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## **Testing the Effectiveness of Data- and Narrative-Based Messages in Mitigating Racial Bias in Size and Threat Judgments**

Alexandra Brosseau

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### **Abstract**

Racial bias in threat perception has long been a phenomenon of concern within the social sciences, and more recently, researchers have begun to focus on the role that biased judgment of physical size may impact such perceptions. In the wake of highly publicized police killings of unarmed Black civilians, there have been increased calls for creating systemic and cultural reform to address the disproportionate violence inflicted upon the Black population.

Simultaneously, political conservatives have mounted increasing resistance to discussions of racial equality and have recently begun enacting laws that would limit or prohibit teaching and workplace discussions on the topic. This study sought to test how effectively racial bias in size perception could be reduced via three different kinds of messages: data-based, narrative-based, and a combination of the two. Further, it also sought to determine if political ideology could moderate the strength of these messages. It was found that compared to control, all three message types were successful in reducing size bias, but not threat bias. The data and combined messages were significantly more effective at reducing size bias than the narrative message, but the effect size of the difference was quite small. Although political ideology did not moderate the effects of any of the messages, it was found that more conservative participants were more likely to exhibit bias in estimates of capability of causing harm regardless of the message type. These findings are largely in line with those in the broader body of research and offer insights into how racial bias in size and threat perception may be mitigated via informational interventions.

MONTCLAIR STATE UNIVERSITY

**Testing the Effectiveness of Data- and Narrative-Based Messages in Mitigating Racial Bias  
in Size and Threat Judgements**

by

Alexandra Brosseau

A Master's Thesis Submitted to the Faculty of

Montclair State University

In Partial Fulfillment of the Requirements

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College of Humanities and Social Sciences

Thesis Committee:



Department of Psychology

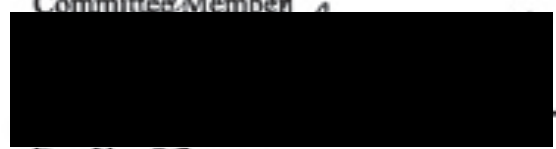
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TESTING THE EFFECTIVENESS OF DATA- AND NARRATIVE-BASED MESSAGES  
IN MITIGATING RACIAL BIAS IN SIZE AND THREAT JUDGEMENTS.

A THESIS

Submitted in partial fulfillment of the requirements

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by

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Montclair, NJ

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### Testing the Effectiveness of Data- and Narrative-Based Messages in Mitigating Racial Bias in Size and Threat Judgements.

Even though Black people make up 13% of the United States' population, they accounted for 27% of the 1,051 police killings in the last year (Mapping Police Violence, 2021). Over the summer of 2020, an estimated 15-26 million people joined the Black Lives Matter (BLM) movement to demand justice for the Black lives lost and advocate for criminal justice reform (Buchanan et al., 2020). Despite becoming one of the largest social movements in history and consistent evidence of racial bias in police use of force, there is significant controversy and debate surrounding the existence and severity of racial bias in the criminal justice system and how the police respond to and treat civilians. National support for BLM increased to 67% by June 2020 but dropped to 55% by September 2020 (Pew Research, 2020). If only public opinion was considered, racism in America would not appear to be a severe social issue. However, substantial data from both experimental and real-world contexts demonstrate a strong prevalence of systemic racial bias in the United States today. Further, they illustrate a persistent trend of White people misjudging or outright denying the severity of current systemic and social inequalities (Kraus et al., 2017). This study seeks to explore ways by which these misperceptions – specifically in the realm of racial bias in size perception – can be adjusted to more closely resemble reality via informational messages.

#### **Real-World Data**

The body of evidence derived from real-world data depicts a strong and consistent presence of racial bias across numerous systems and institutions in charge of policing and depicting Black people. The rate at which police choose to stop Black people and the outcomes of those stops are some of the clearest examples. Hester and Gray (2018) reviewed information from over 1 million stop-and-frisk encounters conducted by the New York City Police



Department to assess if Black men were more likely to be stopped by police in comparison to their White counterparts. The authors found that Black men were 4.5 to 6.2 times more likely to be stopped by police than White men of similar stature, with the chances increasing with the individual's height (Hester & Gray, 2018).

Case studies of different police precincts have shown similar patterns of racial bias. In an analysis of police stops, searches, and handcuffing made by Oakland Police in California, Hetey et al. (2016) found substantial racial disparities. Even after controlling for officer and suspect demographics and neighborhood crime rates, OPD targeted significantly more Black suspects than Whites. Over the course of one year, only 20% of OPD officers had stopped at least one White person, while 96% of them had stopped at least one Black person. In scenarios where the suspect's race could be identified, officers were far more likely to stop a Black person than a White person in comparison to times where their race was not apparent. Excluding arrest scenarios, only 26% of White suspects were handcuffed during the police stop in comparison to 72% of Black suspects. And finally, in analyses of audio from body cam recordings, officers used much more severe language (i.e. mentioning arrest, parole, probation) and offered far less justification for the stop to the suspect when the suspect was Black (Hetey et al, 2016). Similar racial disparities have also been found in traffic stops across the nation. A review of data from 20 million records of traffic stops showed that Black drivers had a 63% higher chance of being stopped by police than White drivers and were 115% more likely to be searched during a stop (Epp et al., 2018).

The outcome of police stops and encounters is where some of the biggest disparities are visible. Edwards et al. (2019) conducted a mass review of police use of force records to investigate how race/ethnicity, age, and sex play a role in the likelihood that a person will be

killed by police. The authors found that Black men had the highest risk levels, wherein 1 in every 1,000 Black men can expect to be killed by a police officer. Additionally, they found that police violence is a leading cause of death for young men of color (Edwards et al., 2019). Additional studies have echoed these findings and demonstrated that Black people are 3.23 times more likely to be killed by police than White people (Schwartz & Jahn, 2020). Children are not exempt from racial bias in police conduct. Data compiled by the Washington DC Children's National Hospital showed that Black children are six times more likely and Hispanic children were three times more likely to be killed by police than White children (Badolato, 2020). The consistency of racial bias found across all of this real-world data makes it clear that instances of police violence and killings of Black people are not outliers on an otherwise equal distribution. Rather, this is a consistent and severe bias ingrained in the ways we police and govern.

### **Experimental Evidence**

In addition to the analyses of real-world data, many experimental studies have been conducted to explore how racial bias interacts with our perceptions of others and social issues. Size bias is one such area of research and is the main focus of this study. Wilson, et al. (2017) conducted a series of studies that asked participants to view images of Black and White men and assess their height, weight, strength, and capability of causing harm. Although the targets were of similar height and stature across the image set, participants judged Black targets to be taller, heavier, and stronger than White men. In an additional line of questioning, participants also rated the Black targets to be more capable of harm than their White counterparts and believed police use of force to be more justified against Black targets versus White targets (Wilson et al, 2017). Their findings on the justifiability of police use of force have been replicated in similar experiments. In a study on explicit prejudice, Cooley et al. (2018) gave participants summaries

of hypothetical police encounters where a Black suspect was killed by a White officer. The authors found a significant negative correlation between participants' explicit racial prejudice and the amount of responsibility and guilt assigned to the officer (Cooley et al., 2018).

Racial bias in policing has been found to not only affect adults but also children. Goff et al. (2014) sought to investigate how dehumanization correlates with judgments of and actions taken against Black children. The authors reviewed the personnel records of 176 police officers from urban areas for instances of use of force against Black youth and had those same officers complete numerous scales for explicit prejudice and dehumanization. They found that officers who more frequently dehumanized Black people were more likely to use force against a Black child than officers who did not dehumanize Black people. In additional studies conducted on mostly White female undergraduate students, Black children as young as 10 were perceived as older, less innocent, and more culpable for hypothetical crimes than White children of the same age (Goff et al, 2014). These experimental studies elucidate the racial disparities in police stops and killings seen in the real-world data and make it clear that racial bias is not a theoretical concept or a thing of the past; it is a pattern of behaviors and tendencies embedded in our culture and systems of governance.

### **Public Opinion**

With all of these findings from both experimental and real-world settings, it would be logical to assume that the debate about whether or not racial bias plays a role in the disproportionate policing and killing of Black people would be less controversial. That is not the reality we see in the United States today. Public opinion on the state of racial equality is split nearly in half, with 49% of respondents saying little to no work needs to be done to ensure equality for all (Pew Research, 2021). This dramatic disconnect between the statistical realities

and public perceptions of the existence and severity of racial bias in policing presents a unique challenge to social scientists and racial justice advocates, and there are numerous systemic and cultural barriers that make it even harder. For example, media platforms have a long history of racial bias, and broadcast news has long been found to disproportionately depict Black people as lazy, criminal, impoverished, and dangerous (Brown-Iannuzzi et al., 2017; *The Opportunity Agenda*, 2020).

Additionally, news representation of racial justice movements has historically been disproportionately negative; reports tend to heavily emphasize instances of rioting, violence, and property destruction and tend to cast the messages of protesters in a negative light, effectively delegitimizing and negating the movement's efforts (Kilgo, 2020; Leopold & Bell, 2020; & McLeod, 2007). This was most recently visible during the summer 2020 BLM protests; news reports largely focused on protester-driven violence and property destruction (Kilgo, 2021; Lahut, 2020, Signal AI, 2020), despite the fact that over 93% of the BLM protests of summer 2020 were peaceful and without incident (Kishi, 2020). This is especially alarming when considering the rate at which police used severe levels of violence against protesters. Bellingcat and Forensic Architecture (2020) have documented and verified videos of over 1,000 instances of police brutality against civilians, journalists, and medics over the course of the summer protests. This number is likely significantly undercounted as only verifiable videos have been included (Thomas et al., 2020). This is nearly twice the number of instances in which civilians engaged in violence at a protest (Kishi, 2020). In fact, there is little evidence that BLM demonstrators themselves initiated instances of violence and rioting (Kishi, 2020). Knowing all of this, it can be argued that the challenge of communicating the realities of racial bias to the public is not that of needing to sort the signal from the noise. Rather, in some ways, the signal

and the noise are one, and it has a real effect on social perceptions of Black people; consumption of broadcast news has been associated with higher levels of explicit racial bias and stereotype endorsement (Dixon, 2008). This implies an even greater need to determine what signals will be most effective at undoing the negative social narratives that permeate our media and social narratives.

With such stark symptoms of bias in the way Black people are represented and discussed in the media, it is obvious that creating counter-narratives is a difficult task in and of itself. In addition to media bias, social scientists and activists must also combat the ingrained beliefs and biases their audiences have that further inhibit the effectiveness of public messaging about racial bias. One of the strongest blockades to public recognition of racial inequality is the belief that racism is a thing of the past, which in turn causes misperceptions about the amount of progress toward equality that has been made over time, a pattern that is most common among Whites (DeBell, 2017; Hamilton et al., 2015; Kraus et al., 2017). Past work has found that this sort of framing encourages complacency about the need for continued efforts toward racial equality (Eibach & Purdie-Vaughns, 2011). The narrative of racism as a past issue has a substantial effect on how the state of equality today is perceived. In a study of public perceptions of the racial wealth gap and how it has changed over time, Kraus et al. (2019) found that on average, participants underestimated the wealth gap in 1963 by 40 percentage points and the gap in 2016 by 80 percentage points. The authors also found that participants who reported stronger beliefs in a just world over-estimated the progress made in closing the wealth gap, and these people were more likely to be White than Black (Kraus et al, 2019).

Onyeador et al. (2021) performed a partial replication of this study and also sought to determine if reminders about the persistence of racism in the United States would lead

participants to perceive less progress toward economic equality between White and Black Americans. Their study confirmed their hypothesis; in comparison to control, participants who read about persistent racism more accurately estimated less progress toward closing the income and wealth equality gap over time. However, their accuracy was not because their estimates of current income equality adjusted to show less progress over time. Rather, it was because they estimated past wealth and income inequality to be less severe. The authors performed a replication study to make sure these surprising results were consistent, and the replication study showed the same pattern. The authors posit that the logic behind this reimagining of past inequality is that if inequality was truly that bad, then more progress would have been made by now (Onyeador et al, 2021). This study is a strong example of some of the ways that racial inequality is glazed over by outgroup members. In tandem with the misperceptions of progress toward racial economic equality, Whites' perceived reasons for the sustained inequalities are often skewed to favor behavioral failures committed by Black people as opposed to systemic disadvantages (Darity et al., 2018). All of these can stack together to make a seemingly solid basis to have the opinion that racial inequality is not an issue that needs to be addressed today.

### **Political Shifts**

An additional block to communicating the reality of racism is the rapid increase in racist rhetoric and political extremism that has occurred in the United States in recent years. Although both conservative and liberal sides of the spectrum have been found to exhibit racist behaviors and beliefs (Burke, 2017; Dovidio et al., 2016), there has been a stark increase of support for racist sentiments and behaviors in conservative groups. The 2015 presidential campaign of former President Donald Trump was noted by political scholars and social scientists to have overt and colorblind racist rhetoric that continued through his presidential term (Dost et al.,

2019; Kelly, 2020; Konrad, 2018; McHendry, 2018; Williamson & Gelfand, 2019). Following the rise of racist sentiments in American politics, both conservatives and liberals reported perceiving changes in social norms that allowed for the expression of prejudicial beliefs against marginalized groups to be more socially accepted (Crandall et al., 2018). Out of this new social climate that made racism more permissible came an increase in extremist conservative White ethnonationalist “Alt-Right” groups (Southern Poverty Law Center, 2021) and increases in hate crimes for the first time in recent history, with the highest concentration occurring in counties where Trump held rallies (Edwards & Rushing, 2018). That rate of increase has held steady and reached a new decade high in 2020, with the largest increase being in anti-Black violence (Buchholz, 2021). Though White ethnonationalism and explicitly racist beliefs are not intrinsic to conservatism, the broader Republican party often expresses lower rates of support for racial justice, institutional and social reform, and education on the history of slavery (Doherty et al, 2021).

The latter of these has become a prominent target of conservative political campaigns and legislative efforts in recent times. Conservative opposition to Black Lives Matter rose to 80% after the protests of the summer of 2020 and holds at a steady 86% today (Linzer et al, 2022). In addition to general disapproval of the protests themselves, conservative backlash against discussions of racial inequality in past and present contexts has continued to increase over the last two years. In September 2020, former President Donald Trump signed an executive order banning federal contractors from performing diversity training (Cineas, 2020). Although the order was revoked by President Joe Biden once he took office (Schwartz, 2022), the message behind the order has taken significant hold in the Republican party, and education on racism – especially via teaching critical race theory– has become a primary legislative target. As of March

2022, 42 states have proposed bills that limit how teachers can discuss sexism and racism or restrict the teaching of critical race theory; out of these, 15 states have successfully passed these bills through the legislature (Schwartz, 2022). Similar bills are being passed to limit workplace education and discussion of racism and identity-based discrimination. For example, Florida's Senate Bill 148 –commonly referred to as the “Stop WOKE Act” – censors dialogue about systemic racism and gender and race discrimination. The goal of the bill is to make sure that individuals aren't made to “feel discomfort, guilt, anguish, or any other form of psychological distress on account of his or her race, color, sex, or national origin” (Alfonseca, 2022). The bill will also allow employees to file discrimination claims against employers who hold such trainings or discussions (Luneau, 2022). These legislative efforts have alarmed educators and social scientists who have expressed concern that these laws will further existing disparities in how racism is taught in the United States. In a study conducted by the Southern Poverty Law Center (2018), the majority of popular history textbooks fail to cover slavery and enslaved peoples adequately. Further, only 8% of high school seniors surveyed were aware that slavery was the central cause of the Civil War (Southern Poverty Law Center, 2018). Beyond not knowing key elements of history, a lack of knowledge about racial discrimination has effects on the way racial bias is perceived in the present. Education has demonstrated an association with lower rates of negative stereotype endorsement, higher rates of awareness of racial discrimination, and more favorable attitudes toward race-targeted job training (Wodtke, 2014). Knowing this, the task of finding ways to communicate the realities of racial bias to those who are less likely to listen is as critical as ever.



### **Mitigation Strategies**

Despite the misconceptions and political ideologies that make accepting information about the severity of racism today more difficult, social scientists have made extensive efforts to determine what kinds of messages are most effective at overcoming these barriers. One such way of circumventing pre-existing beliefs is the alteration of an issue's framing. Eibach and Purdie-Vaughns (2011) found that framing historic civil rights accomplishments as examples of America's progress toward equality encouraged a sense of complacency about the necessity of continuing such efforts. However, framing the messages as examples of America's commitment toward equality led to participants being more supportive of egalitarian policies and legislation (Eibach and Purdie-Vaughns, 2011). Messages centered on educating receivers on the severity of racial inequality have also demonstrated effectiveness. In a study involving both liberals and conservatives, Cooley et al. (2019) gave a sample of non-Black participants summaries of court cases in which a Black suspect in a house robbery was shot and killed by a White police officer. Half of the participants were also given a brief lesson on White privilege and systemic racism. They found that on average, liberals perceived greater levels of racism and attributed higher amounts of guilt to the White officer who killed a Black suspect in the court cases than their conservative counterparts did. However, they found that receiving the White privilege lesson increased perceived racism regardless of participants' political leaning (Cooley et al., 2019).

In addition to educational messages, current research has also demonstrated that emphasizing racial inequality in the context of the present day can be effective in making perceptions of inequality more accurate. In a study of misconceptions about the Black-White wealth gap, Callaghan et al. (2021) sought to test three interventions on how effective they were at 1) making participants' perceptions more closely aligned with the current wealth gap, and 2)

seeing if those perceptual changes could be sustained over time. A narrative-centered intervention discussed wealth inequality in housing, healthcare, and reduced economic mobility for Black families. A data-centered intervention focused on wealth inequality through a structural lens that described gaps in healthcare, education, and wealth using real-world data. The third intervention was a hybrid of the narrative- and data-centered messages. The authors found that although participants still assessed the wealth gap to be smaller than it is today, the interventions that included data were most effective in increasing the accuracy of participants' assessments of the current racial wealth gap. Further, the increased accuracy persisted over an 18-month period (Callaghan et al, 2021). There are a few reasons that could explain why data may be better able to adjust perceptions of inequality. First, real-world data has told a consistent story over time regarding the state of racial inequality, which gives it a sense of credibility that could be more difficult to establish in a narrative based on individual experiences. Second, given what we know about Whites' tendencies to believe that economic disadvantages are due to behavioral failures on the part of Black people (Darity et al, 2018), data may be especially able to combat these beliefs by illustrating the structural inequalities Black people face. And third, it has been argued that a core reason for the misperception of wealth inequality is ignorance of the pervasive nature of racial inequality in America (Callaghan et al, 2021; Kraus et al, 2017; Mueller, 2020; Richeson, 2020). Factual data could directly address these knowledge gaps and in turn, adjust perceivers' opinions to favor systemic reasons for inequality. Exploring the effectiveness of all of these anti-bias education tactics is critical to improving national awareness of social and institutional racism, and in turn, increasing the chance that change will be made.

### **The Present Research**

Thus far, there have been no similar efforts to test the efficacy of different types of messages in reducing racial bias in size perception. Unpublished data (Brosseau et al in prep) have shown that simple explicit messages have some effectiveness in reducing size bias, but the bias is not entirely eliminated. Further, it is unclear as to whether or not a certain type of message would be more effective than another. Additional work is necessary to explore these dynamics. The goal of the present work is to explore the efficacy of different message styles in reducing racial bias in height and threat perceptions of Black versus White people. The study seeks to test the following hypotheses:

**H1:** Data-based and hybrid-type passages describing the existing research that illustrates the reality of racial bias in size perception will be more effective than the narrative-based message in decreasing participants' own bias in size and harm judgments of target images.

**H2:** The strength of the messages in reducing participants' size bias will be moderated by their political ideology, such that more conservative participants will be less swayed by all types of messages.

### **Method**

#### **Participants**

Based on previous unpublished studies from our lab in which instructions were found to reduce bias in perceptions of both height and harm capability, 448 non-Black participants were recruited using the online surveying system Prolific. In accordance with pre-registered recruitment plans (for details, see <https://osf.io/nsrcv>), participants who failed to accurately respond to an embedded attention check question ( $n = 2$ ) and participants who identified

themselves as Black ( $n = 8$ ) were excluded from the analyses. An unforeseen error occurred in which some participants ( $n = 34$ ) did not respond to the question that asked them to confirm that they had read the anti-bias instructions. Because there was no other way to determine whether or not they had read the instructions, it was decided that they would also be excluded from the analyses. This left 400 participants (257 women, 133 men, 7 gender non-conforming or non-binary, 1 unspecified;  $M$  age = 40.3,  $SD = 14.5$ ; see Appendix A for additional demographics) to be included in the main analyses.

After primary data collection, it was determined that it would be helpful in ascertaining the efficacy of the instructions by comparing the three conditions to a control group. A separate control sample of 150 non-Black participants was recruited four days after the first recruitment period. Participants performed the same tasks as the first batch of participants but received no anti-bias messages or instructions. These participants were added in order to confirm that instructions reduced size bias relative to a no-instructions control. The same exclusion criteria were used with this group, with participants who identified themselves as Black ( $n = 1$ ) were excluded. An additional participant who did not complete the majority of the included measures was also excluded. In total, the control group was composed of 148 participants (102 women, 45 men, 1 unspecified;  $M$  age = 34.9,  $SD = 12.9$ ; see Appendix A for additional demographics). Primary analyses included only the participants from the main study but preliminary analyses including control participants are reported.

## **Materials**

### ***Instruction Manipulations***

This study sought to compare the effectiveness of three interventions that used narrative- or data-based messages about the disparities between Black and White height perceptions.

In the narrative condition, participants read a paragraph describing the killing of Dontre Hamilton, a 31-year-old Black man who was shot by a White police officer during a suspicious persons check (Associated Press, 2015). The paragraph highlighted that the officer described Hamilton as large and threatening despite his height only being 5'7" in order to make the issue of size bias salient. In the data condition, respondents were informed about existing data from prior studies that show on average, perceivers judge Black men to be larger than their White counterparts. Finally, in the hybrid condition, participants read a pared-down version of the narrative condition and the data that explained racial bias in size perception (for full instruction text, see Appendix B).

### ***Stimuli***

The primary measure of how messages affect participants' size bias was a target assessment task created by Wilson, Hugenberg, and Rule (2017) that has been used in previous size bias studies (Brosseau et al in prep; Hester & Gray, 2018; Wilson et al, 2017). The task consists of 40 images of Black and White male faces (20 of each) shown one at a time. Targets in both categories were matched in stature to ensure that any difference in estimates represented an actual bias. For each target, participants estimated their height using a slider scale that could be moved in one-inch increments from 60 inches (5 feet 0 inches) to 82 inches (6 feet 10 inches). They also rated each target's capability of causing harm using a 7-point scale wherein 1 is "not at all capable" and 7 is "very capable."

### ***Scales for Beliefs on Individual Differences***

In addition to the target assessment task, participants completed a series of measures of racial bias: the Belief about Black Threat (BaBt) scale (Hester & Gray, 2018) and the Internal and External Motivation to Respond Without Prejudice (IMS and EMS) scales (Plant & Devine,

1998). The IMS and EMS scales are two subscales common to racial bias research that were developed by Plant & Devine (1998), wherein each are composed of five statements to which respondents indicate their level of agreement using a slider that ranges from 1 (strongly disagree) to 9 (strongly agree). The EMS scale includes statements such as “I try to hide any negative thoughts about Black people in order to avoid negative reactions from others,” whereas the IMS scale includes statements such as “I am personally motivated by my beliefs to be non-prejudiced toward Black people” (Plant & Devine, 1998). The BaBT scale developed by Hester and Gray (2018) is a 4-item measure in which participants use a 7-point scale to rate how violent or nonviolent they believe White, Black, and Hispanic people to be (Hester & Gray, 2018). Beyond the established measures of racial beliefs and prejudices, participants’ general political affiliation was measured using a 7-point scale utilized by Cooley et al (2019), wherein 1 is “strongly liberal” and 7 is “strongly conservative” (Cooley et al, 2019). Past studies on perceptions of racial equality have found that political leaning can correlate with an individual’s willingness to accept information about racial inequality (Cooley et al, 2019). This measure was used to determine if acceptance of messages about racial bias is dependent on whether or not a person’s political beliefs support the idea of racial justice. Finally, participants completed a set of demographic questions including gender, race, and age.

### **Procedure**

Participants were recruited online via Prolific. Upon giving informed consent to take part in the study, they were redirected to a Qualtrics survey that contained all study measures and materials. They were shown the instructions manipulation before proceeding to the height estimates of the Black and White targets, followed by the harm estimates in a separate block.

Finally, they completed the various scales for beliefs and motivations, as well as demographic information. Upon completion, they were directed to a debriefing page.

## Results

First, descriptive statistics were calculated for all measures. These statistics are reported below by condition for the main dependent variables. For individual differences on self-report measures, they are reported here. Participants were slightly above the midpoint of 4 on political ideology ( $M = 4.81$ ,  $SD = 1.86$ ),  $t(395) = 8.82$ ,  $p < .001$ , indicating that they were somewhat liberal. They were also well above the midpoint of 5 on IMS ( $M = 7.53$ ,  $SD = 1.76$ ),  $t(399) = 28.75$ ,  $p < .001$ , indicating higher levels of internal motivation to respond without prejudice. They were slightly below the midpoint of 5 on EMS, ( $M = 4.29$ ,  $SD = 2.31$ ),  $t(399) = -6.12$ ,  $p < .001$ , indicating marginally lower levels of external motivation to respond without prejudice. Finally, for BaBT, they were slightly below the midpoint of 0, ( $M = -.09$ ,  $SD = 1.37$ ),  $t(399) = -1.28$ ,  $p < .001$ , indicating a slight tendency to rate Black people as less threatening than White people.

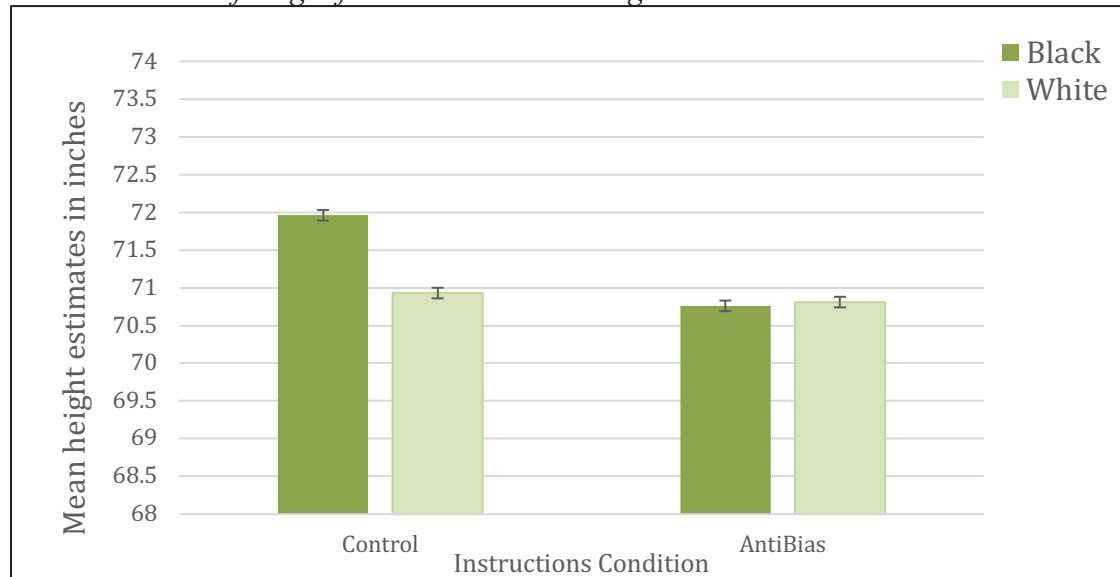
### *Preliminary Analyses with Control Condition*

All hypotheses and planned analyses were pre-registered to the Open Science Framework previous to beginning the data collection process (for details, see <https://osf.io/nsrcv>). Before investigating the primary hypotheses regarding whether messages that included data about size bias were more effective than the narrative-only message, it was important to test whether the instructions reduced bias relative to control. This was not originally a component of the pre-registered plan, this analysis was considered preliminary. To that end, a 2 (Target Race: Black vs. White)  $\times$  2 (Instructions: Control vs. Anti-bias) ANOVA with repeated measures on the first factor was performed to determine whether participants who were instructed to avoid size bias

did so relative to control. Here, all anti-bias conditions were collapsed into one. First, there was a main effect of target race,  $F(1,547) = 110.65, p < .001$ . As expected, there was a significant interaction between target race and instructions,  $F(1,547) = 18.84, p < 0.001, \eta^2 = 0.03$  for height estimates (see Figure 1). In contrast, there was no significant Target Race  $\times$  Instructions condition interaction  $F(1,547) = 0.006, p = 0.58$  for harm judgments, suggesting that the anti-bias instructions overall may not have been effective in reducing harm bias.

**Figure 1.**

*Mean estimates of height for Black vs. White targets.*



*Note.* Error bars represent a +/- 1 standard error.

### ***Primary Analyses***

To test the primary hypothesis that data-containing messages will be more effective at reducing participants' size and harm biases than the narrative-only messages, 2 (target race: Black vs. White)  $\times$  3 (instructions condition: Data vs. Narrative vs. Combined) ANOVAs with repeated measures on the first factor were performed separately for height and harm estimates.

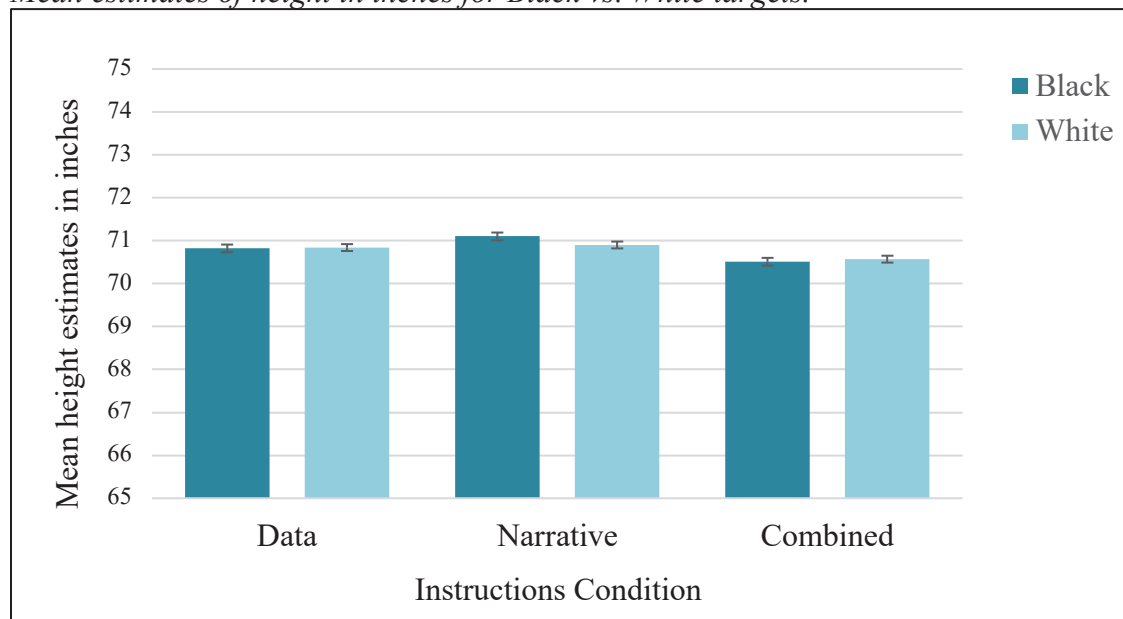


These analyses were all performed without the control condition, and as such, only included participants who received some kind of anti-bias instruction.

**Height Estimates.** First, confirming the preliminary analysis above, there was no main effect of target race,  $F(1, 397) = 1.23, p = .27, \eta^2 < .001$ . This null effect suggests that participants receiving any type of anti-bias instruction tended not to show bias in height estimates. Next, there was no main effect of instruction condition on overall height estimates,  $F(2, 397) = 2.52, p = .08, \eta^2 = .011$ . However, a significant interaction did emerge between target race and instruction condition,  $F(2, 397) = 3.25, p = .04, \eta^2 = .002$ . This interaction was further probed with planned comparisons within each instructions condition. Confirming H1, participants in the narrative condition estimated Black men ( $M = 71.1, SD = 1.75$ ) to be taller than White men ( $M = 70.85, SD = 1.46$ ),  $t(133) = 2.42, p = 0.02$ , Cohen's  $d = .21$ , but participants in the data and hybrid conditions did not,  $ps > .50$  (see Figure 2).

**Figure 2.**

*Mean estimates of height in inches for Black vs. White targets.*



*Note.* Error bars represent a +/- 1 standard error.

Finally, it is worth noting that although participants in the narrative condition did show significant height bias, a 2-way ANOVA comparing these participants to the control sample showed that this tendency was substantially reduced relative to control participants,  $F(1, 280) = 32.02, p < .001, \eta^2 = .103$ . As such, even the instructions that were least effective relative to control did clearly reduce height bias.

**Harm Estimates.** First, there was a main effect of target race,  $F(1,397) = 4.88, p < 0.001, \eta^2 = 0.021$ . This suggests that participants across the three conditions did show bias in their harm estimates. Bias was seen in the data condition's average estimates for Black ( $M = 4.07, SD = 1.52$ ) and White ( $M = 3.92, SD = 1.12$ ) targets, the narrative condition's estimates for Black ( $M = 4.4, SD = 1.13$ ) and White ( $M = 4.22, SD = 1.08$ ) targets, and the combined condition's estimates for Black ( $M = 4.4, SD = 1.13$ ) and White targets' ( $M = 4.32, SD = 1.14$ ). Second, there was a main effect of instruction condition on overall harm estimates,  $F(2,397) = 4.87, p = 0.008, \eta^2 = 0.021$ . However, there was no significant interaction between target race and instruction condition,  $F(2,397) = 1.31, p = 0.27, \eta^2 < 0.001$ . Although the combined condition showed the smallest gap in estimates of Black and White targets' ability to cause harm, the margins of bias did not significantly differ between the three conditions.

**Political Ideology and Size Bias.** To test the hypothesis that the strength of the messages in reducing participants' size bias would be moderated by their political ideology, a series of analyses were performed. For height bias, each participants' average height estimate for White targets was subtracted from their average height estimate for Black targets to create a White-Black difference score. A positive score indicated that the participant rated Black targets as taller than White targets on average, and negative scores indicated the reverse. First, participants did show significant height bias,  $M = .06, SD = 1.06, t(399) = 1.19, p = .26, \text{Cohen's } d = .06$ . Across

all conditions, there was no significant correlation between political ideology and height bias,  $r = 0.041$ ,  $p = 0.415$ . Next, in order to investigate the possibility that political ideology moderates the effectiveness of instructions in reducing size bias, a multiple regression was conducted in which instruction conditions were dummy coded and interaction terms created between condition and political ideology. Here, the overall model predicting height bias was not significant,  $F(4,424) = 1.39$ ,  $p = .24$ ,  $R^2 = .013$ . Further, the interaction between political ideology and instructions was not significant,  $B = .028$ ,  $SE = .061$ ,  $t(424) = .46$ ,  $p = .65$ . As such, there was no reliable relationship between political ideology, anti-bias instructions, and height bias.

**Political Ideology and Harm Bias.** To explore the relationship between political ideology and harm bias, a White-Black difference score was created by subtracting each participants' average harm estimate for White targets from their average harm estimate for Black targets. A positive score indicated that the participant rated Black targets as taller than White targets on average, and negative scores indicated the reverse. First, participants did show significant harm bias,  $M = .15$ ,  $SD = .76$ ,  $t(399) = 3.84$ ,  $p < .001$ , Cohen's  $d = .19$ . Here, across all conditions, there was a reliable negative correlation between the ideology measure and harm bias,  $r(397) = -.26$ ,  $p < .001$ . This implies that participants who scored lower on political ideology (indicating conservative political beliefs) demonstrated higher levels of harm bias.

Next, in order to investigate the possibility that political ideology moderates the effectiveness of instructions in reducing harm bias, a multiple regression was conducted in which instruction conditions were dummy coded and interaction terms created between condition and political ideology. Here, the overall model predicting harm bias was indeed significant,  $F(4, 424) = 10.48$ ,  $p < .001$ ,  $R^2 = .09$ . However, the interaction between ideology and instructions was not significant,  $B = .070$ ,  $SE = .041$ ,  $t(424) = 1.69$ ,  $p = .09$ . Finally, although height bias was not

correlated with political ideology, it was positively correlated with harm bias,  $r(397) = 0.406$ ,  $p < 0.001$ ,  $R^2 = .07$  (see Appendix C for correlations between height bias, harm bias, and other individual differences). This is consistent with past work and implies that participants who demonstrated height bias were also likely to demonstrate harm bias regardless of political affiliation.

### Discussion

This study sought to explore the efficacy of different kinds of messages in reducing racial bias in size and threat perceptions between Black and White targets. A data-based message, a narrative-based message, and a combination of data- and narrative-based message were tested. This was done with the following hypotheses:

**H1:** Data-based and hybrid-type passages describing the existing research that illustrates the reality of racial bias in size perception will be more effective than the narrative-based message in decreasing participants' own bias in size and harm judgments of target images.

**H2:** The strength of the messages in reducing participants' size bias will be moderated by their political ideology, such that more conservative participants will be less swayed by all types of messages.

The results of this study partially supported the first hypothesis. First, in comparison to a control condition, all three of the messages were effective in reducing height bias between Black and White targets. Further, in line with what was hypothesized, those in the narrative condition showed slightly higher differences in height judgments between White and Black men in comparison to those in the data and combined-type conditions. This latter finding suggests that the data and combined-type messages were more effective at reducing size bias than the narrative

message, suggesting that the presence of data-related information may be most effective in reducing height bias among non-Black participants. Regardless of this difference, the narrative condition still showed less height bias than the control, implying that all of the instructions were at least partially effective in reducing bias in height estimates. These findings align with those found in previous studies. First, the phenomenon of height bias found by Wilson et al (2017) was seen here. Additionally, the findings of Brosseau et al (in prep) were also replicated in that compared to the control, participants who received any instructions on size bias did show reduced levels of height bias.

On the other hand, for harm bias, the results did not support H1. Contrary to expectations, there was no significant difference between the control condition and the instruction conditions in their bias in harm estimates. Further, participants in all three conditions demonstrated bias in harm estimates. Although the data condition showed the lowest ratings of capability of causing harm for both Black and White targets and the combined condition showed the smallest gap in harm estimates, none of these were statistically significant from one another. These results are in line with those of Wilson et al (2017) in that they showed the same phenomenon of racial bias in harm estimates. They are, however, at odds with that of Brosseau et al. (in prep) who saw significantly lower levels of harm bias in the anti-bias condition versus control. However, it is worth pointing out that, in the unpublished studies (Brosseau et al., in prep), the effect of instructions on height bias was stronger than the effect on harm bias. This is sensible because the instructions tend to explicitly instruct participants to avoid size bias, whereas any link to reducing harm capability judgments is more implicit and indirect. Finally, these results are in line with those of Callaghan et al. (2021) who found that messages that emphasized data were more

effective at reducing misperceptions of the racial wealth gap than those that were narrative-based (Callaghan et al., 2021).

The second hypothesis this study tested posited that the strength of the participants' size bias would be moderated by their political ideology. Contrary to expectations, H2 was only partially confirmed by this study. Height bias did not correlate with political ideology irrespective of the condition. It did, however, correlate with harm bias. This result confirms previous research and indicates that judgments of harm capability are consistently linked with judgments of size (Wilson et al., 2017). Further, of note, there was a significant negative correlation between political ideology and harm bias. Those who indicated their political leaning to be conservative demonstrated higher levels of harm bias on average than those who identified as liberal. This negative correlation is in line with other works that have demonstrated conservatives exhibiting higher rates of expressing prejudice and negative stereotype endorsement (Callaghan, 2021; Dixon, 2008; Sparkman & Eidelman, 2016). Together, these results suggest that height bias, unlike prejudice overall, is decoupled from political ideology. Harm bias is not. These findings may have implications for future efforts to reduce size bias and its downstream consequences.

### **Contributions**

This study contributed to the body of literature surrounding size bias and racial bias mitigation in a number of ways. First, it successfully demonstrated that size bias can be reduced by way of simple instruction. Given that size bias has been shown to influence whom police chose to stop (Hester & Gray, 2018), this could be a useful tool in reducing disproportionate police use-of-force and killings of Black people. Second, the fact that size bias was not significantly correlated with political ideology while harm bias showed a significant negative

correlation may be helpful for those investigating how to educate the public on the persistence and severity of racial bias today. Although size bias has been conceptually alluded to in discourse around and studies of police brutality, the term “size bias” has not necessarily been an explicitly emphasized part of the national conversation around racism and systemic bias. As such, it may be the case that this topic does not cause as dramatic a negative response in conservatives in comparison to something like police brutality or affirmative action. Although physical size can be an indicator of formidability, capability of causing harm may be a concept that can more explicitly connect to negative racial stereotypes. This may also explain the lack of a difference in harm bias between the control and instructions conditions.

### **Limitations**

As is the case with all research, this study had its limitations. First, this was performed on one sample at one point in time. As previously discussed, public opinion on racial inequality has fluctuated greatly in recent years, and that trend is not likely to stop soon. While the findings of this study are relatively generalizable, that could change if public opinion were to take another dramatic turn. Second, the messages may have been written too similarly to differentiate their respective strength in reducing size bias. The messages each followed a similar structure with the biggest differences being in the supporting evidence for racial bias in size perception (see Appendix A). This was done in an attempt to test only if hard facts versus personal impact stories were more effective at reducing size bias. However, it may be that the way they were written did not emphasize these differences enough. Further research is needed to better understand this dynamic. Third, this study was conducted via an online survey with written content, which is a fairly low stakes and sterile means of participation. Further, none of the survey materials or scales referenced present-day discourse on racial inequality, nor did it reference Black Lives

Matter or social efforts to rectify sustained social inequality. As such, this study may have been “safe” enough to not elicit a strong emotional response or threaten any personal beliefs.

Finally, in a similar vein, this study did not test how the effects of these messages hold up in real-world scenarios. There is a wide array of elements and events that can alter the degree to which an individual is willing and able to receive messages that may conflict with their world views and beliefs. While it is hoped that anti-bias messages such as these could mitigate racial bias in size perception, they might not hold up under different circumstances.

### **Future Directions**

With regard to future research directions, there is a multitude of options. One such opportunity is to examine how the deliverer and context of anti-bias messages alter their effectiveness. This study was conducted digitally, and the participants had very limited information about who the researchers were. They had no way of knowing their race, gender, age, or any indicators of social group affiliation. Thus, this study demonstrated the effects of simple and explicit messages from an unidentified source on reducing size bias, but it does not explain what would happen if the messenger was someone like a protester or politician. And given that protester messages are often misrepresented or diminished by media coverage (Kilgo, 2020) and the strong Republican opposition to racial justice and Black Lives Matter (Doherty et al, 2021, Linzer et al, 2022), who is giving the message may matter far more than the message itself. Future research on this possible interaction between message and messenger could be instrumental to social justice advocates seeking to communicate anti-bias messages in a way that triggers less opposition.

In a similar vein, the identity of the message recipients themselves could be a future research direction. Although this study and others have seen that conservatives and liberals both



display racial bias in measures of size bias, wealth inequality (Callaghan et al, 2021), and officer culpability in killings of Black victims (Cooley et al, 2018 & Cooley et al, 2019), these studies also saw higher levels of bias in conservatives. Finding a way to communicate the existence and severity of racial bias to those who often don't believe it exists today is a challenge to say the least, but it is a critical challenge to explore. Beyond political ideology, other social groups and how they respond to anti-bias messages could be explored. Socioeconomic status, level of education, or supporters for other social causes are a few of the many options that could be explored. The findings of studies on this topic provide insight not only into how these groups respond to anti-bias messages but could also possibly find that different group identities can negate or be overridden by an individual's conservative ideology. One group that may be critical to reducing disproportionate police targeting and killing of Black people is to see how members of law enforcement respond to different messages. This is an area of research that has long been studied with mixed findings, and it is critical that more efforts be made to find options for reducing racial bias in policing.

An additional research direction could be how the effects of anti-bias messages persist over time. Many studies have been conducted on different racial bias mitigation strategies in a variety of contexts. A recurring issue many of them face is that their effects can decrease or disappear altogether with time (Fitzgerald et al., 2019; Forscher et al., 2017). Designing messages that can withstand this waning effect or creating ones that have similar effects upon repetition could both be opportunities for future study.

### **Conclusion**

This study joins the growing collection of others that have demonstrated that 1) racial bias can have a real effect on perceptions of physical size and a person's ability to cause harm, and 2) these biases can be changed by simple messages. Based on these findings, bias reduction can be achieved through messages that include either or both statistical facts and personal impact stories. However, there is still much to learn about what messages work best, whom they work best for, and how long they can influence these biases. Given the persistent and severe disproportionate rate at which Black people experience police use-of-force and killings, it is imperative to find means through which this disparity can be remedied. The opportunities to find innovative ways of sending clear messages on the existence and repercussions of racial bias in size and threat perception are seemingly endless. If this study has demonstrated anything, it is that the academy has the capability to generate this research. It is up to future social scientists and advocates to build upon the existing foundation of research and pave the way for the creation of effective racial bias mitigation measures and tools.

### References

- Alfonseca, K. (January 20, 2022). New Florida bill would ban feelings of ‘discomfort’ in teachings about racism in US history. *Abc7NY News*. <https://abc7ny.com/critical-race-theory-florida-bill-discomfort-ron-desantis-what-is-crt-in-schools/11491558/>
- Associated Press (2015). No Federal Charges for Milwaukee Cop Who Killed Mentally Ill Man. *NBC News*. Retrieved from <https://www.nbcnews.com/news/us-news/no-federal-charges-milwaukee-cop-who-killed-mentally-ill-man-n461101>
- Badolato, G. M., Boyle, M. D., McCarter, R., Zeoli, A. M., Terrill, W., & Goyal, M. K. (2020). Racial and Ethnic Disparities in Firearm-Related Pediatric Deaths Related to Legal Intervention. *Pediatrics*, 146(6), e2020015917. <https://doi.org/10.1542/peds.2020-015917>
- Black, R. & Sprague, A, (September 22, 2016). The Rise and Reign of the Welfare Queen. *New America Weekly*. <https://www.newamerica.org/weekly/rise-and-reign-welfare-queen/>
- Brown-Iannuzzi, J. L., Dotsch, R., Cooley, E., & Payne, B. K. (2017). The relationship between mental representations of welfare recipients and attitudes toward welfare. *Psychological Science*, 28(1), 92–103. <https://doi.org/10.1177/0956797616674999>
- Buchanan, L., Bui, Q., & Patel, J.K. (July 3, 2020). Black Lives Matter May Be the Largest Movement in U.S. History. *The New York Times*. <https://www.nytimes.com/interactive/2020/07/03/us/george-floyd-protests-crowd-size.html>
- Buchholz, K. (2021). U.S. Hate Crimes at New Decade High. *Statista*. Retrieved from <https://www.statista.com/chart/16100/total-number-of-hate-crime-incidents-recorded-by-the-fbi/>

- Burke, M. A. (2017). Racing Left and Right: Color-Blind Racism's Dominance across the U.S. Political Spectrum. *The Sociological Quarterly*, 58(2), 277–294.  
<https://doi.org/10.1080/00380253.2017.1296335>
- Callaghan, B., Harouni, L., Dupree, C. H., Kraus, M. W., & Richeson, J. A. (2021). Testing the efficacy of three informational interventions for reducing misperceptions of the Black–White wealth gap. *Proceedings of the National Academy of Sciences*, 118(38).  
<https://doi.org/10.1073/pnas.2108875118>
- Cineas, F. (September 24, 2020). Critical race theory, and Trump's war on it, explained. Vox.  
<https://www.vox.com/2020/9/24/21451220/critical-race-theory-diversity-training-trump>
- Cooley, E., Lei, R., Brown-Iannuzzi, J., & Ellerkamp, T. (2018). Personal Prejudice, Other Guilt: Explicit Prejudice Toward Black People Predicts Guilty Verdicts for White Officers Who Kill Black Men. *Personality and Social Psychology Bulletin*, 45, 014616721879678.  
Retrieved from [https://www.researchgate.net/profile/Ryan-Lei-2/publication/327865534\\_Personal\\_Prejudice\\_Other\\_Guilt\\_Explicit\\_Prejudice\\_Toward\\_Black\\_People\\_Predicts\\_Guilty\\_Verdicts\\_for\\_White\\_Officers\\_Who\\_Kill\\_Black\\_Men/links/5c4215a892851c22a37eba8a/Personal-Prejudice-Other-Guilt-Explicit-Prejudice-Toward-Black-People-Predicts-Guilty-Verdicts-for-White-Officers-Who-Kill-Black-Men.pdf](https://www.researchgate.net/profile/Ryan-Lei-2/publication/327865534_Personal_Prejudice_Other_Guilt_Explicit_Prejudice_Toward_Black_People_Predicts_Guilty_Verdicts_for_White_Officers_Who_Kill_Black_Men/links/5c4215a892851c22a37eba8a/Personal-Prejudice-Other-Guilt-Explicit-Prejudice-Toward-Black-People-Predicts-Guilty-Verdicts-for-White-Officers-Who-Kill-Black-Men.pdf)
- Cooley, E., Brown-Iannuzzi, J., & Cottrell, D. (2019). Liberals perceive more racism than conservatives when police shoot Black men—But, reading about White privilege increases perceived racism, and shifts attributions of guilt, regardless of political ideology. *Journal of Experimental Social Psychology*, 85, 103885.  
doi:10.1016/j.jesp.2019.103885

- Crandall, C. S., Miller, J. M., & White, M. H. (2018). Changing Norms Following the 2016 U.S. Presidential Election. *Social Psychological and Personality Science*, *9*(2), 186–192.  
doi:10.1177/1948550617750735
- Darity, W., Jr., Hamilton, D., Paul, M., Aja, A., Price, A., Moore, A., & Chiopris, C. (2018). *What we get wrong about closing the racial wealth gap*. Retrieved from <https://socialequity.duke.edu/wp-content/uploads/2019/10/what-we-get-wrong.pdf>
- DeBell, M. (2017). Polarized opinions on racial progress and inequality: Measurement and application to affirmative action preferences. *Political Psychology*, *38*(3), 481–498.  
<https://doi.org/10.1111/pops.12342>
- Dixon, T. L. (2008). Network News and Racial Beliefs: Exploring the Connection Between National Television News Exposure and Stereotypical Perceptions of African Americans. *Journal of Communication*, *58*(2), 321–337. doi:10.1111/j.1460-2466.2008.00387.x
- Doherty, C., Kiley, J., Oliphant, B., Jones, B., Daniller, A., Hartig, H., Dunn, A., Van Green, T., & Gomez, V. (2021). Deep Divisions in Americans' Views of Nation's Racial History – and How To Address It. *Pew Research Center - U.S. Politics & Policy*.  
<https://www.pewresearch.org/politics/2021/08/12/deep-divisions-in-americans-views-of-nations-racial-history-and-how-to-address-it/>
- Doherty, C., Kiley, J., Oliphant, B., Jones, B., Daniller, A., Hartig, H., Dunn, A., Van Green, T., & Gomez, V. (2021). Demographics and Lifestyle Differences Among Typology Groups. *Pew Research Center*. Retrieved from <https://www.pewresearch.org/politics/2021/11/09/demographics-and-lifestyle-differences-among-typology-groups/>

- Dost M., Enos R.D., & Hochschild, J.L. (2019). Analysis | Is President Trump's rhetoric racist? It depends on whom you ask. *Washington Post*. Retrieved from <https://www.washingtonpost.com/politics/2019/08/12/is-president-trumps-rhetoric-racist-it-depends-whom-you-ask/>
- Dovidio, J., Gaertner, S., & Pearson, A. (2016). Aversive Racism and Contemporary Bias. In C. Sibley & F. Barlow (Eds.), *The Cambridge Handbook of the Psychology of Prejudice* (Cambridge Handbooks in Psychology, pp. 267-294). *Cambridge: Cambridge University Press*. doi:10.1017/9781316161579.012
- Edwards, F., Lee, H., & Esposito, M. (2019). Risk of being killed by police use of force in the United States by age, race-ethnicity, and sex. *Proceedings of the National Academy of Sciences*. 116(34). <https://www.pnas.org/doi/epdf/10.1073/pnas.1821204116>
- Edwards, G. S., & Rushin, S. (2018). The Effect of President Trump's Election on Hate Crimes (SSRN Scholarly Paper ID 3102652). *Social Science Research Network*. <https://doi.org/10.2139/ssrn.3102652>
- Eibach, R. P., & Purdie-Vaughns, V. (2011). How to keep on keeping on: Framing civil rights accomplishments to bolster support for egalitarian policies. *Journal of Experimental Social Psychology*, 47, 274–277.
- Epp, D.A., Shoub K., & Baumgartner F. (2018). *Suspect Citizens: What 20 Million Traffic Stops Tell Us About Policing and Race*. *Cambridge University Press, Cambridge, UK*.
- FitzGerald, C., Martin, A., Berner, D. et al. Interventions designed to reduce implicit prejudices and implicit stereotypes in real world contexts: a systematic review. *BMC Psychol* 7, 29 (2019). <https://doi.org/10.1186/s40359-019-0299-7>

- Forscher, P. S., Mitamura, C., Dix, E. L., Cox, W. T. L., & Devine, P. G. (2017). Breaking the prejudice habit: Mechanisms, timecourse, and longevity. *Journal of Experimental Social Psychology, 72*, 133–146. doi:10.1016/j.jesp.2017.04.009
- Goff, P. A., Jackson, M. C., Di Leone, B. A. L., Culotta, C. M., & DiTomasso, N. A. (2014). The essence of innocence: Consequences of dehumanizing Black children. *Journal of Personality and Social Psychology, 106*(4), 526–545. <https://doi.org/10.1037/a0035663>
- Hamilton, D., Darity, W., Jr., Price, A. E., Sridharan, V., & Tippett, R. (2015). *Umbrellas don't make it rain: Why studying and working hard isn't enough for Black Americans*. New York, NY: The New School. Retrieved from [https://www.insightcced.org/wp-content/uploads/2015/08/Umbrellas\\_Dont\\_Make\\_It\\_Rain\\_Final.pdf](https://www.insightcced.org/wp-content/uploads/2015/08/Umbrellas_Dont_Make_It_Rain_Final.pdf)
- Hester, N., & Gray, K. (2018). For Black men, being tall increases threat stereotyping and police stops. *Proceedings of the National Academy of Sciences, 115*(11), 2711–2715. <https://doi.org/10.1073/pnas.1714454115>
- Hetey, R.C., Monin, B., Maitreyi, A., & Eberhardt, J.L. (June 23, 2016). Data for Change: A statistical analysis of police stops, searches, handcuffings, and arrests in Oakland, CA., 2013-2014. *Stanford Sparq*. Retrieved from <https://stanford.app.box.com/v/Data-for-Change>
- Kelly, C. R. (2020). Donald J. Trump and the Rhetoric of White Ambivalence. *Rhetoric and Public Affairs, 23*(2), 195–223. <https://doi.org/10.14321/rhetpublaffa.23.2.0195>
- Kilgo, D.K. (2020, June 2). George Floyd killing: How reporting bias and sensationalism shape protest coverage. *Scroll.In*. <https://scroll.in/article/963491/george-floyd-killing-how-reporting-bias-and-sensationalism-shape-protest-coverage>

Kilgo, D. (2021). Media bias delegitimizes Black-rights protesters. *Nature*, 593(7859), 315–315.

<https://doi.org/10.1038/d41586-021-01314-2>

Kishi, R., Jones, S. (2020, September 3). Demonstrations & Political Violence in America: New Data for Summer 2020. *Armed Conflict Location and Event Data Project*.

<https://acleddata.com/2020/09/03/demonstrations-political-violence-in-america-new-data-for-summer-2020/>

Konrad, A. M. (2018). Denial of racism and the Trump presidency. Equality, Diversity and Inclusion: *An International Journal*, 37(1), 14–30. <https://doi.org/10.1108/EDI-07-2017-0155>

Kraus, M. W., Rucker, J. M., & Richeson, J. A. (2017). Americans misperceive racial economic equality. *Proceedings of the National Academy of Sciences, USA*, 114, 10324–10331.

Kraus, M. W., Onyeador, I. N., Daumeyer, N. M., Rucker, J. M., & Richeson, J. A. (2019). The Misperception of Racial Economic Inequality. *Perspectives on Psychological Science*, 14(6), 899–921. <https://doi.org/10.1177/1745691619863049>

Lahut, J. (2020, June 11). Protests this past week have been largely peaceful, but Fox News continues to show old footage to rile up viewers. *Business Insider*.

<https://www.businessinsider.com/fox-news-replays-violent-old-protest-footage-actual-protests-calm-2020-6>

Leopold, J., & Bell, M. (2017). News media and the racialization of protest: An analysis of Black Lives Matter articles. Equality, Diversity and Inclusion: *An International Journal*, 36, 00–00. <https://doi.org/10.1108/EDI-01-2017-0010>

Linzer, D., Sinderbrand, R. Bownes, T., Stella, S., Mischler, W., Jackson, N., Thornton, A., Brown, B., Morris, J., Prince, J., & Swenson, B. (2022). Black Lives Matter - Registered



Voters Opinion Poll. *Civiqs*.

[https://civiqs.com/results/black\\_lives\\_matter?uncertainty=true&annotations=true&zoomIn=true&party=Republican](https://civiqs.com/results/black_lives_matter?uncertainty=true&annotations=true&zoomIn=true&party=Republican)

Luneau, D. (February 24, 2022). Florida House of Representatives Passes “Stop WOKE Act.”

*Human Rights Campaign*. <https://www.hrc.org/press-releases/breaking-florida-house-of-representatives-passes-stop-woke-act>

Mapping Police Violence. (2021). Retrieved from <https://apastyle.apa.org/learn/faqs/web-page-no-author>

McFarquhar, N. (July 30, 2020). Minneapolis Police Link ‘Umbrella Man’ to White Supremacy

Group. *The New York Times*. Retrieved from

<https://www.nytimes.com/2020/07/28/us/umbrella-man-identified-minneapolis.html>

McHendry, G.F. (2018). White Supremacy in the Age of Trump: An Introduction to a Special

Issue of the Journal of Contemporary Rhetoric. *Journal of Contemporary Rhetoric*.

8(½)1-5

McLeod, D. M. (2007). News Coverage and Social Protest: How the Media’s Protect Paradigm

Exacerbates Social Conflict. 2007, 11.

<https://scholarship.law.missouri.edu/cgi/viewcontent.cgi?article=1529&context=jdr>

Mueller, J. C. (2020). Racial Ideology or Racial Ignorance? An Alternative Theory of Racial

Cognition. *Sociological Theory*, 38(2), 142–169.

<https://doi.org/10.1177/0735275120926197>

No Author (2011). Media Representations and Impact on the Lives of Black Men and Boys: a

Science Science Literature Review. *The Opportunity Agenda*. Retrieved from

<https://www.opportunityagenda.org/explore/resources-publications/social-science-literature-review>

No Author (2021). Alt-Right. Southern Poverty Law Center. Retrieved from

<https://www.splcenter.org/fighting-hate/extremist-files/ideology/alt-right>

Onyeador, I. N., Daumeyer, N. M., Rucker, J. M., Duker, A., Kraus, M. W., & Richeson, J. A.

(2021). Disrupting Beliefs in Racial Progress: Reminders of Persistent Racism Alter Perceptions of Past, But Not Current, Racial Economic Equality. *Personality and Social Psychology Bulletin*, 47(5), 753–765. <https://doi.org/10.1177/0146167220942625>

Richeson, J.A. (2020). Americans are Determined to Believe in Black Progress – Regardless of if it’s Happening or Not. *The Atlantic*. Retrieved from

[http://www.elegantbrain.com/edu4/classes/readings/355readings/race/Race\\_US\\_mythologyOfProgress.pdf](http://www.elegantbrain.com/edu4/classes/readings/355readings/race/Race_US_mythologyOfProgress.pdf)

Schultz, C. (2015). A City of Two Tales. *POLITICO Magazine*. Retrieved from

<https://www.politico.com/magazine/story/2015/02/tamir-rice-cleveland-police-115401>

Schwartz GL, Jahn JL (2020) Mapping fatal police violence across U.S. metropolitan areas:

Overall rates and racial/ethnic inequities, 2013-2017. *PLoS ONE* 15(6): e0229686.

<https://doi.org/10.1371/journal.pone.0229686>

Schwartz, S. (March 25, 2022). Map: Where Critical Race Theory is Under Attack. *Edweek*.

<https://www.edweek.org/policy-politics/map-where-critical-race-theory-is-under-attack/2021/06>

Signal AI Blog. (2020, June 19). Media bias in the coverage of George Floyd. *Signal AI*.

<https://www.signal-ai.com/media-bias-in-the-coverage-of-george-floyd>

- Sparkman, D.J. & Eidelman, S. (2016). “Putting myself in their shoes”: Ethnic perspective taking explains liberal-conservative differences in prejudice and stereotyping. *Personality and Individual Differences*. (98)1-5.
- Southern Poverty Law Center. (2018). Teaching Hard History: American Slavery. *Southern Poverty Law Center*.  
[https://www.splcenter.org/sites/default/files/tt\\_hard\\_history\\_american\\_slavery.pdf](https://www.splcenter.org/sites/default/files/tt_hard_history_american_slavery.pdf)
- Thomas, T., Gabbatt, A., & Barr, C. (October 29, 2020). Nearly 1,000 Instances of Police Brutality Recorded in US Anti-Racism Protests. *The Guardian*. Retrieved from <https://www.theguardian.com/us-news/2020/oct/29/us-police-brutality-protest>
- Thomas, D., Menache Horowitz, J. (2020). Support for Black Lives Matter has decreased since June but remains strong among Black Americans. *Pew Research Center*.  
<https://www.pewresearch.org/fact-tank/2020/09/16/support-for-black-lives-matter-has-decreased-since-june-but-remains-strong-among-black-americans/>
- Williamson, V. & Gelfand I. (2019). Trump and Racism: What Do the Data Say? *The Brookings Institution*. Retrieved from <https://www.brookings.edu/blog/fixgov/2019/08/14/trump-and-racism-what-do-the-data-say/>
- Wilson, J. P., Hugenberg, K., & Rule, N. O. (2017). Racial bias in judgments of physical size and formidability: From size to threat. *Journal of Personality and Social Psychology*, 113, 59-80
- Wodtke G. T. (2012). The Impact of Education on Inter-Group Attitudes: A Multiracial Analysis. *Social psychology quarterly*, 75(1), 10.1177/0190272511430234.  
<https://doi.org/10.1177/0190272511430234>

## Appendix A: Descriptive Statistics

**Table 1.***Demographics*

Condition	Control		Anti-Bias	
	<i>n</i>	%	<i>n</i>	%
Gender				
Women	102	86.92	257	64.25
Men	45	30.41	133	33.25
Gender Non-Conforming/Non-Binary	0	0	7	1.75
Unspecified	1	.68	3	.75
Race				
Asian/Pacific Islander	13	8.78	37	9.25
Hispanic/Latinx	14	9.46	24	6.0
Middle Eastern	0	0	2	.5
Multi-Racial/Multi-Ethnic	0	0	11	2.75
Native American	2	1.35	6	1.5
Pacific Islander	0	0	1	.25
Unspecified	2	1.35	1	.25
White	117	79.05	318	79.5

*Note* Control  $N = 148$ , Anti-Bias  $N = 400$ .

## Appendix B: Instruction Manipulations

**Figure 1.**

## Data-based instructions

In this study, you will be viewing male faces and making estimates about the body size and physical formidability of the people whose faces you see. You will get more specific instructions in the coming pages.

Before you begin this study, it's important for you to know this:

**Recently, research efforts have been made to explore how race can impact how we perceive the physical characteristics and capabilities of others based on their race and ethnicity.**

**In recent studies, it has been found that most people perceive Black people as taller, stronger, more muscular, and more capable of causing harm than White people of the same height and weight. They also perceive them as larger. For example, the average person might see a Black man who is 5'9" and guess that he is actually 6 feet tall. This phenomenon has been called "size bias."**

**Try to keep this in mind while you make these judgments, and try not to succumb to this size bias. Just try to be as accurate as possible, regardless of the race of the person you are viewing.**

In this portion of the study, you will be viewing male faces and rating how tall, in inches, you think each person is.

For each person, move the slider underneath the face to your best estimate of the person's height. For your reference, both ends of the slider have been labelled with the equivalent height in feet, instead of inches.

**Remember, please attempt not to make overestimates of Black men you see.**

**Figure 2.**

## Narrative-based instructions

In this study, you will be viewing male faces and making estimates about the body size and physical formidability of the people whose faces you see. You will get more specific instructions in the coming pages.

Before you begin this study, it's important for you to know this:

**Most people believe that those who have sworn to protect and serve us should respect and treat everyone as equals who have the right to feel safe in our own country. However, reality does not always reflect our beliefs.**

**For example, Dontre Hamilton, a 5'7" 169 pound 31-year-old was shot and killed by a 5'10" police officer who was called to check out a reported person sleeping on a park bench. When the officer gave a statement defending his choice to fire his weapon, he described Hamilton as "just that big, that muscular" and "he would be impossible to control if you were one-man."**

**Hamilton's story is similar to those of other Black people unjustly killed by police every year. It is crucial to find ways to be mindful of biases we may have if we are to have fair and just policing for all Americans. One such bias has been referred to as "size bias," which is a tendency to perceive Black men as larger than White men, even if they are the same size.**

**Try to keep this in mind while you make these judgments, and try not to succumb to this size bias. Just try to be as accurate as possible, regardless of the race of the person you are viewing.**

In this portion of the study, you will be viewing male faces and rating how tall, in inches, you think each person is.

For each person, move the slider underneath the face to your best estimate of the person's height. For your reference, both ends of the slider have been labeled with the equivalent height in feet, instead of inches.

**Remember, please attempt not to make overestimates of Black men you see.**

**Figure 3.**  
Combined data-narrative instructions

In this study, you will be viewing male faces and making estimates about the body size and physical formidability of the people whose faces you see. You will get more specific instructions in the coming pages.

Before you begin this study, it's important for you to know this:

**Most people believe that those who have sworn to protect and serve us should respect and treat everyone as equals who have the right to feel safe in our own country. However, reality does not always reflect our beliefs.**

**For example, Dontre Hamilton, a 5'7" 169 pound 31-year-old was shot and killed by a 5'10" police officer who was called to check out a reported person sleeping on a park bench. When the officer gave a statement defending his choice to fire his weapon, he described Hamilton as "just that big, that muscular" and "he would be impossible to control if you were one-man."**

**Hamilton's story is similar to those of other Black people unjustly killed by police every year. It is crucial to find ways to be mindful of biases we may have that make people seem more threatening because of their race if we are to have fair and just policing for all Americans.**

**One such bias has been referred to as "size bias," which is a tendency to perceive Black men as larger than White men, even if they are the same size. For example, the average person might see a Black man who is 5'9" and guess that he is actually 6 feet tall.**

**Try to keep this in mind while you make these judgments, and try not to succumb to this size bias. Just try to be as accurate as possible, regardless of the race of the person you are viewing.**

In this portion of the study, you will be viewing male faces and rating how tall, in inches, you think each person is.

For each person, move the slider underneath the face to your best estimate of the person's height. For your reference, both ends of the slider have been labelled with the equivalent height in feet, instead of inches.

**Remember, please attempt not to make overestimates of Black men you see.**

## Appendix C: Correlations

**Table 1.***All-conditions individual differences correlations with confidence intervals.*

Variable	Political Ideology	Height Bias	Harm Bias	BaBT	EMS	IMS
1. Political Ideology						
2. Height Bias	.04 [-.06, .14]					
3. Harm Bias	-.26*** [-.35, -.16]	.41*** [.32, .49]				
4. BaBT	-.38*** [-.3, -.46]	.29*** [.01, .29]	.56*** [.49, .62]			
5. EMS	.02 [-.08, .12]	.06 [-.04, .26]	.04 [-.06, .14]	.12* [.02, .22]		
6. IMS	.29*** [.2, .38]	-.17*** [-.26, -.07]	-.27*** [-.36, -.18]	-.43*** [-.51, -.35]	.01 [.09, .1]	

*Note.* Values in square brackets indicate the 95% confidence interval for each correlation.\* indicates  $p < .05$ , \*\* indicates  $p < .01$ , \*\*\* indicates  $p < .001$ .