotions and cultural socialization in broadening perceptions of intergroup closeness are considered.

Alongside our famous individualism, there's another ingredient in the American saga—a belief that we are connected as one people. If there's a child on the South Side of Chicago who can't read, that matters to me, even if it's not my child. If

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there's a senior citizen somewhere who can't pay for her prescription and has to choose between medicine and the rent, that makes my life poorer, even if it's not my grandmother. If there's an Arab-American family being rounded up without benefit of an attorney or due process, that threatens my civil liberties. It's that fundamental belief—I am my brother's keeper, I am my sister's keeper—that makes this country work. It's what allows us to pursue our individual dreams, yet still come together as a single American family. *E pluribus unum*. Out of many one. (Obama, 2008, pp. 102–103)

On November 4th, 2008—45 years after Dr. Martin Luther King's historic "I Have a Dream" speech—Barack Obama was elected as the 44th president of the United States. His historic presidential victory has been heralded as a moment of national pride for African Americans and a powerful symbol of racial progress in the United States. Early national polling in the days after the election found that 69% of Americans reported feeling hopeful, and 65% said the president makes them feel proud (Pew Charitable Trusts, 2008). When asked about what the election meant for Blacks¹ in the United States, over two-thirds of Americans indicated that Barack Obama's ascendancy to the White House is either the most important advance for Blacks in the past 100 years, or among the two or three most important of such advances (Gallup News Service, 2008).

The election of the first African-American U.S. president has provided scholars with a unique opportunity to study the effects that a single, positive Black exemplar can have on countering negative racial stereotypes. Indeed, a number of studies published in the immediate aftermath of Obama's 2008 victory suggested the possibility of an "Obama effect" on African Americans' academic achievement and perceptions of social belonging (Purdie-Vaughns, Sumner, & Cohen, 2011), standardized test performance (Marx, Ko, & Friedman, 2009; but see Aronson, Jannone, McGlone, & Johnson-Campbell, 2009), and racial identity (Fuller-Rowell, Burrow, & Ong, 2011). Additionally, findings from various studies indicated that exposure to Obama resulted in a decrease in explicit (Goldman, 2012; Welch & Sigelman, 2011) as well as implicit prejudice of Whites toward Blacks (Bernstein, Young, & Claypool, 2010; Columb & Plant, 2011; Plant, Devine, Cox, et al., 2009; see also, Columb & Plant, this issue). At the same time, however, other studies revealed that despite Obama's election, racial biases showed little evidence of change (Kaiser, Drury, Spalding, Cheryan, & O'Brien, 2009; Lybarger & Monteith, 2011; Schmidt & Nosek, 2010; see also Schmidt & Axt, this issue).

Although increasing evidence points to both positive and negative changes in intergroup attitudes that follow from making Obama salient to White Americans (Lybarger & Monteith, 2011; Pyszczynski, Henthorn, Motyl, & Gerow, 2011), very limited work has considered whether exposure to Obama could result in changes in social perception among African Americans (but see Rivera & Benitez, this issue). Obama's remarkable success in politics and ascendancy to the presidency

1. We use the terms Black and African American to refer to people of African descent who reside in the United States.

make him an especially effective counter-stereotypic role model, particularly for African-American youth (Purdie-Vaughns et al., 2011). Prior research has demonstrated that having a role model from one's in-group can counter the effects of stereotype threat (Marx, 2009), especially when the role model is perceived as competent in the stereotyped domain (Marx & Roman, 2002), and when the role model's achievements are perceived as personally relevant and attainable (Lockwood & Kunda, 1997). The aftermath of Obama's election, therefore, offers an opportune moment to explore his influence as a particularly effective counter-stereotypic role model for African Americans, in whom shared group membership may serve to enhance positive emotions (e.g., pride and inspiration) and potentially alter mental representations of the self and others (Purdie-Vaughns & Eibach, 2013; see also Rivera & Benitez, this issue).

POSITIVE EMOTIONS AND PERSPECTIVE TAKING

In addition to research on role models, studies showing that positive emotions influence perspective taking suggest that exposure to Obama could cue positive feelings, which in turn may lead to social broadening,² or an expansion of peoples' sense of self to include others. In particular, it has been suggested that positive emotions increase the accessibility of positive associations in memory (Isen, Shalcker, Clark, & Karp, 1978), making such associations more likely to come to mind, and thus more likely to influence the evaluation of neutral social stimuli (for reviews, see Isen, 1987, 2004). For example, persons in whom positive emotions have been induced are more likely to form inclusive social categories (Isen & Daubman, 1984; Isen, Niedenthal, & Cantor, 1992) and view themselves as members of a larger group (Dovidio, Gaertner, Isen, & Lowrance, 1995). Additional empirical evidence suggests that induced positive emotions promote a common in-group identity (Dovidio, Isen, Guerra, Gaertner, & Rust, 1998; Urada & Miller, 2000) and reduce the salience of intergroup boundaries (Johnson & Fredrickson, 2005; Stroessner, Mackie, & Michaelsen, 2005). Finally, and more specific to the impact of Obama on perspective taking, are results from a study that experimentally manipulated the psychological salience of Obama by having African-American students reflect on the 2008 presidential election. Specifically, Ong, Burrow, and Fuller-Rowell (2012) reported results from an expressive-writing study demonstrating that African-American college students prompted to write about Obama immediately prior to and after the 2008 presidential election used more plural self-references, fewer other-references, and more social references. Further, mediation analyses revealed that writing about Obama increased positive emotions, which in turn increased the likelihood that people thought in terms of more inclusive super-

2. Although our use of the term *broadening* is compatible with the interpretation that positive emotions lead to more flexible, broad-minded thinking (e.g., Fredrickson & Branigan, 2005), we note that such flexibility is not limited to a broadened perspective, but may involve the ability to generate narrow categorizations of material where appropriate (for a discussion, see Isen, 2008).

ordinate categories (*we* and *us* rather *they* and *them*). In sum, there is evidence from laboratory studies that positive emotions can have a proximal effect on people's sense of self, making them more likely to see connections and similarities between themselves and others. Moreover, given Obama's ability to evoke positive emotions such as hope and pride, as well as his highly publicized message of inclusion and social unity, one could reasonably predict that African Americans exposed to Obama might respond with increased positive emotions and perspective taking in social situations.

THE OBAMA EFFECT AND CULTURAL SOCIALIZATION

To date, research on limiting conditions or moderators of the "Obama effect" have received little empirical attention. Notably, whether increased social perspective taking occurs as a function of making Obama salient may depend on a number of external contingencies, including media coverage, the rise and fall in his approval ratings, and overall changes in the political landscape. Alternatively, students' own culturally dominant frames about race relations may influence their perceptions of the personal relevance of Obama's symbolic achievements. Research on cultural socialization (i.e., practices that promote knowledge about and pride in one's ethnic-racial heritage) suggests that African Americans who have been socialized with messages that emphasize racial pride (Hughes & Chen, 1997; Lesane-Brown, 2006) report more positive academic outcomes (Caughy, O'Campo, Randolph, & Nickerson, 2002; Neblett, Philip, Cogburn, & Sellers, 2006), higher self-esteem (Hughes, Rodriguez, Smith, et al., 2006), and greater use of approach-coping strategies in response to discrimination (Neblett, White, Ford, et al., 2008; Scott, 2003). This may occur because strong identification with one's group can provide a sense of social belonging and collective self-esteem that could broaden the perceived sources of racial affirmation and solidarity (Cohen & Garcia, 2005; Crocker, Luhtanen, Blaine, & Broadnax, 1994) and help to counter negative racial stereotypes (Branscombe, Schmitt, & Harvey, 1999; Wong, Eccles, & Sameroff, 2003). More directly relevant to the present research, Rivera and Benitez (this issue) found that exposure to Obama led to less self-stereotyping, but only among strongly identified African Americans. Among weakly identified African Americans, exposure to Obama did not affect level of self-stereotyping. To the extent that the availability of positive cognitions of one's race facilitates more perceived social closeness, African Americans who report receiving socialization messages that emphasize racial pride should see more overlap and interconnections between themselves and others when exposed to Obama.

OVERVIEW OF STUDIES

The goal of the current research was to provide an empirical examination of the social broadening hypothesis. Given the link between positive emotion and in-

creased self-other overlap (e.g., Waugh & Fredrickson, 2006), it is conceivable that positive emotions generated from exposure to Obama as a positive and powerful Black exemplar may influence how African Americans view themselves in relation to others. That is, to the extent that Obama increases the overlap between mental representations of the self and others, African Americans should be more likely to see themselves and others as part of a larger whole. Experiment 1 builds on initial evidence of the social broadening effects of Barack Obama (Ong et al., 2012). Although findings from Ong et al. (2012) provide support for the causal role of Obama, clarification of the unique influence of Obama, as opposed to that of another successful African-American exemplar, to engender social broadening needs to be demonstrated. Accordingly, in Experiment 1, we included an additional control group involving a target other than Barack Obama to further distinguish Obama's influence from that of an alternative, highly successful Black exemplar (i.e., Oprah Winfrey). Additionally, given that the Ong et al. (2012) study was conducted in the days immediately surrounding the presidential election, it is possible that the effects observed were driven not by an Obama effect per se, but rather by a presidential "honeymoon" effect. Experiment 1 thus also examined whether the causal effect of Obama could be documented one year post-election. Experiment 2 examined a potential moderator of the Obama effect: cultural socialization. Finally, because both male and female exemplars (Obama vs. Oprah) were examined in this study, we tested for sex differences throughout.

EXPERIMENT 1

METHOD

Participants and Design. Eighty-nine African-American undergraduate students (52% female) participated in exchange for course credit. Ages ranged from 17 to 25 years ($M = 19.90$, $SD = 1.58$), with a median age of 20. Participants were randomly assigned to one of three experimental conditions that involved manipulations of emotion by film clips. "Shapes" shows a dynamic display of colored abstract shapes and was used to induce a neutral state (adapted from Gross & Levenson, 1995). Two videos were used to induce positive emotions. "Obama" shows still photographs of Barack Obama. "Oprah" shows still photographs of Oprah Winfrey. All three clips were each 100-s long and without sound.

First-Associates Task. As an implicit test of emotion, all participants were asked to provide their first associate to each of five neutral words (i.e., table, street, hand, cabin, and stem). This task has been used in previous work (e.g., Isen, Johnson, Mertz, & Robinson, 1985; Isen, Labroo, & Durlach, 2004) to show that positive emotions lead to more pleasant first associates to neutral words. For example, Isen et al. (1985) reported that participants induced to feel positive emotions responded to "carpet" with a greater number of pleasant associates such as "plush," "fresh," and "green." Two independent coders, unaware of the conditions and study hypotheses, coded participants' associates to the five neutral words for "pleasantness." The coding for each word was binary; it was either considered pleasant and

received a score of 1, or it was not considered pleasant and received a score of 0. Inter-rater agreement was 91%. The scores for total number of pleasant associates were summed and divided by five to create a mean pleasantness score for each participant.

Self-Other Overlap. After completing the first-associates task, participants completed a measure of *self-other overlap*, which was adapted from a previously validated scale (Aron, Aron, & Smollan, 1992). This measure consists of seven Venn-like diagrams, with pairs of circles varying in their degree of overlap. Instructions, modeled on those of Aron et al. (1992), explained to participants that the seven circles depicted possible ways of viewing the relationship between the self and people of other races. "Considering yourself as *Self* and people of other races as *Other*, please circle one of the seven pictures that best describes, at this moment, the way you see the relationship between yourself and people of other races."

Procedure. Participants were tested individually. On arrival, they were seated in a chair in front of a computer monitor, which displayed written instructions for completing a survey of demographic information (e.g., age, sex, race/ethnicity). Upon completion of the demographic survey, participants were randomly assigned to view one of the three film clips.

RESULTS AND DISCUSSION

To confirm that the film clips influenced implicit experiences as predicted, we examined pleasantness ratings by film or exemplar condition. An omnibus ANOVA revealed that participants in the Oprah ($M = .53$, $SD = .23$) and Obama ($M = .63$, $SD = .21$) conditions reported higher levels of pleasantness of associates to neutral words than did control participants ($M = .25$, $SD = .24$), $F(2, 86) = 22.12$, $p < .001$, $d = .34$. Our main hypothesis was that participants in the Obama condition would report greater self-other overlap compared with participants in either the control or Oprah condition. We tested for group differences in ratings of self-other overlap using a 3×2 ANOVA (Film \times Sex). The main effect for film or exemplar condition was the sole reliable effect, $F(2, 83) = 9.78$, $p < .001$, $d = .19$. Participants in the Oprah ($M = 4.24$, $SD = 1.76$) and Obama ($M = 5.43$, $SD = 2.24$) conditions were more likely than those in the control condition ($M = 3.13$, $SD = 1.53$) to express greater self-other overlap with people of other races. Confirming predictions, a planned contrast revealed Obama participants reported levels of self-other overlap that were significantly higher than that reported by Oprah participants, $F(1, 57) = 5.13$, $p < .05$, $\eta_p^2 = .08$.

To determine whether positive emotions played a causal role in perspective taking, we conducted a mediation analysis. More specifically, when self-other overlap scores were regressed on pleasantness ratings and exemplar condition (i.e., Obama vs. Oprah/control) simultaneously, only positive emotions remained a reliable predictor. The reduction in the direct effect of the Obama manipulation on self-other overlap was significant, thereby confirming the causal efficacy of positive emotions as a mediator of self-other overlap, Freedman-Schatzkin $t(87) = 2.38$,

$p < .05$ (cf. Freedman & Schatzkin, 1992; MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002).

Taken together, findings from Experiment 1 suggest that participants exposed to Obama showed more inclusive social perceptions of self and others, even beyond that associated with another successful, high-profile African-American exemplar (Oprah Winfrey). Additionally, mediational analyses provided support for the causal role of positive emotions in social perspective taking. That this effect was found one year following the presidential election provides further support for the claim that exposure to Obama, a positive Black exemplar, broadens social perception by reducing the salience of racial group boundaries.

EXPERIMENT 2

The results of Experiment 1 provide evidence of Obama's influence on social broadening. Experiment 2 was designed to replicate and extend findings from Experiment 1 by examining a potential moderator (i.e., cultural socialization) of the Obama effect.

METHOD

Participants. Participants were 108 African-American undergraduate students (60% female), who received course credit in exchange for their participation. Ages ranged from 17 to 23 years ($M = 19.78$, $SD = 1.37$), with a median age of 20.

Cultural Socialization. Defined as parenting messages and practices that instill pride in and knowledge about the meaning of being a racial minority (Hughes et al., 2006), cultural socialization was measured using the Cultural Socialization subscale of the Racial Socialization Scale (Hughes & Chen, 1997). The subscale consists of five items (e.g., "Growing up, how often did your parents encourage you to read books concerning the history or traditions of your race?" "How often have your parents said that learning about your race is an important part of who you are?"). Participants rated the frequency of each item on a 1 (*never*) through 5 (*very often*) Likert scale ($\alpha = .85$).

Emotion Report. Subjective experiences during the experimental session were assessed using an explicit measure of emotions (adapted from Ekman, Freisen, & Ancoli, 1980). Participants rated the amount felt of the following seven positive emotions: amused, content, eager, excited, happy, interested, and proud. Ratings were made on a 5-point scale, ranging from 0 (*not at all*) to 4 (*extremely*; $\alpha = .76$).

Procedure. The laboratory environment and procedure for Experiment 2 were identical to those of Experiment 1 with two exceptions. First, prior to viewing the film clip, participants completed a measure of cultural socialization. Second, immediately after viewing the film clip, participants completed an explicit measure of emotion to describe how they felt while viewing the film.

RESULTS AND DISCUSSION

Confirming predictions, participants in the Oprah ($M = 2.48$, $SD = .25$) and Obama ($M = 2.75$, $SD = 1.14$) conditions reported similar levels of positive emotion that were higher than that reported by control participants ($M = 1.58$, $SD = .41$), $F(2, 105) = 30.65$, $p < .001$, $d = .37$. To test for differences in self-other overlap elicited by the three films and to explore possible differences by sex, a 3×2 ANOVA (Film \times Sex) was performed. Replicating Experiment 1, the main effect for film or exemplar condition was the only significant effect, $F(2, 102) = 15.57$, $p < .001$, $d = .23$. Participants in the Oprah ($M = 3.89$, $SD = 1.52$) and Obama ($M = 4.77$, $SD = 2.01$) conditions were more likely than those in the control condition ($M = 2.98$, $SD = 1.87$) to express greater self-other overlap. As predicted, a planned contrast confirmed that Obama participants reported levels of self-other overlap that were significantly higher than that reported by Oprah participants, $F(1, 66) = 4.23$, $p < .05$, $\eta_p^2 = .06$.

Tests of mediation replicated the findings of Experiment 1. The effect of the Obama (vs. Oprah/control) manipulation on self-other overlap was significantly reduced when controlling for positive emotions, Freedman-Schatzkin $t(106) = 2.84$, $p < .01$, suggesting that positive emotions were responsible for the increase in self-overlap observed among Obama compared with Oprah/control participants. Thus, the ability of the Obama manipulation to engender social perspective taking occurred as a result of positive emotions; the more positive emotions participants felt as a result of exposure to Obama, the more they saw overlap and interconnections between themselves and people of other races.

Having replicated findings from Experiment 1, we next tested our main prediction that the Obama effect would be stronger among participants higher in cultural socialization. To examine the potential moderating effect of cultural socialization, we formed two groups (high and low cultural socialization) by performing a median split on the participants' responses to the cultural socialization scale.³ To test for differences in self-other overlap elicited by the Obama and control conditions, and to explore potential differences by cultural socialization, we conducted a 2×2 ANOVA (Film: Obama vs. Control \times Cultural Socialization). The ANOVA indicated that there was a significant interaction between film or exemplar condition and cultural socialization as predictors of self-other overlap, $F(1, 66) = 5.27$, $p < .05$, $\eta_p^2 = .07$. Figure 1 presents mean self-other overlap scores for each film condition as a function of low and high cultural socialization. Tests for simple main effects revealed that for participants high in cultural socialization, the effect of Obama ($M = 5.37$) compared with the control condition ($M = 3.45$) led to greater reports of self-other overlap with people of other races, $F(1, 29) = 21.28$, $p < .001$, $d = .30$. By contrast, for those low in cultural socialization, no significant differences in self-other overlap was found between the Obama ($M = 3.67$) and control ($M = 2.88$) conditions, $F(1, 37) = .03$, *ns*.

3. We also analyzed the data with regression using continuous cultural socialization scores and obtained an identical pattern of results as that reported here. We chose to report the data based on the median split for ease of presentation.

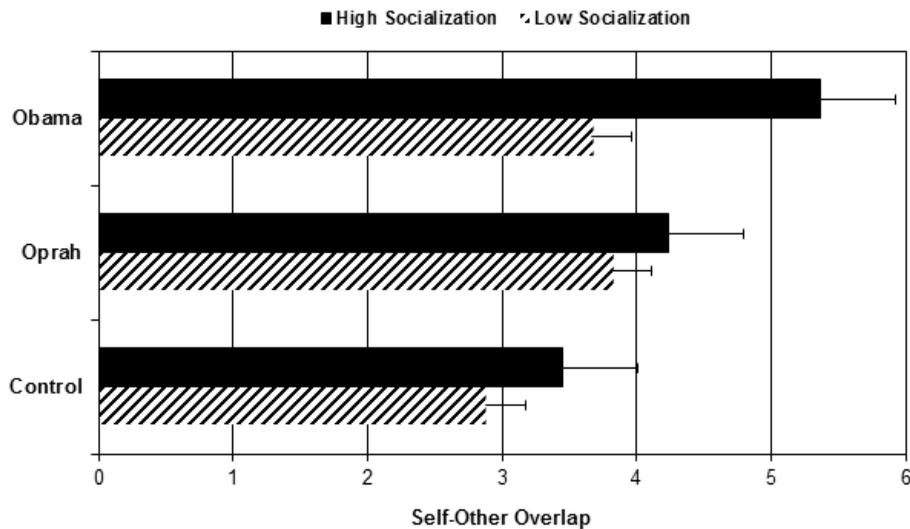


FIGURE 1. Mean values of self-other overlap as a function of cultural socialization and condition. High and low cultural socialization were defined by median split.

Finally, we examined whether exposure to Obama, as compared with Oprah, would lead to greater reports of self-other overlap among those high in cultural socialization. The ANOVA indicated that there was a significant interaction between film/exemplar condition and cultural socialization as predictors of self-other overlap, $F(1, 64) = 6.67, p < .05, \eta_p^2 = .09$. Replicating our main findings, tests for simple main effects revealed that for participants high in cultural socialization, the effect of Obama ($M = 5.37$) compared with Oprah ($M = 4.24$) led to greater reports of self-other overlap, $F(1, 29) = 24.78, p < .001, d = .46$. By contrast, for those low in cultural socialization, no significant differences in self-other overlap was found between the Obama ($M = 3.67$) and Oprah ($M = 3.82$) conditions, $F(1, 35) = .58, ns$.

The results of Experiment 2 lend further support for Obama's effectiveness in fostering social broadening by increasing the likelihood that participants will see more shared overlap between themselves and people of other races. With regard to the mechanism underlying the observed Obama effect, we found that the increase in self-other overlap was mediated by the amount of positive emotions participants in the Obama condition experienced, as opposed to those in the Oprah/control conditions. Finally, data from Experiment 2 shed light on a possible boundary condition (i.e., cultural socialization) by which Obama may broaden and expand individuals' sense of self to include others.

GENERAL DISCUSSION

The present studies established support for the social broadening effects of Barack Obama. Across two experiments, we found consistent evidence that Obama influences perspective taking in social situations. Experiment 1 confirmed the influence of Obama, as opposed to that of another successful African-American exemplar

(Oprah Winfrey) and a control condition, to engender social broadening. Experiment 2 confirmed that, among participants high in cultural socialization, Obama (as compared with Oprah/control) led to more inclusive mental representations of self and others. To our knowledge, these findings stand as the first experimental evidence of Obama's causal role in broadening social perception among African Americans.

Findings from the current work have several implications for our understanding of perspective taking and intergroup processes. First, our findings suggest that exposure to Obama may lead to an increase in perceived intergroup closeness, resulting in people seeing more of a connection between themselves and people of different races. These findings are consistent with previous work demonstrating reductions in stereotyping and racial bias following exposure to multiple positive Black exemplars (Dasgupta & Greenwald, 2001), and Obama specifically (Columb & Plant, 2011; see also Rivera & Benitez, this issue). Previous work suggests that role models can have a positive impact on student aspirations when their success is perceived as being applicable and within reach (Lockwood & Kunda, 1997). Although we have no direct data bearing on Obama's status as a real world role model, it is possible that his success, relative to Oprah's, was perceived as being more relevant to African-American college students, thereby contributing to differences in social perception. Specifically, Obama's widely publicized achievements and historic presidential victory make him a unique role model for African-American youth. Indeed, some have speculated that as the first Black American president, Obama represents a "symbolic first" that may potentially alter perceived contingencies and opportunities for student academic achievement, particularly among racial minority students (Purdie-Vaughns & Eibach, 2013).

Further and consistent with the broadening hypothesis (Fredrickson & Branigan, 2005), findings from the current research suggest that Obama influences social perspective taking via positive emotions. These results raise additional questions concerning the types of positive emotions that are elicited by Obama that in turn influence social perspective taking. Although empirical support for the effects of discrete positive emotional states on self-other overlap has been limited (Vaugh & Fredrickson, 2006), foundational research by Aron and Aron suggests that self-expansion is most directly tied to interpersonal positive emotions, such as love and gratitude (e.g., Aron, Aron, Tudor, & Nelson, 1991; Aron, Paris, & Aron, 1995). Thus, illumination of the role of discrete positive emotions in perspective taking requires future investigation. Similarly, just as individual-level positive emotions can implicate the self, so too can group-level positive emotions shape social behavior (Smith & Mackie, 2008). Indeed, empirical evidence that group-level positive emotions (e.g., happy, grateful) can be differentiated from individual-level positive emotions (Eliot, Seger, & Mackie, 2007) points to the possibility that Obama may influence social processes in still other ways, as yet largely unexplored.

Alternatively, Obama may exert effects on social perspective taking through changes in racial identity. Some evidence suggests that changes in racial public regard—the extent to which individuals feel that others view their racial group in a positive manner—may perhaps be more likely among African Americans fol-

lowing Obama's presidency. For example, Fuller-Rowell et al. (2011) demonstrated that relative to other aspects of racial identity (i.e., racial centrality, private regard), African Americans' perceptions of public regard showed increases immediately following Obama's election and remained high at 5 months follow-up. In general, all three of these processes (individual-level and group-level discrete positive emotions, racial identity) may be important mechanisms by which Obama influences perspective taking in social situations. Thus, future research might profitably ask questions designed to distinguish among these potential theoretical mediators.

Finally, findings from Experiment 2 indicate that differences in social broadening following exposure to Obama may be moderated by the tendency to have positive messages come to mind when thinking about one's race. Here, it is noteworthy that exposure to Obama led to greater self-other overlap, only among participants high in cultural socialization, an effect that dovetails with recent work demonstrating that exposure to Obama reduces self-stereotyping, but only among African Americans who strongly identified with their racial group (see Rivera & Benitez, this issue). Overall, findings from the current research suggest that socialization messages that emphasize racial pride and teachings about Black culture (Hughes et al., 2006) may constitute an important factor in understanding the differential impact of positive, counter-stereotypic exemplars on perspective taking and intergroup relations.

Given Obama's effectiveness in facilitating social broadening, several related questions arise. First, research suggests that positive emotions facilitate *flexibility* in categorization (Isen & Daubman, 1984; Isen et al., 1985; Murray, Sujan, Hirt, & Sujan, 1990), allowing people to perceive not only similarities among concepts but also important distinctions between them. Therefore, examining how Obama affects flexibility in social responding may offer additional insights into the social effects that result from cueing thoughts of Obama. Furthermore, a focus on additional limiting conditions by which Obama may give rise to social broadening is merited. For example, findings from a study by Effron, Cameron, and Monin (2009) suggested that endorsing Obama just before the 2008 election licensed individuals to make ambiguously racist statements; however, this effect held only for participants with higher scores on the Modern Racism Scale (MRS; McConahay, Hardee, & Batts, 1981), a measure of prejudice. At the same time, evidence suggests that implicit Black group identification among White respondents is associated with lower anti-Black bias, as well as pride of and support for Barack Obama (Craemer, 2014; Craemer, Shaw, Edwards, & Jefferson, 2013). Thus, additional research examining the specific conditions under which the current findings hold for other in-groups and historically disadvantaged out-groups is warranted.

THE LEGACY OF BARACK OBAMA

In a presidential election marked by discord and division, Barack Obama campaigned on hope, social inclusiveness, and the promise of change. Obama's success has been heralded as having a host of implications for African Americans. Im-

portantly, the scale of his political achievement—nearly 70 million voters cast ballots for Obama—serves as a powerful, societal-level repudiation of the belief that being elected president is contingent on race. Throughout his 2008 presidential campaign and post-election, media coverage of Obama stimulated much discussion about intergroup attitudes and racial progress in the United States. As exposure to Obama as a counter-stereotypic Black exemplar increased, studies reported a gradual reduction in White racial prejudice in the general population (Columb & Plant, 2011; Goldman, 2012; Plant et al., 2009). Nonetheless, a number of social cognition researchers (e.g., Aronson, Jannone, McGlone, & Johnson-Campbell, 2009; Lybarger & Monteith, 2011; Schmidt & Nosek, 2010; Schmidt & Axt, this issue) have questioned whether a single, positive Black exemplar could decrease or override generations of implicit bias based on race. Questions, therefore, remain concerning the boundary conditions of the so-called “Obama effect.” Similarly, it is too early to reach firm conclusions about the significance of the Obama presidency for African Americans. Indeed, an assessment of his racial legacy will have to await the effectiveness of his public policy agenda in mitigating racial disparities in sundry areas, including education, income, and housing. Irrespective of his political platform, Obama’s election as the first African-American president of the United States was a historic event and a salient example of how far the country has come in its pursuit for racial equality.

In sum, the present research suggests that the experience of positive emotions accounts for the social broadening effects of Barack Obama. Furthermore, cultural socialization is a critical variable that influences the degree to which exposure to Obama increases perceptions of intergroup closeness. Overall, it remains to be seen whether messages that promote racial pride in concert with ongoing exposure to Obama as a positive Black exemplar will continue to spark positive emotion and lead people to expand their sense of self to include others.

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THE ROLES OF IN-GROUP EXEMPLARS AND ETHNIC-RACIAL IDENTIFICATION IN SELF-STEREOTYPING

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African Americans' self-concept is susceptible to pervasive cultural stereotypes. However, exposure to in-group exemplars such as Barack Obama as a prominent, admired African American may be accessible enough to attenuate the detrimental effects of stereotypes. In two experiments, African-American adolescent (Pilot Experiment) and adult (Main Experiment) participants were provided with information about outstanding successes and societal contributions of Obama as a single in-group exemplar (Pilot and Main Experiments) or multiple in-group exemplars (e.g., Obama, Oprah Winfrey; Main Experiment). Then, participants reported the extent to which they associated their self-concept with stereotypes. The Pilot Experiment supported an "Obama effect"—African-American adolescents exhibited less self-stereotyping after exposure to Obama, when compared to those in a control condition. The Main Experiment demonstrated that exposure to Obama or multiple exemplars yielded less self-stereotyping, but only among strongly identified African Americans. Implications for the importance of role models in combating the effect of stigma on the self-concept are discussed.

Keywords: Obama effect, African American, ethnic-racial identification, exemplar, self-stereotyping

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The election of Barack Obama as the first African-American president of the United States of America has spurred discussion and research on his positive effect on interethnic relations, often referred to as the “Obama effect” (e.g., Columb & Plant, 2011, this issue; Knowles, Lowery, & Schaumberg, 2010; Plant et al., 2009; Reed, 2010; Schmidt & Axt, this issue; Schmidt & Nosek, 2010; Sharpley-Whiting, 2009). There has been relatively less empirical work on the positive influence that Obama and others like him might have on fellow African Americans (for exceptions, see Aronson, Jannone, McGlone, & Johnson-Campbell, 2009; Fuller-Rowell, Burrow, & Ong, 2011; Marx, Ko, & Friedman, 2009). The present research adopts a social cognition approach to posit that if Obama is a single exemplar that changes fellow African Americans’ mental representation of their group and its stereotypes, then he might also attenuate their mental association between these stereotypes and their self-concept represented in memory (cf. Steele, 1997). Thus, the first goal of the present research is to examine if an Obama effect extends to attenuating these mental associations, thus decreasing self-stereotyping evaluations.

Given the plausibility of an Obama effect on African Americans’ self-concept, an important query is whether Obama as a single exemplar is similarly effective as exposing African Americans to multiple exemplars. Consistent with research on the relation between perceiving variability in out-group members and stereotyping (e.g., Hewstone & Hamberger, 2000), exposure to multiple counter-stereotypical instances of the in-group should attenuate in-group members’ mental association between their self-concept and their group’s stereotypes. Thus, the second goal of the current research is to examine if exposure to Obama as a single successful African American and multiple successful African Americans (Obama, Oprah Winfrey, etc.) similarly benefit African American perceivers’ self-concept.

The final goal of the current research is to test if the effect of exposure to Obama as a single exemplar or multiple in-group exemplars is conditional on the extent to which African Americans identify with their ethnic-racial group. African Americans’ attachment to their ethnic-racial group should be a critical variable that influences the degree to which in-group exemplars are beneficial because ethnicity is a central and important source of social identity for some, but not all, African Americans (Sellers, Smith, Shelton, Rowley, & Chavous, 1998). The theoretical rationale underlying these research goals is discussed next.

SOCIAL COGNITIVE APPROACH TO IN-GROUP EXEMPLARS

The present research adopts a social cognitive approach to understanding in-group exemplar processes. Individuals possess mental representations of social categories that include knowledge about category members and their attributes (Fiske & Taylor, 2013). The social cognitive perspective on social categorizations posits that the effect of mental representations on the perceptions of others is a top-down process—that is, individuals rely on their mental representations of groups to shape judgments of groups and their individual members at the downstream end. Such mental representations include multiple instances of individual group

members that converge into a prototype, the group category's "average" that represents typical group members (Smith & Zarate, 1990). Furthermore, the effect of prototypes on social categorizations and its underlying processes can be automatically activated after perceiving an out-group member in one's immediate environment (Macrae & Bodenhausen, 2000).

One way to change the role of mental representations of groups and its organization around a prototype in social categorizations is by adopting a bottom-up approach—that is, to introduce a group exemplar, a group member who separates himself or herself from the prototype (Smith & Medin, 1981; Smith & Zarate, 1992). Exposure to exemplars facilitates change in existing mental representations, which then affects subsequent group perceptions and judgments. This bottom-up process and effect demonstrate perceivers' sensitivity to specific and unique instances of individual group members recently encountered. However, because perceivers may not always have the opportunity to encounter a group exemplar or may be unmotivated or hard pressed to bring one to conscious memory, they may be susceptible to relying on an abstract group prototype stored in memory. This appears to be particularly the case when perceivers are making categorizations of strongly stigmatized out-groups because the mental representations of such groups include stereotypes that are maintained through interpersonal and intergroup experiences and the media (Lyons & Kashima, 2003; Ross & Lester, 2011). When perceivers, however, are placed in contexts in which they are exposed to exemplars of stereotyped groups, it shifts group perceptions and judgments away from those that are prototype consistent (Brauer & Er-Rafiy, 2011; Dasgupta & Greenwald, 2001; Dasgupta & Rivera, 2008; Hewstone & Hamberger, 2000).

We adopt these social cognitive principles to understand the effect of ingroup exemplars on African-Americans' self-concept. While individuals hold mental representations about out-groups, they also hold mental representations about their in-groups, which include similar assumptions and expectations that others and their social environment in general hold of their groups (Judd & Park, 1988). Individuals are susceptible to using in-group prototypes, but are capable of bringing to mind varied exemplars as well. Exemplar accessibility is particularly functional when individuals are representing their groups to others (Linville, Fischer, & Salovey, 1989). However, just as it is the case in intergroup settings, members of historically disadvantaged and under-represented groups may have difficulty accessing in-group exemplars spontaneously. This is partly the case because there may be fewer opportunities to experience counter-stereotypical (non-prototypical) in-group members via primary exposure during interpersonal and intragroup interactions or secondary exposure through media outlets (cf. Dasgupta & Greenwald, 2001; Dasgupta & Rivera, 2008). We extend past research on out-group exemplars and subsequent out-group judgments (e.g., Dasgupta & Rivera, 2008) to examine the effect of exposure to in-group exemplars on in-group members' stigma-based social cognitive processes.

OBAMA AS A SINGLE EXEMPLAR

For African Americans, Barack Obama may be a strong and compelling exemplar because he has defied stereotypes on multiple levels (i.e., distanced himself from the prototype). Obama grew up with a single parent (a risk factor for poor behavioral outcomes; Office of Juvenile Justice and Delinquency Prevention, 2003), struggled with the absence of his father, and experienced the negative effects of interpersonal and institutional racial discrimination on his self and identity (Obama, 2004). Despite these setbacks, Obama received an undergraduate education at Columbia University, completed law school at Harvard University, was a professor of law at the University of Chicago, and, most notably, was serving as a first-term United States senator when in 2008 he was elected as the first African-American president of the United States (and subsequently re-elected in 2012). Given his distinguished successes, some have argued that Obama may be a single exemplar that is powerful enough to have a positive influence on fellow African Americans, a hypothesis that has garnered some support (Fuller-Rowell, Burrow, & Ong, 2011; Marx et al., 2009; Ong, Burrow, & Cerrada, this issue; but see Aronson et al., 2009). For example, Marx et al. (2009) administered a verbal exam to four groups of African-American and White-American participants across four pivotal times throughout Obama's presidential campaign. They found that when Obama's success was salient (e.g., after his election to the presidency), the performance gap between African-American and White-American participants in a stereotype threat situation was significantly smaller compared to when Obama's success was less salient (e.g., before his election to the presidency). Given the evidence suggesting that Obama as a single counter-stereotypical exemplar has downstream positive consequences on African Americans' stereotype-consistent behavior, our first research goal was to provide an initial test of the hypothesis that an Obama effect can extend to African Americans' social cognition. Specifically, Obama may attenuate the mental association between African Americans' self-concept and their group's stereotypes, yielding lower self-stereotyping judgments (Pilot Experiment).

MULTIPLE EXEMPLARS

What is particularly compelling about the Obama effect is that he may serve as a *single* exemplar that can intervene in intragroup and intergroup processes, an effect typically expected to emerge after exposing individuals to *multiple* African-American exemplars (cf. Hewstone & Hamberger, 2000). From a social cognitive perspective, the more perceivers are exposed to various instances of group members who distance themselves from the prototype, the more change is expected in mental representations (Hewstone & Hamberger, 2000; Richards & Hewstone, 2001). The downstream consequence is changes in perceptions and judgments of individuals and groups, such as weaker associations between out-group members and stereotypes (Brauer & Er-Rafiy, 2011). As applied to in-group exemplar exposure and perceivers' social cognition, this research suggests that access to multiple

in-group exemplars from strongly stigmatized groups can change knowledge represented in memory from stereotypes organized around the prototype to greater perceived variability from the prototype. Altogether, the above research suggests that multiple African-American exemplars such as Obama, Oprah Winfrey, and Martin Luther King, Jr., should attenuate the association between African Americans' mental representations of their self-concept and group stereotypes. Thus, our second research goal was to test if exposure to Obama alone would have as strong of an effect as exposure to multiple counter-stereotypical exemplars on lowering self-stereotyping among African Americans (Main Experiment).

THE MODERATING ROLE OF ETHNIC-RACIAL IDENTIFICATION

The beneficial effect of exposure to Obama as a single exemplar or multiple exemplars on self-stereotyping, however, may depend on the strength of African-American perceivers' identification with their ethnic-racial group. According to social identity theory and its extended self-categorization theory (Tajfel & Turner, 1979, 1986; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987), one important source of individuals' overall self-image is their social identification with a group. However, while people categorically identify with a social group, they vary in their subjective identification with that group (Luhtanen & Crocker, 1992; Phinney, 1992). Some group members consider their social identity as more central and important to their self-concept than other group members (Luhtanen & Crocker, 1992; Phinney, 1992; Sellers, Rowley, Chavous, Shelton, & Smith, 1997; Sellers et al., 1998). Moreover, strongly group-identified individuals are expected to align themselves with the group's attributes, even if these attributes are stereotypes (Hogg & Abrams, 1988). Indeed, individuals who identify with a stigmatized and low status group are more likely to self-stereotype (Latrofa, Vaes, Cadinu, & Carnaghi, 2010), especially under conditions of threats to their group's positive distinctiveness (Spears, Doosje, & Ellemers, 1999).

Because the group is more central and important to strongly identified group members, they are more likely than weakly identified group members to be sensitive to in-group-related situational cues that have affective, behavioral, and cognitive implications (Phinney, 1992; Sellers et al., 1997, 1998). As it relates to the present research, strongly identified group members should benefit from exposure to in-group exemplars because they are a source of positive group distinctiveness (Swann & Bosson, 2010; Tajfel & Turner, 1979, 1986). Thus, the final goal of the present research is to test if subjective ethnic-racial identification moderates the effect of in-group exemplars on self-stereotyping. In the absence of any exposure to in-group exemplars, strongly identified African Americans are expected to exhibit high levels of self-stereotyping. However, following exposure to Obama as a single exemplar or multiple exemplars, strongly identified African Americans should exhibit lower self-stereotyping. Among weakly identified group members, self-stereotyping should not vary as a function of exposure to in-group exemplars

because the in-group is less likely to be a source of positive distinctiveness and influence on their self-concept.

OVERVIEW OF THE PRESENT RESEARCH

Two experiments tested the effect of exposure to in-group exemplars on self-stereotyping with samples of African-American adolescents (Pilot Experiment) and adults (Main Experiment). The first research goal was to examine whether exposure to Obama as a single and compelling in-group exemplar may be accessible enough to positively affect African Americans' stigma-based self-concept (Pilot and Main Experiments). The second goal was to test if both Obama as a single in-group exemplar and multiple in-group exemplars (Obama, Oprah Winfrey, Martin Luther King, Jr., etc.) have a similar effect on stereotyped-based self-evaluations (Main Experiment). Finally, we examined if African-American participants' subjective ethnic-racial identification moderates the effect of exposure to in-group exemplars on self-stereotyping (Main Experiment). Consistent with our and others' prior research (Dasgupta & Greenwald, 2001; Dasgupta & Rivera, 2008), we manipulated exposure to in-group exemplars by providing African Americans with information about in-group members' outstanding successes in various domains and their important contributions to society in the United States. Then, all participants indicated the extent to which they associated their self-concept with African-American stereotypes (i.e., self-stereotype). Our main predictions were that the Obama effect would lead African Americans to exhibit lower levels of self-stereotyping (Prediction 1), an effect similar to exposing them to multiple in-group exemplars (Prediction 2), when compared to a control condition. Finally, exposure to Obama or multiple African-American exemplars would result in lower self-stereotyping among strongly (but not weakly) identified African-American participants (Prediction 3).

PILOT EXPERIMENT

METHOD

Participants and Design. A community sample of 30 African-American adolescents (53% male; $M_{\text{age}} = 15.7$ years, age range: 14–17 years) participated in exchange for \$15 or as part of a high school course requirement. The experiment used a one-factor, two-level (Exemplar condition: Obama single, control) between-participants design.

Obama Single Exemplar and Control Conditions (Independent Variable). To develop the Obama single exemplar and control conditions, we used a similar procedure from the first author's past research (Dasgupta & Rivera, 2008; also see Dasgupta & Greenwald, 2001). In the Obama condition, participants were presented with a picture of Obama along with a biography of his early personal and professional life experiences that led to his election as the first African-American president of the United States of America (and subsequent re-election) as well as his successes

during his presidency (see Appendix A for biography).¹ For the control condition, we gathered pictures and information about 15 flowers and created brief descriptions of each flower's origin and use (see Appendix B for sample descriptions). As described in the first author's past research (Dasgupta & Rivera, 2008), we chose flowers as control stimuli because they were positive in valence (like the Obama exemplar condition) but semantically unrelated to ethnicity and race, which allowed us to rule out stimulus positivity as a potential alternative explanation for our findings (interested readers are referred to Dasgupta & Rivera, 2008, for additional details about the control condition).

Self-Stereotyping (Dependent Variable). Self-stereotyping is the association between the self and the attributes stereotypically associated with one's in-group. Consistent with this operationalization, participants were asked to indicate the extent to which eight stereotypes across five domains were self-characteristic on 6-point scales ranging from "Not at all characteristic of me" (1) to "Extremely characteristic of me" (6). The stereotype domains (and their respective words) were intelligence (*stupid*), aggression (*dangerous, violent*), social values (*religious, funny*), physical (*strong, athletic*), and socioeconomic status (*poor*). The stereotypes were all adopted from past studies on African-American stereotypes (Czopp & Monteith, 2006; Devine, 1989; Madon et al., 2001). Higher scores indicate greater self-stereotyping ($\alpha = .50$).²

Procedure. Participants completed two ostensibly unrelated studies. The "first study" was presented as a task designed to increase participants' general knowledge about social groups for those in the Obama condition or about the environment for those in the control condition. Participants were told that "the Special Programs Office" from Rutgers University was "developing a new educational initiative to increase people's knowledge of various social groups (or the environment). To that end, for the next few minutes, you're going to learn about an outstanding individual (or flowers)." To motivate participants to pay attention to the task, they were asked to carefully read the information because they would be asked a few questions at a later time (in reality, we did not ask any follow-up questions). After this task, participants completed the "second study" in which they completed the self-stereotyping questionnaire. Finally, all participants completed a demographics questionnaire, then were completely debriefed and remunerated for their participation.

RESULTS AND DISCUSSION

Effect of Obama Single Exemplar on Self-Stereotyping. Self-stereotyping scores were subjected to a one-way (Exemplar condition: Obama single, control) analysis of variance (ANOVA). As shown in Figure 1 and consistent with Prediction 1, African-American adolescents' self-evaluations varied as a function of experimental

1. Interested readers should contact authors for all photo images presented with descriptions of African Americans and flowers used in both experiments.

2. In the Pilot Experiment, the reliability ($\alpha = 0.50$) of the measure of self-stereotyping (after reverse-scoring the positive words) was below acceptable standards of internal consistency ($0.80 > \alpha \geq 0.70$), a result that is likely due to the relatively small sample size ($N = 30$). Indeed, the Main Experiment recruited a larger sample size ($N = 62$) that completed a similar measure of self-stereotyping and it resulted in acceptable internal consistency ($\alpha = 0.70$).

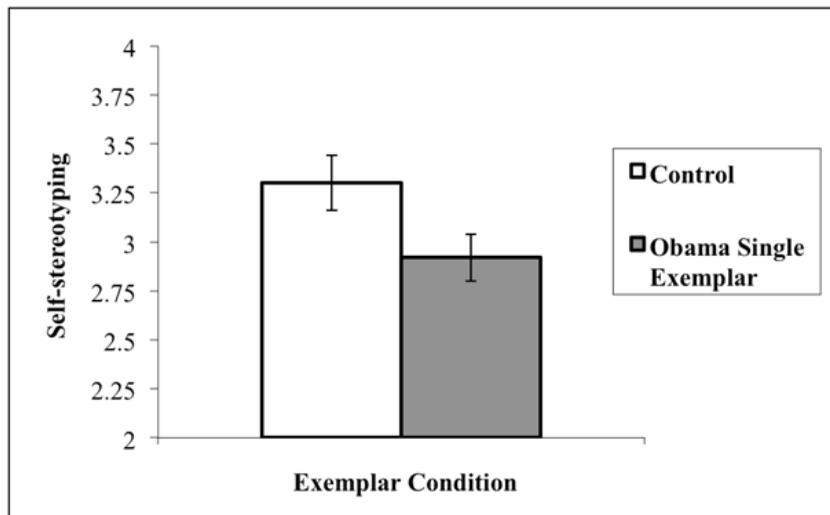


FIGURE 1. Pilot Experiment—African-American adolescents: Effect of exposure to Obama as a single exemplar on self-stereotyping. Standard error bars represented. Higher scores on the y-axis indicate greater self-stereotyping.

condition, $F(1, 28) = 3.81, p < .06$. Specifically, African-American adolescent participants who read about Obama's success and achievements ($M = 2.92, SD = .51$) exhibited lower self-stereotyping than those who read about flowers in the control condition ($M = 3.30, SD = .52; d = .72$, large effect size).³ In summary, this experiment provided preliminary evidence for an Obama effect on stereotype-based self-evaluations in a sample of African-American teenagers.

MAIN EXPERIMENT

The Pilot Experiment provided preliminary evidence that Obama as a single in-group exemplar can attenuate the association between African Americans' self-concept and group stereotypes. The goals of the Main Experiment were twofold. First, we sought to test if Obama as a single exemplar is as strong as multiple exemplars in alleviating self-stereotyping. Second, we examined if strongly identified African Americans would particularly benefit from exposure to Obama and multiple in-group exemplars. To address these goals, we measured individual differences in ethnic-racial identification and added a second exemplar condition in which we presented participants with multiple successful African Americans such as Obama, Oprah Winfrey, Martin Luther King, Jr., etc.

METHOD

Participants and Design. Sixty-two African-American adult participants from a university or the community (86% female; $M_{\text{age}} = 27.29$ years, age range: 18–68

3. Across both experiments, analyses were also conducted treating positive and negative words separately, and the patterns of results were similar to those presented in the main text.

years) participated in exchange for extra course credit or \$15. The experiment used an Ethnic-Racial Subjective Identification (continuous variable) \times 3 (Exemplar condition: Obama single, multiple, control) between-participants design.

Ethnic-Racial Subjective Identification (Moderator). Participants completed two items that measured African Americans' subjective ethnic-racial identity: (1) "Being an African American is an important part of who I am"; and (2) "Being an African American is important to my sense of self." The two items were adopted from Sellers et al.'s (1997) MMRI-Centrality scale, which captures the extent to which ethnicity is central to an African-American individual's self and identity, a psychological construct considered to be chronically salient and relatively stable across contexts (also see Leach et al., 2008; Sellers et al., 1998). The two items were highly correlated, $r(62) = .64, p < .001$, so they were combined into a single index.

Obama Single Exemplar, Multiple Exemplars, and Control Conditions (Independent Variable). The Obama single exemplar and control (flowers) conditions were identical to those in the Pilot Experiment. For the multiple exemplars condition, we used a similar procedure from our past research (Dasgupta & Rivera, 2008; also see Dasgupta & Greenwald, 2001) to select 15 admirable African Americans (8 men, 7 women) who have had outstanding success in various professions including business, politics, science, sports, art and entertainment, and social activism; and who have made important contributions to American society. The exemplars were (in alphabetical order) Maya Angelou, Tracy Chapman, Barbara Charline Jordan, Bell Hooks, Langston Hughes, Martin Luther King, Jr., Michael Jordan, Barack Obama, Bayard Rustin, Will Smith, Alice Walker, Denzel Washington, Venus Williams, and Oprah Winfrey. For each exemplar, a picture was presented along with a brief biography (see Appendix C for sample biographies).

Self-Stereotyping (Dependent Variable). The self-stereotyping measurement procedure was similar to the one in the Pilot Experiment, except that 14 stereotyped characteristics (randomized) representing five domains were presented to participants. The stereotype domains (and their respective words) were work ethic (*lazy, hardworking, ambitious*), intelligence (*stupid, smart*), temperament (*loud, calm*), aggression (*aggressive, peaceful*), and socioeconomic status (*poor, ghetto, welfare, wealthy, rich*). These words were drawn from past studies on African-American stereotypes (Czopp & Monteith, 2006; Devine, 1989; Madon et al., 2001). Higher scores indicate greater self-stereotyping ($\alpha = .70$).

Procedure. Identical to that of the Pilot Experiment.

RESULTS AND DISCUSSION

Effect of Ethnic-Racial Subjective Identification and In-Group Exemplars on Self-Stereotyping. To test our hypotheses, we created two sets of planned contrasts using dummy codes (Aiken & West, 1991). To examine whether the Obama exemplar and the multiple exemplars conditions varied from the control condition, the Obama exemplar and multiple exemplars conditions were each coded .5 and the control condition was coded -1. To examine whether the Obama exemplar and the multiple exemplars conditions varied from each other, the Obama exemplar condition was coded -1, the multiple exemplars conditions was coded 1, and the control condition was coded 0. We regressed self-stereotyping scores on the two

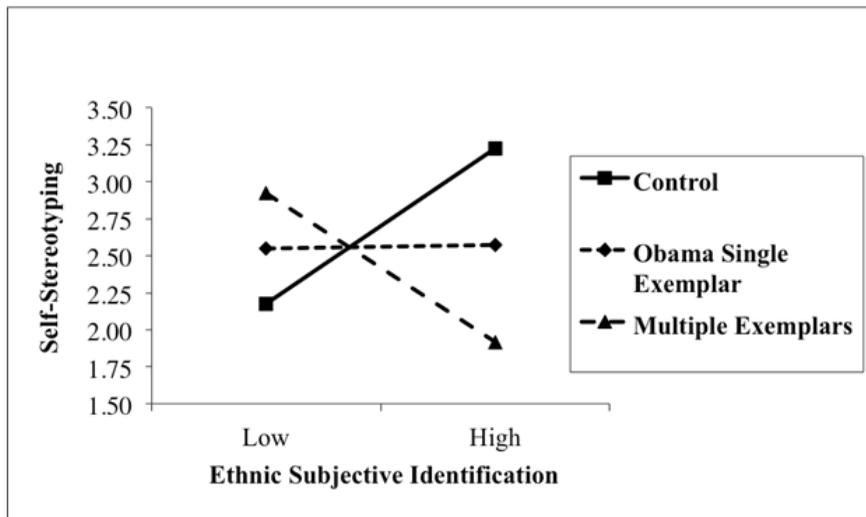


FIGURE 2. Main Experiment—African-American adults: Effect of ethnic-racial identification and exposure to Obama versus multiple exemplars on self-stereotyping. Higher scores on the y-axis indicate greater self-stereotyping.

sets of contrasts, ethnic-racial identification, and the two interactions (computed by multiplying ethnic-racial identification centered scores by each set of contrasts). Significant interactions were examined by conducting simple slopes analyses and estimating the values of self-stereotyping at 1 *SD* above and below the mean on the ethnic-racial identification measure across the three conditions (Aiken & West, 1991).

The regression analyses showed that participants in both exemplar conditions exhibited somewhat lower self-stereotyping compared to the control condition (Prediction 2), but this contrast term was not statistically significant ($\beta = -.20, p < .12$; also see General Discussion). However, the contrast term interacted with ethnic-racial identification (Prediction 3; $\beta = -.43, p < .01$), $\Delta F(2, 56) = 6.38, p < .01$ (see Figure 2). Among African-American participants in the control condition, strong ethnic-racial identification was associated with high levels of self-stereotyping ($\beta = .56, p < .05$), which is consistent with self-categorization theory (see introduction). However, strongly identified African-American participants exhibited lower levels of self-stereotyping after exposure to Obama (estimated $M = 2.57$) and to multiple exemplars (estimated $M = 1.92$), when compared to those in the control condition (estimated $M = 3.22$; $\beta = -.62, p < .01$). Among weakly identified participants, exemplar conditions did not affect self-stereotyping evaluations ($\beta = .22, ns$). Finally, the contrast term comparing the Obama exemplar condition to the multiple exemplars condition, and the interaction between this contrast term and ethnic-racial identification were not statistically significant ($.001 < \beta s < .08, ns$). In summary, these data suggest that exposure to either Obama as a single exemplar or multiple exemplars can similarly attenuate self-based stereotyped evaluations among strongly identified African-American adults.

GENERAL DISCUSSION

The present research tested if exposure to positive in-group exemplars benefits African Americans' self-concept. We sought to make salient the successes and achievements of Barack Obama as a single exemplar who defied the odds by becoming the first African American to be elected president of the United States (Pilot and Main Experiments), or of multiple African-American exemplars including Obama, Oprah Winfrey, and Martin Luther King, Jr. (Main Experiment). In the Pilot Experiment, African-American adolescents who read about Obama's exemplary life exhibited lower levels of stereotype-based self-evaluations, when compared to adolescents in a control condition. To our knowledge, the Pilot Experiment is the first research to demonstrate that the Obama effect extends to stereotyping the self, and that such an effect can emerge at a relatively early developmental stage ($M_{\text{age}} = 15.7$, age range: 14–17 years) when an individual's self and identity are still being shaped by his or her environment (Phinney, 1989, 1992).

The Main Experiment extended these results by examining if the effect of Obama as a single exemplar on self-stereotyping is similar to that of exposing African Americans to multiple in-group exemplars, and if these effects are contingent on the strength of African Americans' identification with their ethnic-racial group. While African Americans acknowledge their category membership in their ethnic-racial group, there are meaningful individual differences in the degree to which they consider their ethnic-racial group central and important to their self-concept (Luhtanen & Crocker, 1992; Phinney, 1989, 1992; Sellers et al., 1997, 1998). African Americans who possess a strong ethnic-racial identification should especially benefit from in-group exemplars—exposure to exemplars should attenuate mental associations between the self-concept and stereotypes. Consistent with this hypothesis, the Main Experiment demonstrated that in the absence of exposure to any African-American exemplars, strongly identified African-American adult participants exhibited relatively high levels of self-stereotyping. However, exposure to one or more successful in-group exemplars led strongly identified African Americans to exhibit lower levels of self-stereotyping. Finally, the self-concepts of weakly identified African Americans were unaffected by positive in-group exemplars. Collectively, the results of the present two experiments add to a growing body of literature on the social cognitive processes underlying in-group exemplars by demonstrating the conditions under which they can benefit individuals from stigmatized ethnic-racial groups (e.g., see Ong et al., this issue).

The present research may shed some light on the mixed evidence on the role of the Obama effect in buffering African Americans from stereotype threat effects (e.g., Aronson et al., 2009; Marx et al., 2009). As noted earlier, Marx et al. (2009) found that the performance gap between African-American and White-American participants in a stereotype threat situation was smaller when Obama's election success was salient, compared with when before he was elected. However, Aronson et al. (2009) found that the performance of stereotype-threatened African Americans (relative to White Americans) did not benefit from exposure to information about Obama (pictures and quotes) plus participants' own reflections of him

(e.g., “he is the ideal president”) compared to control conditions. Notwithstanding the methodological differences between the above studies (e.g., a controlled experiment in Aronson et al. vs. a quasi-experiment in Marx et al.) that might explain the mixed results (for discussions, see Aronson et al., 2009; Schmitt & Nosek, 2010), our Main Experiment suggests that an Obama effect on stereotype threat may depend on how strongly (vs. weakly) African Americans identify with their ethnic-racial group. The performance drop of stereotype-threatened African Americans may be alleviated by a single in-group exemplar such as President Obama but only for individuals who consider ethnicity to be a central and important part of their self-concept. Past studies were unable to test this prediction because they did not measure participants’ subjective ethnic-racial identification. If, as our research has shown, exposure to successful African Americans alleviates stereotype-consistent self-evaluations among highly identified African Americans, then such an effect could extend to stereotype-consistent behaviors such as academic performance in a domain in which African Americans are stereotyped to do poorly (cf. Shapiro & Neuberg, 2007). Consistent with this hypothesis, but in the domain of the gender stereotype that women perform poorly in math, Schmader (2002) found that stereotype threat affected female participants’ performance on a math test, but only if they strongly identified with their gender group. No effect emerged among weakly identified female participants or male participants in general.

IMPLICATIONS FOR LITERATURE ON ROLE MODELS

The present research may also shed some light on the social cognitive processes underlying the influence of role models in the life of an individual from a historically disadvantaged and stigmatized group. In the literature, the definition of a role model lacks consensus (just like that of a mentor, which overlaps to some extent with role model; Eby, Rhodes, & Allen, 2007). However, two main features of a role model are that she or he must be perceived as a primary source of influence within academic, social, career, and personal domains and that one’s relation to a role model can be formal (e.g., an interpersonal introduction and subsequent meeting) or informal (e.g., reading about a person via mass media); of note, a real interaction and relational emotional closeness are not prerequisites for an individual to serve as a role model. Based on this definition, role model studies have demonstrated that the real or imagined presence of a single role model or multiple role models can ameliorate stigmatized individuals’ self-perceptions and performance behaviors (Asgari, Dasgupta, & Gilbert-Cote, 2010; Lockwood, 2006; Marx & Goff, 2005; Marx & Roman, 2002; McGlone, Aronson, & Kobrynowicz, 2006; McIntyre, Paulson, & Lord, 2003; but see McIntyre et al., 2005).

Consistent with the above definition and research, the present research suggests that Obama (and similarly successful African Americans) may serve as a role model to fellow African Americans. It further suggests that a key ingredient in maximizing the benefits of a role model is the shared social identity between the perceiver and the role model, a hypothesis that is consistent with the role model

literature in psychology (Lockwood, 2006; Marx et al., 2009). The assumption here is that shared group membership enhances feelings of inspiration because perceivers' self-concept is inextricably linked to their in-group (i.e., perceivers identify strongly with their in-group). Indeed, this would be consistent with anecdotes asserting that African Americans see Obama as the "perfect role model" and an "inspiration" (Gomstyn, 2008; Murdoch, 2009).

LIMITATIONS AND FUTURE RESEARCH

Although the present data are consistent with the social cognition, social identity, and role model literatures, one limitation of the present research is the relatively small sample sizes across the experiments, which makes it difficult to draw strong conclusions from the data. One particular concern is that the main effect of exposing a single in-group exemplar (Obama) on self-stereotyping was inconsistent across the two experiments. Because the Pilot and Main Experiments had a similar Obama single exemplar condition (and control condition), we re-tested for an Obama effect on self-stereotyping by combining the data from both experiments and subjecting the self-stereotyping scores (standardized) to a contrast analysis. Consistent with an Obama effect, participants in the Obama single exemplar condition exhibited lower self-stereotyping than those in the control condition, $t(89) = 2.61, p < .05, d = .64$ (medium effect size). Furthermore, post-hoc analysis yielded power = .82, adequate statistical power. In summary, a mini meta-analysis of the two experiments suggests a meaningful Obama effect on African American's stigma-based social cognitive processes.

The present research tests the effect of in-group exemplars on *explicit* self-stereotyping, so it raises the question whether an in-group exemplars effect will similarly lower *implicit* self-stereotyping. We suspect that this hypothesis would be supported based on recent research on the role of associative versus propositional processes in changing attitudes (Dasgupta & Rivera, 2006, 2008; Gawronski & Bodenhausen, 2006). Most relevant to the present research, Dasgupta and Rivera (2008) suggest that one mechanism that drives changes in implicit attitudes involves variations in the accessibility of group-attribute associations because of exposure to group exemplars via mass media. Once learned, these automatic associations are activated in the presence of a relevant target person irrespective of their perceived "truth value" (i.e., whether or not perceivers consider these evaluations accurate). We suggest that just as short-term exposure to admired out-group members are likely to influence implicit out-group attitudes by tapping into this mechanism, frequent exposure to successful individuals from one's in-group might enhance the accessibility of associations between a stigmatized in-group and counter-stereotypical attributes, thereby producing lower implicit stereotype-based evaluations of the self. Our research further suggests that it is plausible that a single in-group exemplar as successful and admired as Obama may be effective in lowering implicit self-stereotyping. Future research would need to directly in-

investigate the effect of single and multiple exemplars on implicit self-stereotyping and its proposed underlying associative mechanism.

THE LEGACY OF BARACK OBAMA FOR SOCIAL COGNITION

The election of Barack Obama as the first African American to be president of the United States was a momentous and historical event. Media exposed the world to Obama, a member of a historically disadvantaged ethnic-racial group who is smart, ambitious, and successful. Because the United States constituency (including its majority, Whites) elected an individual who defied negative stereotypes, many pundits concluded that the United States had begun to move from its atrocious history of slavery to a new “post-racial” era (King, 2012). Indeed, social cognition scientists adopted the phrase “Obama effect” to classify the beneficial effects that a single significant, positive African-American exemplar can have on person perception (e.g., Columb & Plant, 2011; Plant et al., 2009). The present research adds to the psychological legacy of Obama by suggesting that the Obama effect extends to fellow African Americans’ social cognition about themselves—namely, the benefit of briefly reminding African Americans of his successes (and of other successful African Americans like Obama) on their self-perception and self-concept (also see Ong et al., this issue). Furthermore, we highlight subjective identification with one’s ethnic-racial group as an important ingredient to maximizing Obama’s impact on social cognition.

As we come to the end of Obama’s presidency, one might wonder about its potential long-term implications. The pervasiveness of prejudice and discrimination has spurred a line of intervention research on reducing negative intergroup attitudes (Paluck & Green, 2009). It is plausible that part of Obama’s legacy will partly be based on the notion that thoughts of him—the challenges of his childhood, his experiences with racism, and, in spite of these adversities, his astounding achievements—can undermine widespread prejudice and discrimination. Moreover, Obama’s historical success may prove over time to chronically inspire African Americans to look to their own group and its members when needing a buffer against the impact of experiencing institutional, intergroup, and interpersonal prejudice and discrimination. In this way, interventions to reduce stigma that include structural changes may also consider the powerful impact of the mere presence of fellow group members who are inspirational.

We conclude this article with the voice of a schoolteacher that foretells what might be the historical and psychological legacy of Obama. From Alcindor (2016):

...after Mr. Obama’s election, a woman who had been teaching for more than two decades in Atlanta [stated] that her black students had started saying, for the first time, that they wanted to be president.

“That was the first time that any class had been able to think about that, that they wanted to be president.”

APPENDIX A

PILOT EXPERIMENT: BIOGRAPHY OF OBAMA AS A SINGLE AFRICAN-AMERICAN EXEMPLAR

In November 2008, Barack Obama was elected the first African-American president of the United States of America. Obama was one of the youngest elected presidents. “Change” was his campaign theme, which was a message that deeply touched the country during a time of bad wars in Iraq and Afghanistan and the worst economic period since the Great Depression. Even the politicians who ran against Obama stated that he had run an amazing campaign.

In his *New York Times* best-selling book, *Dreams From My Father*, Obama writes honestly and openly about his life as a young man. These experiences greatly shaped his adult life successes. He received a college degree from Columbia University and a law degree from Harvard Law School, where he became the first African-American editor of the *Harvard Law Review*, the most influential law journal in the country. In the summer 1989, he met and fell in love with another young Harvard Law graduate, Michelle Robinson or, as she is now known, First Lady Michelle Obama. The couple has two daughters, Malia and Sasha.

Before becoming the president, Obama was a lawyer in Chicago, a professor of law at the prestigious and famous University of Chicago Law School, and served as a state senator of Illinois. In 2004, he was honored with being selected to give a keynote speech at the Democratic convention. There he “set the place on fire” with his youthful energy and powerful speech. In January 2005, Obama was elected as the United States senator from Illinois. Senator Obama helped create laws aimed at fighting crime, addressing climate change, protecting against terrorism, and improving care for U.S. military officers returning from Iraq and Afghanistan.

In just his first term as United States senator, Obama resigned after being elected U.S. president in 2008. Four years later, in November 2012, Obama was re-elected president. Across his first and second terms, President Obama has had many successes, including:

- The number of Americans who received health insurance increased by approximately 10–12 million.
- The economy has gained five times more jobs under President Obama than it did under former President George W. Bush, and unemployment is at its lowest since 2007.
- The stock market has also grown during Obama’s presidency, and wind and solar generated electricity is up 248% since 2008.

On the night of his first election, Obama stated:

*"It's been a long time coming, but tonight,
because of what we did on this date in this
election at this defining moment,
change has come to America."*

There is no doubt that Obama's presidency has brought positive change to this country in many, many ways.

APPENDIX B

Pilot and Main Experiments: Sample Biographies of Flowers in the Control Condition

Lily of the Valley. The Lily of the Valley has broad, spear-like leaves and fragrant little white bell-shaped flowers. While it is a popular garden flower, it has seen increasing popularity for use in wedding bouquets. Also, the lily of the valley is grown as a plant in the Appalachian Mountains. The flower was long used for medicine for heart disorders and it is a symbol of humbleness in religious paintings.

Lily. The lily is a trumpet-shaped flower that grows to a 6-inch diameter. Stems grow to 3 feet long, carrying four to eight blossoms. Because blooms open at various times, most lilies live one to two weeks. Colors include white, yellow, pink, red, and orange; many have a deeper color (freckles) on the inner petal. Because the lily is known as a symbol of purity, it is a popular flower used in wedding bouquets throughout the world.

Rose. With almost 120 varieties available, roses are a classic favorite. Roses span the color spectrum with varieties available in all shades of red, pink, purple, orange, and white. Roses are especially abundant in Eastern Asia, Europe, and North America. Interestingly, many roses have thorns on their stems, which may cause discomfort to those individuals who believe that the rose is the ultimate symbol of love.

Sunflower. The unique sunflower we all recognize has an open flower face that averages 5–6 inches in diameter and a center that takes up about 60 percent of the flower. The sunflower has a distinctly American flavor, and understandably so. The wild sunflower probably originated in North America and its image is part of our country's early history. The American Indians used sunflowers as a source of food by grinding them into flour.

APPENDIX C

Main Experiment: Sample Biographies of Multiple African-American Exemplars

Barack Obama. In 2008, Barack Obama became the first African American to be elected president of the United States. His campaign theme was "change." It was a message with deep significance for the U.S.A. because it was trapped in unpopular wars in Iraq and Afghanistan, and was in the worst economic times since

the Great Depression. Obama graduated from Columbia University and Harvard Law School, where he became the first African-American editor of the *Harvard Law Review*.

Oprah Winfrey. Oprah Winfrey became famous because of her talk show, *The Oprah Winfrey Show*. It remains the highest-rated talk show and has earned multiple Emmy Awards. Winfrey received the "Broadcaster of the Year" Award in 1988, the youngest person ever to receive the honor. She is an Academy Award nominated actress and a magazine publisher. She is considered the most influential woman in the world, the richest African American, and was the world's only Black billionaire.

Martin Luther King, Jr. Martin Luther King, Jr. was an African-American clergyman and civil rights activist. His main legacy was to secure progress on civil rights and is frequently referred to as a human rights icon. In 1963, Dr. King led the March on Washington, where he delivered his famous "I have a dream" speech. At 35, he was the youngest man to receive the Nobel Peace Prize. He was named "Man of the Year" by *Time* magazine.

Venus Williams. Venus Williams was the first African-American female tennis player to reach world number 1. In 2000 at Wimbledon, the most prestigious tennis tournament in the world, she became the first Black female champion. Since, she has won the Wimbledon title five times. Williams has won over 65 titles, including 16 Grand Slams and four Olympic gold medals. In 2005, Williams successfully fought for female players to be paid as much as males at Wimbledon.

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