

Published JESP, May 2020

Race-Based Biases in Judgments of Social Pain

Jason C. Deska, Jonathan Kunstman, E. Paige Lloyd, Steven M. Almaraz, Michael J. Bernstein,

J.P. Gonzales, Kurt Hugenberg

Doi: <https://doi.org/10.1016/j.jesp.2020.103964>

Word Count (Main Body) = 13,178

Abstract

Six studies tested the hypothesis that evaluators judge Black people less sensitive to social pain than White people. Social pain was operationalized as the psychological distress caused by experiences that damage social worth and interpersonal relationships (e.g., derogation, exclusion, unfairness). White evaluators judged both Black male (Studies 1, 2a, & 2b) and female (Studies 2a & 2b) targets as experiencing less social pain than White male and female targets. Study 3 provided evidence that this bias also extends to Black evaluators. Further, the belief that Black people are less sensitive to social pain than White people was mediated by judgments of differential life hardship experienced by Black and White targets (Study 4) and did not seem to be a subset of a broader tendency to judge Black targets as generally insensate (Study 5). Critically, the observed race-based social pain bias also translated into beliefs that Black targets needed fewer supportive resources than White targets to cope with socially painful events (Study 6). The current research demonstrates that there are racial biases in judgments of others' psychological distress and these biases inform social support judgments for those in need.

Keywords: race; social pain; discrimination; person perception

Race-Based Biases in Judgments of Social Pain

Aversive social experiences, including rejection, exclusion, disrespect, and the loss of valued relationships are psychologically distressing. This distress caused by harm to social worth and interpersonal relationships, which we refer to as *social pain*, can have profound negative effects on physical health, psychological well-being, and life satisfaction (e.g., Cacioppo & Cacioppo, 2014; Jackson, Kubzansky, & Wright, 2006). The negative consequences associated with social pain take on particular societal significance when considering these events occur more frequently to Black Americans than White Americans and contribute to racial health disparities between Black and White individuals (e.g., Krieger & Sidney, 1996; Williams & Mohammed, 2009).

Despite the inordinate toll such experiences take on Black Americans, there is reason to predict lay audiences may expect Black people to feel *less* psychological distress than White people in response to the same negative social events. Indeed, research finds that many individuals recognize Black Americans face more adversity than White Americans, but erroneously conclude that hardship has “toughened” and desensitized Black Americans to physical pain (Hoffman & Trawalter, 2016; Trawalter, Hoffman, & Waytz, 2012). The current work extends this past research by testing whether people believe that Black people experience less social pain than White people.

Race, Pain, and Hardship

We operationalized *social pain* as the psychological distress caused by aversive and upsetting social experiences that damage social worth and interpersonal relationships (e.g., rejection, disrespect, embarrassment, loss of valued relationships). Under this conceptualization,

social pain may be caused by perpetrators (e.g., friends excluding acquaintances from a party), but also extends to negative social experiences without malicious actors (e.g., grief at the loss of cherished pets and loved ones). The current work also focused on socially painful events that were interpersonal rather than explicitly interracial (e.g., blatant discrimination). Although discrimination causes profound harm (see Williams & Mohammed, 2009), focusing on these overtly race-based discrimination experiences might confound judgments of social pain (i.e., recognition that Black individuals experience more discrimination than White individuals may bias subsequent social pain judgments). Hence, in this initial investigation we focused on social pain as distress caused by threats to social worth and relationships.

Numerous sources provide evidence for predicting that race will bias judgments of social pain. Foremost is research on racial biases in physical pain, which consistently finds that Americans believe Black individuals experience less physical pain than White individuals (Hoffman & Trawalter, 2016; Summers, Deska, Almaraz, Hugenberg, & Lloyd, 2019; Trawalter et al., 2012). For instance, when rating the pain caused by physical injuries (e.g., having one's hand slammed in a car door), participants generally indicate that Black people would experience less physical pain than White people (Trawalter, et al., 2012). Subsequent work finds that racial beliefs about life hardship drive these racial biases in physical pain judgments (Hoffman & Trawalater, 2016). People believe Black individuals face more hardship and consequently experience less pain than White individuals. To the extent that hardship beliefs have social as well as physical dimensions, it may be that people similarly expect Black individuals to experience less social pain than White individuals.

Racial stereotyping research also consistently predicts race will bias judgments of social pain. Specifically, people readily stereotype Black people as tough, strong, and physically formidable (Hester & Gray, 2018; Wilson, Rule, & Hugenberg, 2017). Related work on the *superhumanization* of Black bodies and stereotypes of Black toughness shows that people frequently associate Black people with superhuman and supernatural features at both implicit and explicit levels (Waytz, Hoffman, & Trawalter, 2015). For instance, some people ascribe Black people with superhuman biology (e.g., Blacks' nerve endings are less sensitive than Whites') and others believe Black people are more likely than White people to perform superhuman feats, such as having skin thick enough to withstand the pain of burning coals and the physical strength to lift a tank (Hoffman, Trawalter, Axt, & Oliver, 2016; Waytz et al., 2015).

These conceptions of Black people as strong and tough directly inform perceptions of Black people's physical pain tolerance and the amount of force necessary to subdue Black individuals (Waytz et al., 2015; Wilson et al., 2017). To the extent that perceivers believe Black people are physically tougher than White people because of their experiences with physical hardship, they may also expect Black people to be more resilient and less sensitive to social pain than White people due to their experiences with social hardship.

Indeed, beliefs about the consequences of social hardship seem to bias judgments of others. Although some believe adversity can be debilitating, many believe adversity enhances resiliency, making people tougher and stronger (Hoffman & Trawalter, 2016). People use these beliefs in their evaluations of others. For instance, when people believe adversity is strengthening, they are less likely to expect that a stressed hypothetical coworker is strained or burnt out, and they also report a reduced intention to help this peer than those who believed

adversity was debilitating (Ben-Avi, Toker, & Heller, 2018). In other words, compared to those who believed adversity could be harmful, people who perceived adversity as enhancing were less likely to notice the negative consequences of hardship and were less inclined to help those in need. Applying this perspective to race suggests that individuals may expect Black people to experience less social pain than White people because they believe experiences with hardship toughen and desensitize Black people. Moreover, to the extent that individuals believe Black people are tougher and experience less social pain than White people, they may also expect Black people need less support to cope with social pain than White people. Thus, beliefs about the enhancing effects of adversity may lead people to believe that life hardship has made Black people tougher, less sensitive to social pain, and consequently less needing of coping resources than White people.

Race-Based Biases in Social Pain

The present work builds upon past research about *physical pain* to test whether race also biases judgments of *social pain*. This focus on racial beliefs about social pain makes several contributions to research both on contemporary interracial dynamics and pain. First, this research provides evidence for an evaluative bias related to what is a common and impactful experience in the daily lives of Black Americans. People of color generally, and Black Americans specifically, report frequent experiences with slights, disrespect, and incivility in their day-to-day social interactions (e.g. Sue, Capodilupo, & Holder, 2008; Williams, Yu, Jackson, & Anderson, 1997). Moreover, these experiences may often be attributionally ambiguous, such that it is unclear whether unfairness was driven by race-central or race-neutral factors (Major, Quinton, &

McCoy, 2002). Such experiences are frequently psychologically distressing and are precisely the types of events that may be subject to racial biases in pain expectations.

Second, the current work provides further evidence for the negative consequences of nominally positive stereotypes about members of low-status groups (e.g., Kay, Day, Zanna, & Nussbaum, 2013; Siy & Cheryan, 2013; Summers et al., 2019). Toughness and resilience are often considered admirable characteristics, yet these racialized beliefs about toughness may set the stage for biases in social pain judgments and undermine the perceived necessity of coping resources for Black people.¹ Thus, nominally positive stereotypes about toughness may blind perceivers to Black people's social pain and the need for social support.

Third, the current work can provide evidence for a paradoxical barrier to providing social support for Black people in distress. To the extent that individuals believe Black people are tough and minimize the social pain experienced by Black people, perceivers may conclude that little social support is necessary to help Black people cope with social pain. Importantly, recognizing others' pain is essential to intervention (e.g., Latané & Darley, 1970). Whether in interpersonal relationships, mental health settings, or community-level programming, failing to recognize others' distress is associated with a number of social and psychological problems. For instance, in interpersonal relationships, failing to recognize partners' distress and subsequently provide support is associated with attachment insecurity, low levels of trust and relationship satisfaction, and poor health and well-being (Collins, Ford, Guichard, Kane, & Feeney, 2010; Feeney & Collins, 2015). Moreover, evaluating distress is crucial to every step of mental

¹ At extremes, it can be speculated that toughness may convey negative rather than positive social information. For example, people who never express emotion following traumatic events may be perceived as callous or having particular forms of psychopathology (e.g., autism spectrum disorder, anti-social personality disorder).

healthcare, including assessment, diagnosis, and treatment (American Psychiatric Association, 2013). When clients' distress is minimized, so too is the quality of mental healthcare. Finally, perceived need (i.e., the recognition of distress) is implicated in support for community-level mental health programming (e.g., Blendon & Benson, 2018). When distress and need go unrecognized, programs go unfunded, resulting in substantial psychological, social, and material costs for individuals, communities, and societies. The above findings highlight the interpersonal, mental health, and community-level costs of minimizing others' distress. When considered in conjunction with evidence that Black people frequently have their pain underestimated (Hoffman et al., 2016), racial biases in social pain may systematically undermine social support for Black people in a number of domains.

The Current Work

The current work tested the hypothesis that, given the same socially aversive events, participants would expect Black targets to experience less social pain than White targets. Moreover, we predicted this bias would be mediated by racialized beliefs that Black people experience more hardship and are tougher than White people. Finally, we hypothesized that a downstream consequence of racial biases in social pain judgments would be racial deficits in social support judgments. Specifically, racial biases in social pain judgments would lead people to believe Black individuals need less social support to cope with their distress than White individuals.

We tested these hypotheses across six studies. In each study, we showed participants the faces of White and Black targets and asked them to judge how much pain the targets would experience following several socially painful events. We tested whether perceivers judge both

Black male (Studies 1 and 2a) and female (Study 2a) targets as experiencing less social pain than White male and female targets. Study 2b served as a pre-registered replication of this foundational test. In Study 3, we specifically recruited White and Black participants to test whether the social pain bias would generalize across these targeted social groups. We also tested whether participants' expectations of personal social pain affirm or refute this racial bias (i.e., do Black participants expect they would feel less pain than White participants?). Study 4 tested whether judgments of differential social hardship faced by Black and White targets mediated differential beliefs about Black and White targets' social pain sensitivity. In Study 5, we tested whether these effects are a subset of a broader tendency to judge Black people as insensate generally or whether they are specific to pain. Finally, Study 6 assessed a downstream consequence of this bias; testing whether racial biases in social pain undermined social support judgments for Black targets.

Study 1

Study 1 tested whether target race biases social pain judgments. Following identical aversive experiences, we expected participants would judge Black targets as feeling less social pain than White targets. To test this hypothesis, participants viewed faces of Black and White men and judged targets' pain in response to aversive social experiences. Because past research has found gendered effects of race (e.g., Johnson, Freeman, & Pauker, 2012) as well as gender's role in judgments of pain generally (Sanford et al., 2002), we held target gender constant, showing participants only male faces in Study 1. We return to the question of target gender in subsequent studies.

To operationalize social pain, we developed 10 social pain scenarios that described events that could reasonably occur to most people, were clearly aversive, and seemed to be face-valid triggers for social pain (see below). Participants indicated how painful each scenario would be for each target. We hypothesized that participants would judge Black targets less sensitive to social pain than White targets.

Method

Participants. For all studies in the current work, samples sizes were determined before data analysis. We were uncertain about the effect sizes in the current work and thus relied on the most analogous effect in the literature. Specifically, Trawalter and colleagues' (2012) Study 1 documented the effects of race on physical pain perception. We used their obtained effect size ($d = 0.51$) to estimate our sample size using G*Power (V3.1; Faul, Erdfelder, Lang, & Buchner, 2007). This analysis suggested 63 participants would provide at least 80% power to detect an equivalent effect size. However, given that we were measuring social pain instead of physical pain, we conservatively doubled that sample size in the event of a smaller effect. Participants were 151 mTurk workers ($M_{age}=36.20$, $SD=12.22$; all mTurk workers in the current work were American). Most self-identified as White (71.5%) and as women comprised 48.3%. No participants were excluded from the analyses. For this and all subsequent studies, we did not analyze any data until data collection was complete. A sensitivity analysis revealed that when examining the difference between two dependent means, Study 1 provided 95% power to detect an effect size of $d = 0.35$.

Procedure. All variables, stimuli, and participant exclusions used in the current research are described in their respective studies. Materials and data for all studies presented in the current work can be accessed at <https://osf.io/ft8vz/>.

Participants learned the current study was investigating the ability of strangers to judge characteristics like social pain tolerance (for a similar procedure, see Deska & Hugenberg, 2018). Participants viewed a series of 20 faces (10 Black male, 10 White male), from the Chicago Face Database (CFD; Ma, Correll, & Wittenbrink, 2015). To avoid attractiveness-based halo effects (Dion, Berscheid, & Walster, 1972), we matched the Black ($M = 3.01$, $SD = 0.05$) and White ($M = 3.00$, $SD = 0.06$) targets on attractiveness, $t(18) = 0.46$, $p = .654$, 95% CI for the difference of means [-0.04, 0.06], $d = 0.18$. Black and White targets also did not significantly differ on CFD ratings of being afraid, angry, babyface[d], disgusted, feminine, happy, masculine, prototypic, sad, surprised, threatening, trustworthy, or unusual $F_{\text{range}}=.01-2.28$, $p_{\text{range}}=.92-.14$. CFD ratings of facial dominance revealed that Black targets were perceived to be marginally more dominant than White targets, $t(38)=2.02$, $p=.051$. Here it is worth noting that data from a related line of research on racial phenotypic biases in social pain judgments reveals that effects emerge even after controlling for targets' dominance (see Deska, Kunstman, Bernstein, Ogungbadero, & Hugenberg, 2019 Study 3).

Consistent with Trawalter and colleagues (2012), participants responded to a series of 10 socially painful events for all targets ($\alpha = .95$; e.g., *This person overhears a coworker talking about their incompetence at their job; A friend makes fun of this person in front of others; This person's family pet passes away*). Events focused on common negative social experiences that could reasonably occur in daily life. Using a scale ranging from 1 (*not painful*) to 4 (*extremely*

painful), pretests indicated that scenarios would be unambiguously painful ($M_{pilot}=2.77$, $SD_{pilot}=.37$, $Range_{pilot}=2.00-3.60$). Study participants indicated how painful targets would find the 10 events using the same 4-point scale ranging from 1 (*not painful*) to 4 (*extremely painful*). These pain labels were adopted directly from Trawalter et al. (2012). We randomized target presentation order across participants and item presentation order across trials. Finally, participants provided demographics (e.g., gender, age, race) before debriefing.

Results and Discussion

Of primary interest was the extent to which White participants judged Black and White targets to be differentially sensitive to social pain. To test this, we first computed mean values for the 10-item social pain scale separately for White and Black male targets before submitting these values to a paired-samples *t*-test². Consistent with our hypothesis, participants judged Black targets ($M = 2.52$, $SD = 0.54$) less sensitive to social pain than White targets ($M = 2.67$, $SD = 0.50$), $t(151) = 6.44$, $p < .001$, 95% CI for the difference of means [0.11, 0.20], $d = 0.52$.

Study 1 provided initial evidence that target race influences judgments of social pain sensitivity. Specifically, participants indicated that a series of potentially painful social situations would be less painful for Black targets than White targets.

Study 2a

Study 2a had several purposes. First, we sought to test whether the effect observed with online participants would replicate in laboratory contexts (Anderson, Allen, Plante, Quigley-McBride, Lovett, & Rokkum, 2018). Second, we included female targets to investigate whether

² Further summary of item-by-item analyses of the social pain measure can be found in the paper's online supplement. Specifically, item-by-item analyses for combined data from Studies 1-6 provide evidence that target race biased judgments of pain for all 10 social pain scenarios ($ts > 5.88$, $ps < .001$, Cohens $ds > .31$), such that participants believed Black targets would experience less pain than White targets.

target gender qualifies the racial bias in social pain judgments. Our primary hypothesis was that we would observe a main effect of target race, replicating the effects observed in Study 1. We also anticipated that participants would expect men to experience less social pain than women, consistent with past research on stereotypes about gender differences in toughness, sensitivity, and stoicism vis-à-vis physical pain experiences (Sanford et al., 2002). We had no a priori hypotheses regarding a possible target race and target gender interaction but foresaw several possibilities. One was that we would observe no interaction, indicating that the effect of race on judgments of social pain generalizes to both male and female targets. Alternatively, the effect of race on judgments of social pain may be smaller for female targets. Compared to male targets, female targets are often evaluated as sensitive to physical pain (see Robinson & Wise, 2003), an effect that may reflect veridical gender differences in physical pain sensitivity (for a review, see Wiesenfeld-Hallin, 2005). Hence, participants might judge Black male targets as especially insensitive to social pain compared to all other targets.

Method

Participants. Study 1's power analysis was used in the current study. Here, 118 undergraduate students at a public, Midwestern university ($M_{age} = 18.85$, $SD = 1.05$) participated in exchange for partial course credit. Most self-identified as White (78.8%) and women (66.9%). No participants were excluded from analyses. A sensitivity analysis revealed that when examining the difference between two dependent means, Study 2a provided 95% power to detect an effect size of $d = 0.38$ ($\eta_p^2 = .035$).

Procedure. Study 2a was identical to Study 1 with the notable exception that participants rated the expected social pain of female targets in addition to male targets. We used the same

criteria outlined in Study 1 to choose female targets. As before, the Black female ($M = 3.00$, $SD = 0.05$) and White female ($M = 3.07$, $SD = 0.14$) targets were not differentially attractive, $t(11.42) = -1.35$, $p = .202$, 95% CI for the difference of means [-0.17, 0.04], $d = -0.61$. Target attractiveness did not vary as an interactive function of race and gender, $F(1,39) = 2.00$, $p = .165$, $\eta_p^2 = .05$. Thus, participants rated 40 faces total (i.e., 10 Black male, 10 White male, 10 Black female, 10 White female) on the social pain measure ($\alpha = .92$).

Results and Discussion

Of primary interest was the extent to which participants judged Black and White male and female targets to be differentially sensitive to social pain. To test this, we computed mean values for the social pain scale separately for Black and White male and female targets before submitting them to a 2 (Target Race: Black vs. White) \times 2 (Target Gender: male vs. female) repeated-measures ANOVA. This analysis yielded a significant effect of Target Race, $F(1,117) = 43.78$, $p < .001$, 95% CI for the difference of means [0.10, 0.19], $\eta_p^2 = .27$. Participants judged Black targets ($M = 2.56$, $SD = 0.42$) less sensitive to social pain than White targets ($M = 2.71$, $SD = 0.37$). This analysis also yielded a significant effect of Target Gender, $F(1,117) = 98.78$, $p < .001$, 95% CI for the difference of means [0.20, 0.31], $\eta_p^2 = .46$. Participants judged male targets ($M = 2.51$, $SD = 0.41$) less sensitive to pain than female targets ($M = 2.76$, $SD = 0.39$). The Target Race \times Target Gender interaction was not significant, $F(1,117) = 0.612$, $p = .436$, $\eta_p^2 < .01$.

In Study 2a, we again observed a race-based bias in judgments of social pain, such that participants judged Black targets to feel less social pain than White targets. We also observed the predicted effect of target gender. Specifically, participants judged male targets to experience less social pain than female targets. Although not explicitly the purpose of the current work, this

effect was robust and is consistent with past research on gender stereotypes of pain (Sanford et al., 2002). Notably, we did not observe an interaction between target race and target gender.

Although null effects should always be interpreted with caution, this interaction was well-powered and is not easily attributable to manipulation or measurement failures given that both main effects obtained. Thus, this appears to indicate that evaluators judge Black people less sensitive to social pain than White people regardless of target gender.

Study 2b

The first two studies show consistent evidence for the hypothesized race-based bias in social pain judgments. To provide more reliable evidence of this effect, Study 2b served as a pre-registered replication of Study 2a. Consistent with Study 2a, we hypothesized that participants would judge Black targets less sensitive to social pain than White targets. We also expected participants would judge male targets less sensitive to social pain than female targets. Finally, given the results of Study 2a, we did not anticipate a target race by target gender interaction.

Links to this study's pre-registration document can be found at <https://osf.io/ft8vz/>.

Method

Participants. In Study 2a, we observed a main effect of race, $\eta_p^2 = .27$. Using this effect size, a power analysis suggested we collect at least 19 participants to achieve 95% power ($\alpha = .05$; G*Power v3.1; Faul et al., 2007). To provide a conservative test of our hypothesis, we collected at least the same number of White participants as Study 2a (i.e., $N = 93$). To ensure we would have at least 93 useable White participants, we targeted a sample of 150 mTurk workers. We reasoned that this larger sample should provide sufficient participants for all proposed analyses, even after omitting participants of color and assuming some data loss due to failed

attention checks. In actuality, 153 mTurk workers ($M_{age} = 36.38$, $SD = 11.67$) participated (70.60% White, 45.1% women). In the original pre-registered analysis plan (<https://osf.io/ft8vz/>) we indicated that we would omit data from participants of color and focus analyses on White participants. This original analytic strategy was motivated by a concern that there might be different response patterns between White participants and participants of color (Judd, Park, Ryan, Brauer, & Kraus, 1995). Out of concern that we would likely not recruit enough participants of color to treat participant race as a factor, we intended to keep participant race constant and focus exclusively on White participants. However, after further consideration, we decided to report both analyses here (i.e., the pre-registered analysis focusing exclusively on White participants and analyses on the complete sample). We believe the inclusion of this additional, unregistered, but more inclusive analysis offers a number of advantages. First, it keeps the inclusion criteria constant across the studies reported in the current work. Second, it gives equal voice to participants of color rather than advantaging the perspectives of White participants. Third, including all participants increases the generalizability of the data. Finally, including all participants maximizes statistical power. Here it is also worth noting, as can be seen from comparing the analyses below, excluding participants of color does not change the magnitude or significance of our central hypothesis test, which we believe speaks to the potential generalizability of racial biases in social pain. We return to the effect of participant race in Study 3.

Twelve participants were excluded for failing an embedded attention check item, leaving a final sample of 141 participants (100 White). A sensitivity analysis revealed that when

examining the difference between two dependent means, Study 2b provided 95% power to detect an effect size of $d = 0.36$ ($\eta_p^2 = .032$).

Procedure. Study 2b's procedure was identical to that of Study 2a with two notable exceptions. First, the study was conducted online rather in the laboratory. Second, we included an instructional attention check (Oppenheimer, Meyvis, & Davidenko, 2009). Specifically, on one random trial, we requested participants select "Not Painful" if they were reading the item. The social pain measure again showed good reliability ($\alpha = .93$).

Results and Discussion

Pre-Registered Analysis Exclusively on White Participants. As per our pre-registered analysis plan, we first tested whether target race biased social pain ratings among the White participants in our sample. We computed mean values for the social pain scale separately for Black and White male and female targets before submitting them to a 2 (Target Race: Black vs. White) \times 2 (Target Gender: male vs. female) repeated-measures ANOVA. This analysis yielded a significant effect of Target Race, $F(1,99) = 25.64, p < .001$, 95% CI for the difference of means [0.07, 0.15], $\eta_p^2 = .21$. Participants judged Black targets ($M = 2.64, SD = 0.53$) less sensitive to social pain than White targets ($M = 2.75, SD = 0.48$). This analysis also yielded a significant effect of Target Gender, $F(1,99) = 89.04, p < .001$, 95% CI for the difference of means [0.25, 0.38], $\eta_p^2 = .47$. Participants judged male targets ($M = 2.54, SD = 0.55$) less sensitive to social pain than female targets ($M = 2.85, SD = 0.49$). The interaction between Target Race and Target Gender was again not significant, $F(1,99) = 0.16, p = .695, \eta_p^2 < .01$.

Exploratory Analysis including Participants of Color. We re-ran the 2 (Target Race: Black vs. White) \times 2 (Target Gender: male vs. female) repeated-measures ANOVA on social

pain ratings including data from participants of color. This analysis again yielded a significant effect of Target Race, $F(1,140) = 40.89, p < .001$, 95% CI for the difference of means [0.08, 0.15], $\eta_p^2 = .23$. Participants judged Black targets ($M = 2.60, SD = 0.54$) less sensitive to social pain than White targets ($M = 2.72, SD = 0.49$). The analysis again yielded a significant effect of Target Gender, $F(1,140) = 117.35, p < .001$, 95% CI for the difference of means [0.24, 0.35], $\eta_p^2 = .46$. Participants judged male targets ($M = 2.51, SD = 0.55$) less sensitive to social pain than female targets ($M = 2.81, SD = 0.51$). The interaction between Target Race and Target Gender remained non-significant, $F(1,140) = 0.18, p = .670, \eta_p^2 < .01$.

In a pre-registered replication of Study 2a, participants again judged Black targets less sensitive to social pain than White targets. Participants also judged male targets less sensitive to social pain than female targets. Finally, providing further evidence that target race and target gender may independently influence judgments of social pain, target race again did not interact with target gender to predict judgments of social pain.

Study 3

These initial experiments provide consistent evidence that participants judged Black targets to experience less social pain than White targets. However, in each of these studies, we used convenience samples that consisted of primarily White participants. Although the effects were robust even with the inclusion of participants of color, it remains an open question as to whether White and Black people differ in their judgments of social pain for Black and White targets. Thus, in Study 3, we specifically recruited a sample of Black and White participants to systematically test whether racial biases in social pain judgments extend to racial ingroup members (i.e., Black individuals).

Multiple predictions seemed plausible a priori. One prediction is that effects are driven by intergroup biases in pain judgments. Perhaps perceivers tend to see racial ingroups as more sensitive to fine-grained distinctions in painful life experiences (i.e., they may feel, but we feel more). Indeed, similar effects have been found in the infrahumanization literature where ingroups are judged as most sensitive to sophisticated emotional states (e.g., Leyens et al., 2000). Research also documents a wide variety of cross-race emotion recognition deficits (e.g., Elfenbein & Ambady, 2002; Lloyd & Hugenberg, 2019). Thus, people may see their ingroups as more sensitive to social pain than outgroups (i.e., White participants judge White targets as more sensitive to social pain than Black targets, whereas Black participants judge Black targets as more sensitive to social pain than White targets).

Another possibility was that Black participants would not show the racial bias in social pain documented among White participants. Members of stigmatized groups frequently reject stereotypes about their groups and actively work to disconfirm these stereotypes (e.g., Jamieson & Harkins, 2006; Steele & Aronson, 1995). Consequently, because they hold different stereotypes about their racial ingroup, Black participants may not demonstrate a racial bias in social pain judgments.

Finally, the results of the previous studies may not be due to differential intergroup motives, but instead due to broader cultural stereotypes about race and toughness. That is, Black participants may show the same bias as White participants because they share the same nominally positive stereotypes about Black people's toughness. We thought this prediction the most likely outcome for several reasons. First, although the previous studies focused on White peoples' responses, several participants of color also completed the studies. Although we had

very few minority participants in these studies, data from participants of color frequently mirrored that of Whites suggesting that, like White participants, participants of color may also expect Black targets to experience less social pain than White targets. Second, in their work on perceptions of physical pain, Trawalter and colleagues (2012) found that Black participants showed equivalent biases in physical pain judgments as White participants. Third, more broadly, although individuals typically reject negative stereotypes about their groups, they sometimes endorse positive ingroup stereotypes as a compensatory strategy and means of affirming their ingroup identity (Abrams & Hogg, 1988; Biernat, Vescio, & Green, 1996; Picket, Bonner, & Coleman, 2002). To the extent that racial biases in social pain judgments are rooted in positive beliefs about Black people's toughness, resilience, and fortitude, Black participants may show similar biases as White participants. Although not directly tested, we theorized that Black participants may be especially likely to endorse these positive stereotypes given the centrality of characteristics associated with toughness, perseverance, and overcoming adversity in narratives surrounding Black Americans' historic and ongoing fight for racial equity and civil rights in the United States (Baldwin, 1998; Carson & Shepard, 2001).

The inclusion of Black participants in the current study also allowed us to test for racial differences in personal social pain expectations. Put simply, do Black and White participants differ in how painful they expect these experiences to be? Considering research on the internalization of stereotypes, unfairness's effect on health, and the fundamental need to belong, we had three competing, theoretically-grounded predictions. First, in line with a stereotype internalization account, it may be that Black participants expect to personally experience less social pain than White participants. To the extent that Black people internalize stereotypes about

their own resilience and toughness, they may believe they are less sensitive to pain than other racial groups. From this perspective, it may be the case that Black Americans expect to experience less social pain than do White Americans. Second, in line with a weathering account, chronic experiences with unfairness, mistreatment, and incivility can wear down people's physical and psychological capacity to cope with stress (e.g., De Vogli et al., 2007; Guyll et al., 2001), potentially making them hypersensitive and vulnerable to social pain. From this standpoint, Black participants might expect to experience *more* social pain than White participants. Third, there is also the possibility that White and Black participants will anticipate equivalent levels of social pain (i.e., a fundamental need account). As noted above, social pain reflects a threat to one's social value and belonging (e.g., Leary, 2005). As a threat to human beings' fundamental need to belong (Baumeister & Leary, 1995), social pain may have equivalent effects on participants regardless of their racial identification. Research on social rejection and ostracism finds that these socially painful experiences have universally negative effects on people's psychological well-being (Williams, 2007). To test these three possible hypotheses, in addition to evaluating pain expectancies for Black and White targets, Black and White participants reported their personal pain expectations for the ten scenarios used in Studies 1-2b.

Finally, the presence of both personal and ingroup judgments from Black and White participants allowed us to explore the relationship between personal and group-level pain judgments. Specifically, do Black and White individuals' personal responses affirm or diverge from their beliefs about their respective racial ingroups?

Method

Participants. Using the observed main effect in Study 2b ($\eta_p^2 = .21$), a power analysis suggested we sample at least 210 participants for at least 95% power to test for both main effects and an interaction. We aimed to have at least 105 White and Black participants and we conservatively oversampled, resulting in 346 participants (157 White, 189 Black; $M_{age} = 41.62$, $SD = 14.53$; 62.1% women). We recruited White participants using mTurk and Black participants using a Qualtrics panel. We excluded 70 participants who failed an embedded attention check, leaving a final sample of 276 (126 Black, 150 White). Except where noted below, analysis of the complete sample does not change the magnitude or significance of Study 3's effects. A sensitivity analysis revealed that when examining the difference between two dependent means, Study 3 provided 95% power to detect an effect size of $d = 0.21$ ($\eta_p^2 = .011$).

Procedure Study 3's procedure was identical to Study 2a with one notable exception. Before making target ratings, participants first made self-ratings for each of the social pain items, which were reworded to the second person perspective (e.g., *How much pain would you feel if your best friend moved across the country?*; $\alpha = .83$). Participants then completed the target-focused pain rating task as in Studies 1-2b ($\alpha = .95$).

Results and Discussion

Of primary interest was the extent to which White and Black participants judged social pain sensitivity differently for Black and White targets. To test this, we computed mean values for the social pain scale separately for Black and White male and female targets. We submitted these values to a 2 (Participant Race: Black vs. White) \times 2 (Target Race: Black vs. White) \times 2 (Target Gender: male vs. female) mixed-model ANOVA with Participant Race as a between-subjects factor and Target Race and Target Gender as within-subjects factors. Consistent with the

previous studies, this analysis yielded a significant effect of Target Race, $F(1,274) = 84.85, p < .001$, 95% CI for the difference of means [0.13, 0.20], $\eta_p^2 = .24$. Participants judged Black targets ($M = 2.53, SD = 0.53$) less sensitive to social pain than White targets ($M = 2.70, SD = 0.50$). This analysis also yielded a significant effect of Target Gender, $F(1,274) = 192.42, p < .001$, 95% CI for the difference of means [0.23, 0.30], $\eta_p^2 = .41$. Participants judged male targets ($M = 2.48, SD = 0.52$) less sensitive to pain than female targets ($M = 2.75, SD = 0.52$). We did not observe a main effect of Participant Race, $F(1,274) = 0.01, p = .918$, 95% CI for the difference of means [-0.11, 0.12], $\eta_p^2 < .01$. White ($M = 2.61, SD = 0.40$) and Black ($M = 2.62, SD = 0.58$) participants made similar social pain ratings overall.

These lower order effects were qualified by a small, but statistically significant interaction between Target Race and Participant Race, $F(1,274) = 4.14, p = .043, \eta_p^2 = .02$ (see Figure 1). To understand this interaction, we tested the simple effect of Target Race separately for each level of Participant Race. First, White participants indicated that Black targets ($M = 2.54, SD = 0.44$) were less sensitive to social pain than White targets ($M = 2.68, SD = 0.39$), $t(149) = 6.51, p < .001$, 95% CI for the difference of means [0.09, 0.17], $d = 0.53$. Second, Black participants also indicated that Black targets ($M = 2.51, SD = 0.62$) were less sensitive to social pain than White targets ($M = 2.72, SD = 0.60$), $t(126) = 6.45, p < .001$, 95% CI for the difference of means [0.14, 0.27], $d = 0.57$, although, as indicated by the significant interaction, this effect was slightly *larger* than the effect observed among White participants. Here it should be noted that this interaction drops below significance when data from participants who failed the study's attention check are included in analysis, $F(1, 344) = 0.53, p = .47$. The interaction between target

and participant race is likely less robust than the main effect of target race, such that Black targets are judged to experience less social pain than White targets.

We did not observe interactions between Participant Race and Target Gender, $F(1,274) = 0.35, p = .552, \eta_p^2 < .01$, between Target Race and Target Gender, $F(1,274) = 0.04, p = .846, \eta_p^2 < .01$, or the three-way interaction between Target Race, Target Gender, and Participant Gender, $F(1,274) = 0.08, p = .782, \eta_p^2 < .01$.

Participant Race, Personal Pain Expectations, and Racial Beliefs about Social Pain. As noted above, an additional aim of this study was to test for race differences in participants' pain expectations. We also sought to investigate how participants' personal pain beliefs related to their general beliefs about their racial ingroup. We first tested our competing internalization, weathering, and fundamental needs accounts of personal pain expectations by comparing White and Black participants' personal pain expectations with an independent samples t -test. Consistent with a fundamental need account (but neither internalization nor weathering accounts), results indicated that Black ($M = 2.73, SD = 0.68$) and White ($M = 2.72, SD = 0.51$) participants expected to experience equivalent levels of social pain, $t(274) = 0.11, p = .916, 95\% \text{ CI } [-0.13, 0.15], d = 0.02$.

Next, we tested whether participants' personal pain expectations affirmed or deviated from their beliefs about their racial ingroups. To test the relationship between personal pain expectancies with ingroup beliefs about social pain, we conducted paired samples t -tests with these indices for White and Black participants, respectively. White participants' personal beliefs about social pain ($M = 2.72, SD = 0.51$) matched their ingroup judgments ($M = 2.68, SD = 0.39$) such that White participants believed both they and ingroup members would be similarly hurt by

these events, $t(149) = 1.11, p = .269, d = 0.09$. However, Black participants' personal judgments ($M = 2.73, SD = 0.68$) diverged from their beliefs about their racial ingroup generally ($M = 2.51, SD = 0.82$) such that Black participants believed they would experience more pain than Black people generally, $t(129) = 3.46, p = .001, d = 0.30$.

Consistent with Studies 1-2b, we again found that race biased social pain judgments. Specifically, both Black and White participants judged Black targets to experience less social pain than White targets. Moreover, as reflected in a significant Target Race by Participant Race interaction, this effect was descriptively *larger* for Black participants than for White participants. Thus, rather than showing an attenuated bias compared to White people, Black people seem to endorse this same belief as much as, if not more than, White people.

Of additional interest in Study 3 was whether these beliefs correspond to the personal pain expectations of Black and White people. Consistent with a fundamental need account, we found equivalent expectations of social pain among Black and White participants. Indeed, expected personal pain judgments only differed by one hundredth of a point, suggesting White and Black participants' personal pain judgments were nearly identical. We see this outcome as quite sensible – our socially painful items were selected to be universally painful social experiences. However, whereas White participants' personal judgments *paralleled* their beliefs about White people generally, Black participants' personal expectations *diverged* from their judgments about Black people generally. Black participants expected they would personally experience more pain than fellow racial ingroup members. In other words, the insensitivity to pain Black people seem to expect from fellow ingroup members does not seem to generalize to the self. Although beyond the scope of the current data, it may be that a salient contrast between

expectations of the group (i.e., “this would not hurt us, we are tough”) and the self (i.e., “this would hurt me, I am weak”) may have negative consequences for personal well-being and collective self-esteem. To the extent that people feel like they are not living up to defining ingroup characteristics, it may threaten their self-esteem and ingroup identification (e.g., Abrams & Hogg, 1988; Christensen, Rothgerber, Wood, & Matz, 2004). This finding is also consistent with the personal/group discrimination discrepancy, or the belief that one’s group is targeted with more discrimination than is the self (e.g., Taylor, Wright, Moghaddam, & Lalonde, 1990). From this perspective, it is possible that Black participants may feel that they have not experienced as much adversity as the typical ingroup member, and therefore may believe that they, as individuals, have not been “toughened” by such hardships as much as Black Americans more generally. Future research could benefit from testing these predictions directly.

Study 4

Consistent with a cultural stereotype account, Study 3 provided evidence that both Black and White participants judged Black targets less sensitive to social pain than White targets. To the extent that people believe Black people have experienced greater life hardship and are consequently tougher than White people, it may be that they come to believe Black people will experience less social pain than White people. The current study directly tests this hypothesis.

Past research finds that both White and Black people believe that Black individuals are less privileged and endure greater life hardship than White individuals (Hoffman & Trawalter, 2016; Trawalter et al., 2012). Moreover, when people report that hardship makes people tougher they are more inclined to believe that Black people would feel less physical pain than White people (Hoffman & Trawalter, 2016). We build on this logic and apply it to judgments of social

pain. We asked participants to judge both the life hardship and social pain of White and Black targets. We hypothesized that participants would judge Black targets to have endured greater life hardship than White targets, and that this effect would indirectly lead to judgments of Black targets experiencing less social pain than White targets.

Method

Participants. Study 4 relied on the same recruiting strategy as Study 2b, and recruited 155 mTurk participants ($M_{age} = 36.16$, $SD = 10.99$; 71.6% White; 47.1% women). We excluded 24 participants for failing the embedded attention check item. Including all participants does not alter the nature of the observed effects. A sensitivity analysis revealed that when examining the difference between two dependent means, Study 4 provided 95% power to detect an effect size of $d = 0.32$ ($\eta_p^2 = .025$).

Procedure. The procedure for Study 4 was identical to the procedure for Study 2a except that in addition to completing the 10-item social pain scale for the 40 targets ($\alpha = .90$), participants also completed a life hardship measure for each target ($\alpha = -.33$)³, taken directly from past research (Trawalter et al., 2012; see also Summers et al., 2019). This measure contained four items assessing perceived life hardship (e.g., *How hard do you think this person's*

³ The alpha for the hardship scale was negative. Examination of the scale's items indicated that, even after reverse coding, the two reverse coded items ("how privileged do you think he is?"; "how lucky do you think he has been?") did not hang with the two non-reverse coded items ("how hard do you think his life has been?"; "how much adversity do you think he has overcome?"). We opted to retain the scale as used in previous research for the primary analyses. However, we also conducted analyses considering the two sub-components of hardship separately. For ease of discussion, we refer to these subcomponents as *privilege reverse scored* and *adversity*. We found similar effects of the two sub-components. Black targets were rated higher on *adversity* ($t=10.76$, $p<.001$) and *privilege reverse scored* ($t=10.38$, $p<.001$) than White targets. We then tested whether the sub-components also significantly mediated the effect of race on perceptions of social pain sensitivity. The indirect effect with *privilege reverse scored* as the mediator was significant, $b=-.07$, 95% CI = [-0.1590, -0.0019]. However, the indirect effect with *adversity* as the mediator was not significant, $b=-.05$, 95% CI = [-0.1258, 0.0033].

life has been?). Participants provided responses on a scale ranging from 1 (*Not at all*) to 4 (*Extremely*). The life hardship items always preceded the social pain items within each trial. They first saw and responded to the four life hardship items and then they saw and responded to the social pain items. This procedure was repeated for all 40 targets.

Results and Discussion

We tested whether target race biased judgments of life hardship and social pain. Thus, we computed mean values for the social pain scale separately for Black and White male and female targets before submitting them to a 2 (Target Race: Black vs. White) \times 2 (Target Gender: male vs. female) repeated-measures ANOVA. This analysis yielded a significant effect of Target Race, $F(1,130) = 27.85, p < .001$, 95% CI for the difference of means [0.07, 0.16], $\eta_p^2 = .18$. Participants judged White targets ($M = 2.80, SD = 0.45$) more sensitive to social pain than Black targets ($M = 2.68, SD = 0.49$). This analysis also yielded a significant effect of Target Gender, $F(1,130) = 92.20, p < .001$, 95% CI for the difference of means [0.19, 0.29], $\eta_p^2 = .42$. Participants judged female targets ($M = 2.86, SD = 0.48$) more sensitive to social pain than male targets ($M = 2.62, SD = 0.48$). We also observed a weak albeit significant interaction between Target Race and Target Gender, $F(1,130) = 3.97, p = .048$, $\eta_p^2 = .03$, such that the effect of Target Race was slightly stronger for female, $d = 0.52$, than for male targets, $d = 0.33$.

Of additional preliminary interest was the extent to which participants judged Black and White male and female targets to have experienced differential life hardship. To test this, we computed mean values for the life hardship scale separately for Black and White male and female targets before submitting them to a 2 (Target Race: Black vs. White) \times 2 (Target Gender: male vs. female) repeated measures ANOVA. This analysis yielded a significant effect of Target

Race, $F(1,130) = 117.51, p < .001$, 95% CI for the difference of means [0.53, 0.77], $\eta_p^2 = .48$.

Participants judged Black targets ($M = 2.96, SD = 0.44$) to have greater life hardship than White targets ($M = 2.68, SD = 0.35$). This analysis also yielded a significant effect of Target Gender, $F(1,130) = 25.77, p < .001$, 95% CI for the difference of means [0.06, 0.13], $\eta_p^2 = .17$.

Participants judged female targets ($M = 2.69, SD = 0.24$) to have greater life hardship than male targets ($M = 2.59, SD = 0.21$). We also observed a significant interaction, $F(1,130) = 36.97, p < .001, \eta_p^2 = .22$, such that the effect of race on life hardship ratings was somewhat stronger for male, $d = 0.97$, than for female targets, $d = 0.87$.

Having replicated the previously observed effects of target race on both social pain sensitivity, and life hardship, we next proceeded to our primary hypothesis test, investigating whether judgments of Black targets as less sensitive to social pain than White targets occur indirectly through differential beliefs about life hardship for these groups. To investigate this question, we conducted a mediation analysis using Montoya and Hayes' (2017) MEMORE macro. Using 10,000 bias-corrected bootstrapped samples, the indirect effect of race on social pain judgments through life hardship judgments was significant, $b = -0.07, SE = 0.04, 95\% CI [-0.16, -0.01]$, providing evidence in support of the proposed model (see Figure 2).

Participants in Study 4 indicated that Black targets, compared to White targets, endured greater life hardship and were less sensitive to social pain. Consistent with hypotheses, these differential beliefs about life hardship mediated the social pain bias. People believed Black targets experienced more hardship and subsequently judged them to experience less social pain than White targets.

Unlike the previous studies, we observed an interaction between target race and target gender on judgments of social pain sensitivity. First, because this effect was not observed in other close replications, it should be taken with some caution. Second, although statistically significant, this interaction was quite small compared to the main effect ($\eta_p^2 = .03$ vs. $\eta_p^2 = .18$). Moreover, it was consistently the case that participants judged Black targets as experiencing less social pain than White targets. If anything, this interaction may indicate this bias is more pronounced for female targets than male targets. We also observed an interaction between target race and target gender for life hardship. As with social pain, it was clear that participants generally agreed that Black targets experience greater life hardship than White targets; however, this seemed to be especially true for male targets.

Study 5

The previous studies provide consistent evidence indicating that participants judge Black people less sensitive to social pain than White people, an effect mediated by beliefs about life hardship. However, an open question is whether this effect is unique to judgments of social pain or is a subset of a broader set of dehumanizing beliefs that Black people are less sensitive to *all* social experiences compared to White people. That is, this effect may be indicative of general dehumanization (i.e., failing to ascribe fundamentally human experiential faculties to Black targets) rather than a specific stereotype about Black people being toughened by adversity and therefore less sensitive to social pain. Indeed, Black people are dehumanized in a variety of contexts and this dehumanization can have profound negative consequences for Black people (Goff et al., 2008). Compared to White targets, Americans routinely deny Black targets the sophisticated cognitive and emotional faculties that are associated with fully human agents

(Deska, Lloyd, & Hugenberg, 2018; Goff et al., 2008). To the extent that White people dehumanize Black targets, they may see them as incapable of a variety of experiential states, both pleasurable and painful. If, however, our previous effects are specifically linked to racialized stereotypes about life hardship toughening Black relative to White targets, then we would not expect an omnibus effect of race on the ability to experience sensations broadly. Rather, we would expect a more specific effect on social pain, but not (for example) social pleasure.

To investigate this question, participants judged how much pain Black and White targets would experience following socially aversive situations and, separately, how much *pleasure* they would feel following enjoyable situations. To hold the context as constant as possible between our aversive and enjoyable scenarios, we conceptually mirrored each experience. For example, in the social pain measure, participants reported beliefs about targets' pain after learning that strangers laughed at the target's haircut. In the pleasure index, this scenario was mirrored to reflect targets' expected pleasure following learning that a stranger complimented the target's haircut. Consistent with the previous studies, we hypothesized that participants would judge Black targets less sensitive to social pain than White targets. Of interest was whether there would be effects of target race on ratings of social pleasure indicative of a broader dehumanization effect (i.e., a main effect of Target Race on sensation, unqualified by Experience Type), or a unique effect of target race on ratings of social pain but not on ratings of social pleasure (i.e., a Target Race by Experience Type interaction).

Method

Participants. Study 5 used the same recruiting strategy as Study 2b, sampling 206 ($M_{age} = 35.86$, $SD = 11.74$) mTurk workers (72.8% White; 52.4% women). No attention checks were included, so no data were excluded from analysis. A sensitivity analysis revealed that when examining the difference between two dependent means, Study 5 provided 95% power to detect an effect size of $d = 0.25$ ($\eta_p^2 = .016$).

Procedure. Participants judged target faces using both the 10-item social pain measure ($\alpha = .93$) as well as a new 10-item social pleasure measure ($\alpha = .95$). The social pleasure items were designed to be similar to the social pain items with the notable exception that they were positive (e.g., *This person's friends throw him a surprise birthday party*). Participants made pleasure judgments on a scale ranging from 1 (*Not pleasurable*) to 4 (*Extremely pleasurable*). Because we asked participants to respond to twice as many items as the previous studies, they rated fewer targets. Participants viewed 20 total targets (10 Black male, 10 White male). Participants made both social pain and social pleasure ratings. However, they did not make both ratings for the same face. Instead, participants completed only the social pain or social pleasure measure for a given target. Whether they rated targets on the social pain or social pleasure measure was randomly counterbalanced. Social pain and social pleasure ratings were combined in a single block and presentation order was randomized.

Results and Discussion

Of primary interest was the extent to which participants judged Black and White male targets to be differentially sensitive to social pain and social pleasure. To test this, we computed mean values for the social pain and social pleasure measures separately for Black and White targets before submitting them to a 2 (Target Race: Black vs. White) \times 2 (Experience Type: pain

vs. pleasure) repeated-measures ANOVA. This analysis produced a significant main effect of Target Race, $F(1,205) = 5.60, p = .019$, 95% CI for the difference of means [0.01, 0.06], $\eta_p^2 = .03$. Participants judged White targets ($M = 2.84, SD = 0.47$) more sensitive to social experiences overall than Black targets ($M = 2.80, SD = 0.48$). This analysis also produced a significant effect of Experience Type, $F(1,205) = 10.95, p = .001$, 95% CI for the difference of means [0.03, 0.11], $\eta_p^2 = .05$. Participants judged targets as generally more sensitive to social pleasure ($M = 2.86, SD = 0.50$) than social pain ($M = 2.78, SD = 0.48$). However, the main effects were qualified by an interaction between Target Race and Experience Type, $F(1,205) = 17.83, p < .001$, $\eta_p^2 = .08$ (see Figure 3).

To better understand this interaction, we first tested the simple effect of Target Race separately for level of Experience Type. For social pain, participants judged Black targets ($M = 2.74, SD = 0.52$) less sensitive than White targets ($M = 2.83, SD = 0.49$), $t(205) = 4.37, p < .001$, 95% CI for the difference of means [0.05, 0.13], $d = 0.30$, replicating our previously observed effects. For social pleasure, participants judged Black ($M = 2.86, SD = 0.52$) and White ($M = 2.85, SD = 0.51$) targets similarly sensitive, $t(205) = 0.95, p = .343$, 95% CI for the difference of means [-0.02, 0.05], $d = 0.06$. We also tested the simple effect of Experience Type separately for each level of Target Race. Participants did not judge White targets as differentially sensitive to either social pleasure ($M = 2.85, SD = 0.51$) or social pain ($M = 2.83, SD = 0.49$), $t(205) = 0.78, p = .437$, 95% CI for the difference of means [-0.03, 0.07], $d = 0.05$. However, participants judged Black targets more sensitive to social pleasure ($M = 2.86, SD = 0.52$) than to social pain ($M = 2.74, SD = 0.52$), $t(205) = 4.84, p < .001$, 95% CI for the difference of means [0.07, 0.17], $d = 0.34$.

Thus, although participants judged Black targets less sensitive to social pain than White targets, they did not see Black and White targets as differentially sensitive to social pleasure. These results appear to be inconsistent with a broad dehumanization explanation for the social pain effects. Whereas dehumanization has reliably been linked to various negative responses to Black people (e.g., Cassidy et al., 2017; Goff et al., 2008), the current racial biases in social pain judgments do not seem to be driven by general beliefs that Black people are less sensate than White people.

It is worth noting that the capacity to experience pain and pleasure are but two of the myriad conceptions of (de)humanization. Perhaps alternative conceptions of dehumanization stressing other mental faculties might contribute to racial biases in pain. Regardless, the current data provide initial evidence that racial biases in social pain judgments seem distinct from a general tendency to view Black people as less emotionally responsive than White people.

Instead, this effect appears to be unique to racial stereotypes about social pain sensitivity, consistent with the hardship-as-toughening beliefs observed in Study 4. Moreover, although participants judged White targets equally sensitive to social pain and social pleasure, they judged Black targets less capable of experiencing social pain than social pleasure. This provides further evidence for the specificity of the racial bias in judgments of social pain (but not pleasure).

Study 6

The preceding studies outline a bias in judgments of Black and White individuals' sensitivity to social pain, provide evidence for mechanism, while also showing the specificity of the effects, thereby ruling out alternative intergroup (Study 3) and dehumanization (Study 5) accounts for these effects. Finally, in Study 6 we examined the extent to which the minimization

of Black people's social pain may undermine judgments of their social support needs. We reasoned that if participants believed Black targets felt less social pain than White targets, this might lead to judgments that Black targets need fewer support resources than White targets to cope with their distress.

To test these hypotheses, participants read about several aversive experiences and then judged Black and White targets' social pain and the support resources that targets would need to cope with their distress (e.g., calming activities; professional counseling). We hypothesized that participants would judge Black targets less sensitive to social pain than White targets and that this effect would indirectly lead to judgments that Black targets need fewer coping resources than White targets.

Method

Participants. Study 6 again used Study 2b's recruitment strategy and sampled 152 mTurk participants ($M_{age} = 35.03$, $SD = 11.49$; 76.5% White; 47.4% women). No participants were excluded because attention checks were not included. A sensitivity analysis revealed that when examining the difference between two dependent means, Study 6 provided 95% power to detect an effect size of $d = 0.29$.

Procedure. The procedure for Study 6 was similar to the procedure employed in the previous studies in that participants judged 20 targets (10 Black/White males) using the 10-item social pain measure ($\alpha = .92$). Participants also rated each target on 10 coping items ($\alpha = .94$). We developed these coping items to be specific to the social pain items. In other words, they were meant to address the specific incidents described in the aforementioned measure. For example, the coping corollary to the social pain item, "How painful would it be if this person's

best friend moves across the country?" was, "How should this person cope with his best friend moving across the country?" Participants responded to these coping items using a 5-point scale. Because the social pain items were designed to include painful but not completely debilitating incidents, the labels for the coping measure ranged from no additional resources to seeking professional assistance. Specifically, the points on the scale were labeled, in ascending order, "No action necessary," "Use personal coping strategies (e.g., do a calming activity, take a walk, pray/meditate)," "Seek minor informal support from friends and family," "Seek maximum informal support from friends and family," and "Request formal support from a mental health professional (e.g., clinical psychologist, counselor, psychiatrist)." In the supplemental materials, we provide additional evidence supporting this outcome measure. Participants responded to all social pain items and coping items for each target. We randomized target presentation order independently for each participant.

Results and Discussion

The current study focused on judgments of social pain and support for Black and White targets. We first computed mean values for the social pain scale separately for Black and White targets. A paired samples *t*-test indicated that participants judged Black targets ($M = 2.51$, $SD = 0.45$) less sensitive to social pain than White targets ($M = 2.60$, $SD = 0.44$), $t(152) = 4.78$, $p < .001$, 95% CI for the difference of means [0.05, 0.13], $d = 0.39$.

Of additional interest was the extent to which participants judged Black and White targets to require differential coping strategies for social pain. To test this, we computed mean values for the treatment scale separately for Black and White targets. A paired samples *t*-test indicated that participants judged Black targets ($M = 2.66$, $SD = 0.63$) to require significantly fewer coping

resources than White targets ($M = 2.73$, $SD = 0.60$), $t(152) = 3.71$, $p < .001$, 95% CI for the difference of means [0.04, 0.14], $d = 0.30$.

Of primary interest was whether the tendency to judge Black targets as needing less resource-intensive forms of coping than White targets occurs indirectly through differential beliefs about sensitivity to social pain for these groups. To test this, we conducted a mediation analysis using the MEMORE macro (Montoya & Hayes, 2017). Using 10,000 bias-corrected bootstrapped samples, the indirect effect of race on judgments about coping strategies through social pain judgments was significant, $b = -0.10$, $SE = 0.02$, 95% CI [-0.14, -0.06], providing evidence in support of the proposed model (see Figure 4).

In Study 6, participants indicated that Black targets were less sensitive to social pain and needed less resource-intensive coping strategies to deal with their social pain than White targets. Moreover, the social pain effect mediated the tendency to see Black targets as needing fewer social supports than White targets. These data provide initial evidence of a harm caused by racial biases in social pain judgments. Namely, the belief that Black individuals need fewer social supports to manage distress than White individuals. To the extent that individuals believe Black people feel less social pain and therefore need fewer coping resources than White people, they may be less willing to help Black people in need and less supportive of mental health resources in predominantly Black communities. Indeed, research from clinical science reveals that Black clients often receive fewer referrals for intensive mental healthcare services than White clients and White clinicians are sometimes less effective with Black clients than White clients (e.g., Cuffe, Waller, Cuccaro, Pumariega, & Garrison, 1995; Newhill & Harris, 2007; Owen, Imel, Adelson, & Rodolfa, 2012). It may be that racial biases in judgments of social pain and

psychological distress contribute to race-based deficiencies in mental healthcare for Black individuals.

General Discussion

Experiencing social pain harms health and well-being (e.g., Cacioppo & Cacioppo, 2008; Jackson et al., 2006). Moreover, people of color are especially at risk for these deleterious outcomes because they have more social pain experiences than White people (e.g., Krieger & Sidney, 1996; Williams & Mohammed, 2009). Despite this, little research has investigated the beliefs people have about others' sensitivity to social pain. The current work sought to fill this gap in the literature by examining beliefs about White and Black people's social pain sensitivity.

Study 1 provided initial evidence that participants believe Black males experience less social pain than White males. Studies 2a and 2b replicated this effect and demonstrated racial bias in social pain beliefs also generalizes to female targets. In Study 3, both White and Black participants indicated that Black targets would feel less pain than White targets. These data rule out the possibility that racial biases in social pain are specific to outgroup members and provide evidence that Black people hold similar biases in social pain expectations as White people. Moreover, Black participants expected they would personally feel just as much pain as White participants and more pain than other Black people. In other words, these effects are not driven by Black participants' personal expectations of social pain, but by their endorsement of group-level biases in social pain judgments. Although White participants expected these socially painful events would have similar effects on the self and ingroup, Black participants' personal judgments diverged from their expectations for the ingroup.

Study 4 provided evidence for one possible mechanism by demonstrating that participants' beliefs about life hardship mediated racial biases in social pain judgments. Thus, nominally positive stereotypes about Black people's toughness led to the minimization of Black people's social pain. Study 5 demonstrates that the effects are specific to race-based biases in judgments of social pain, and do not generalize to other sensations, such as pleasure. Finally, Study 6 showed that participants believed Black targets would experience less pain than White targets and would subsequently require fewer social supports to cope with their distress. Together, these studies consistently indicate that people believe Black individuals are less sensitive to social pain than White individuals, an effect that is at least partially driven by beliefs about endured life hardship, and seems to undermine judgments about the necessity of coping resources to manage psychological distress.

Implications

The current work makes numerous contributions to research related to racial inequity and pain. Socially painful events are a common aspect of the human experience and directly shape fundamental markers of human functioning like health and well-being (e.g., Cacioppo & Cacioppo, 2008). Moreover, members of stigmatized groups experience socially painful events more frequently than members of non-stigmatized groups and these chronic experiences with social pain contribute to racial deficits in health for Black people relative to White people (e.g., Krieger & Sidney, 1996; Williams & Mohammed, 2009). Yet, in the current work, participants judged Black targets less sensitive to social pain than White targets. This racial bias represents a chilling paradox in lay beliefs about social pain and race.

The current research also builds on social pain research by providing evidence that these effects are tied to beliefs about hardship. As members of a marginalized social group, Black people experience greater hardship than White people. However, the current findings indicate that people translate these beliefs about hardship into racialized judgments about social pain sensitivity. Consistent with enhancing beliefs about adversity, the current work indicates that people may believe enduring hardship desensitizes Black individuals to social pain. These results are noteworthy because they provide evidence that people believe hardship not only makes people physically tough (Hoffman & Trawalter, 2016), but also socially tough. People mistakenly believe that adversity toughens both the body and the mind (Pascoe & Smart Richman, 2009).

Related, the current work's hardship effects also contribute to research on the negative consequences of nominally positive stereotypes (Czopp, Kay, & Cheryan, 2008). Specifically, these studies provide evidence consistent with the notion that nominally positive stereotypes related to Black toughness have several negative consequences, including the minimization of Black people's social pain and social support needs.

This work also has implications for the intervention and treatment of social pain. In interpersonal relationships (e.g., Collins et al., 2010), clinical practice (e.g., American Psychiatric Association, 2013), and community health programming (e.g., Blendon & Benson, 2018), recognizing others' distress is an essential prerequisite to providing support. When social pain and distress is minimized, social relationships and personal and community mental health suffer. Moreover, to the extent that people minimize Black people's social pain, they likely underestimate the amount of support and care necessary to aid Black people in distress. The

current work provides evidence that failing to recognize Black individuals' social pain has implications for social support judgments. Study 6 revealed that following identical aversive scenarios, participants believed Black targets would need less resource-intensive social supports than White targets. These results indicate that Black individuals may not receive the support that they need in part because people may not fully recognize their pain. Moreover, to the extent that hardship makes one *more* (not less) sensitive to pain, racial differences in social pain experiences necessitate *more* (not fewer) resources for effectively treating social pain among Black people. When considering the fundamental link between distress recognition and care, race-based biases in social pain and support judgments stand to impact numerous domains ranging from social, educational, and professional relationships to personal and community level mental healthcare. Racial biases in social pain may undermine the social support Black people receive in numerous contexts.

These findings also have implications for the study of microaggressions and the everyday incivility experienced by members of stigmatized groups. Although the items in our social pain measure never directly implicated race, most of these items were designed to mirror the everyday slights and rudeness that comprise a portion of the microaggression experience (i.e., disrespect, derogation, unfair treatment; see Wong, Derthick, David, Saw, & Okazaki, 2014). The current results suggest that both White and Black individuals minimize the pain caused by everyday incivilities toward Black people. Moreover, this bias was driven by beliefs about hardship and subsequently undermined social support judgments. When viewed together, these results imply that people not only fail to recognize the negative effect common slights have for Black people, they also believe past experiences with hardship inure Black individuals to the pain caused by

microaggressions. These results complement research on Black peoples' personal experiences with microaggressions (e.g., Sue et al., 2008) and provide evidence that third-party evaluators minimize pain expected to be caused by these microaggression-like incivilities.

Limitations and Future Directions

The current work's limitations provide avenues for future research. Consistent with the lay notion that "whatever does not kill you makes you stronger," we found that the racialized hardship beliefs contributed to racial biases in social pain judgments. Nevertheless, lay perceptions about the effects of hardship and adversity vary as an individual difference (Crum, Salovey, & Achor, 2013). Future research might test how individual differences in adversity beliefs moderate racial biases in social pain judgments. For instance, people who believe that adversity enhances toughness may endorse this social pain bias, whereas those who believe that adversity has a debilitating effect may show a muted or even opposite pattern of results. Future work is needed to better understand how differences in beliefs about the consequences of hardship shape these racial biases in social pain judgments.

It is also worth noting the current studies were conducted in the United States where the history of slavery and past and present White supremacy closely connect beliefs about race and hardship. The racial bias documented in the current studies may not generalize to cultures where race and hardship are not so closely linked. Rather, the current data suggest that groups culturally associated with hardship (e.g., those low in socioeconomic status) should be expected to have their social pain minimized relative to groups that are not associated with hardship (e.g., high socioeconomic status groups; Summers et al., 2019). Similarly, these findings may not generalize

to cultural contexts in which hardship is seen as weakening rather than enhancing. Future research should explore the hardship-social pain connection in other cultural contexts.

Additionally, future research might explore moderators of these effects. Although physical pain biases do not appear to be moderated by differences in explicit prejudice and interracial motives (Trawalter et al., 2012), it may be that other individual differences modulate biases in social pain. For example, empathy and perspective taking have been linked with low levels of racial bias and greater recognition of the daily struggles of Black people (e.g., Todd, Bodenhausen, Richeson, & Galinsky, 2011), while also reducing racial disparities in pain judgments (Drwecki, Moore, Ward, & Prkachin, 2011). By extension, empathy and perspective taking may attenuate biases in judgments of Black and White people's social pain.

Further, we operationalized social pain as the psychological distress experienced in response to harmful and aversive social experiences and measured it by asking participants to indicate how painful they believed a series of events would be for depicted individuals. We intentionally focused on events that were mild to moderately painful because we wanted to ensure that most people might expect to reasonably experience such events. However, an open question is whether similar effects would arise with more serious scenarios (e.g., severe workplace harassment, emotional abuse). In short, do racial biases in social pain judgments extend to potentially traumatizing events?

Another potential limitation of the current work is its reliance on within-subjects methods. Although within-subjects designs are often preferred for their advantages of using each participant as their own control and maximizing statistical power from smaller samples, they can be subject to context, practice, or sensitization effects (Greenwald, 1976). Recognizing that

between-subjects designs are also subject to similar effects, future research might benefit from a mixed-method approach in exploring how racial biases in social pain judgments operate with between-subjects approaches.

In Study 6, we demonstrated that the social pain bias has implications for beliefs about coping resources. Specifically, the tendency to see Black individuals as being less sensitive to social pain than White individuals translated into a belief that Black individuals would need less resource-intensive coping mechanisms than White individuals. Although these findings are suggestive, they only preliminarily address the broader question about treatment of social pain and related issues. For instance, it would be useful to know if people believe mental illness is less distressing for Black individuals than White individuals. Indeed, there is evidence that White clinicians are less effective at treating Black relative to White clients (e.g., Owen et al., 2012). Research also indicates that the lifetime prevalence rate of post-traumatic stress disorder is higher for Black Americans than White Americans, and that Black Americans are at a higher risk for developing post-traumatic stress disorder following traumatic events than White Americans (e.g., Himle, Baser, Taylor, Campbell, & Jackson, 2009). Should this bias extend to beliefs about explicit mental illness, it may set the stage for racial biases in the quality of mental healthcare offered to Black relative to White clients (e.g., Cuffe et al., 1995; Newhill & Harris, 2007). Future research should test whether racial biases in social pain judgments extend to mental healthcare professionals. Such racial biases in social pain judgments may also undermine support for policies and programs that provide social supports and mental healthcare to communities of color. If the public does not recognize the social pain experienced by people of color, they may be less supportive of resources for their treatment and care.

Relatedly, the present research focused primarily on beliefs about others' psychological states (i.e., who feels more acute social pain?). However, of interest in future research might also be how people make inferences about others' *expressions* of social pain. For example, past research has shown that decisions about who is trusted and who is doubted can be complicated by race (see Lloyd et al., 2017; Lloyd, Lloyd, McConnell, & Hugenberg, 2019). Indeed, several predictions about how race may influence decisions about others' pain signals seem plausible (see Mende-Siedlecki, Qu-Lee, J., Backer, & Van Bavel, 2019). For instance, it may be that Black targets' pain expressions are doubted relative to White targets. Alternatively, perceivers might see Black targets as needing to "toughen up" after expressing sadness but see White targets who express sadness as needing support. Conversely, beliefs about Black people's toughness may magnify the apparent severity of painful expressions. If people who are believed to be tough burst into tears, perceivers may infer that they are experiencing intense pain.

Additionally, the present research focuses on pain judgments specifically (i.e., "How painful is this event?"), but of additional interest is whether there are race-based biases in pain *appraisals* (i.e., "To what extent is this event a threat/challenge"; see Unruh & Ritchie, 1998). To our knowledge, no research has focused on racial stereotypes of pain appraisals. Perhaps stereotypes of Black people as toughened by life hardship would extend to appraisals, making it appear that Black people have more resources to cope with pain, and therefore making pain more of a challenge and less of a threat. Future research might investigate this question directly.

Finally, the current work focused on targets unknown to participants. It may be that racial biases of social pain change when evaluating targets known to participants. However, here it is worth noting that past work on empathic accuracy suggests that White peoples' desires to be

liked by people of color sometimes interferes with their ability to accurately discern the emotions and experiences of minority peers (Holoiien, Bergsieker, Shelton, & Alegre, 2015). Hence, it may be that racial biases in social pain judgments also extend to established social relationships between White and Black individuals. Regardless, future research should continue to explore how race shapes social pain judgments.

Conclusion

As research at the intersection of health and race attests, Black people more frequently experience social pain than White people and these chronic experiences contribute to the mental and physical health gap between Black and White Americans (e.g., Jackson et al., 2006; Williams & Mohammed, 2009). Despite social pain's deleterious effects on health and well-being, the current work provides evidence that people believe Black individuals will experience *less* social pain than White individuals. These studies also suggest this racial bias in social pain judgments is driven by racialized beliefs about life hardship and undermines the perceived necessity of social supports for Black people to cope with their pain. Of note, this racial bias in social pain judgments is not limited to White people but also extends to Black people (i.e., racial ingroup members). These results hint at a paradoxical side effect of nominally positive stereotypes about Black Americans' toughness and perseverance: the minimization of Black people's social pain.

Open Practices

Materials and data for all studies, as well as the pre-registration documentation for Study 2b, can be found at: <https://osf.io/ft8vz/>.

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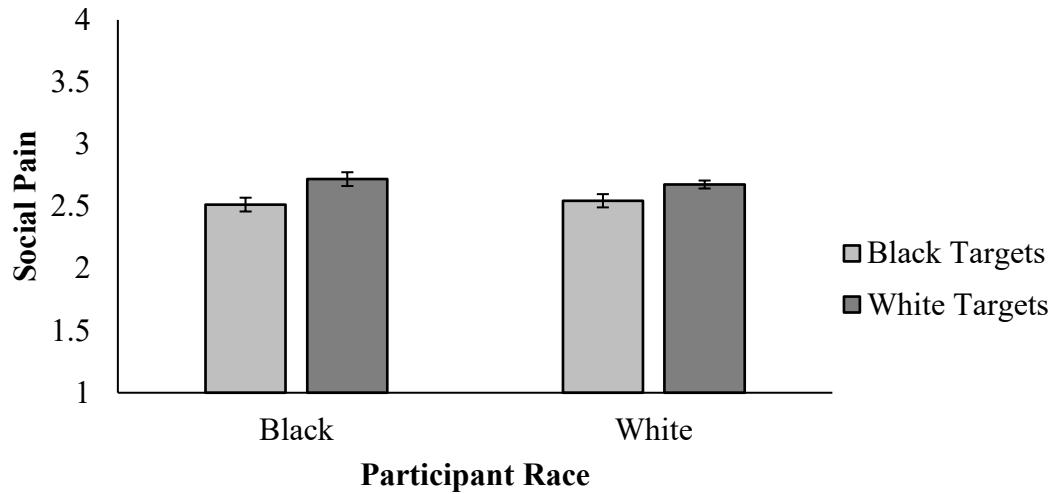


Figure 1. Judgments of social pain sensitivity as a function of Participant Race and Target Race in Study 3. Although both Black and White Participants judged White targets more sensitive to social pain than Black targets, this effect was stronger among Black participants. Error bars reflect standard error of the mean.

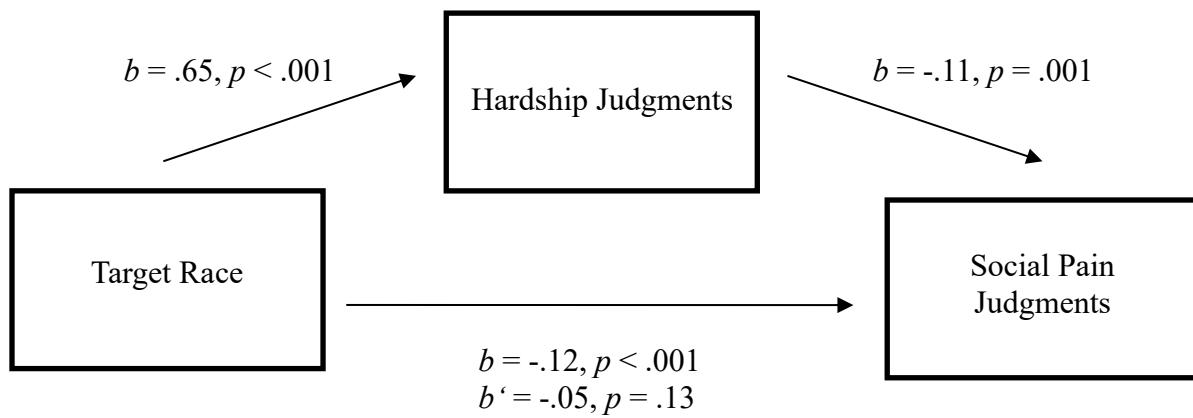


Figure 2. The mediation model predicting Social Pain Judgments as a function of Target Race

(Black – White) indirectly through Hardship Judgments in Study 4. The indirect effect is significant, $b = -0.07, SE = 0.04, 95\% \text{ CI } [-0.16, -0.01]$.

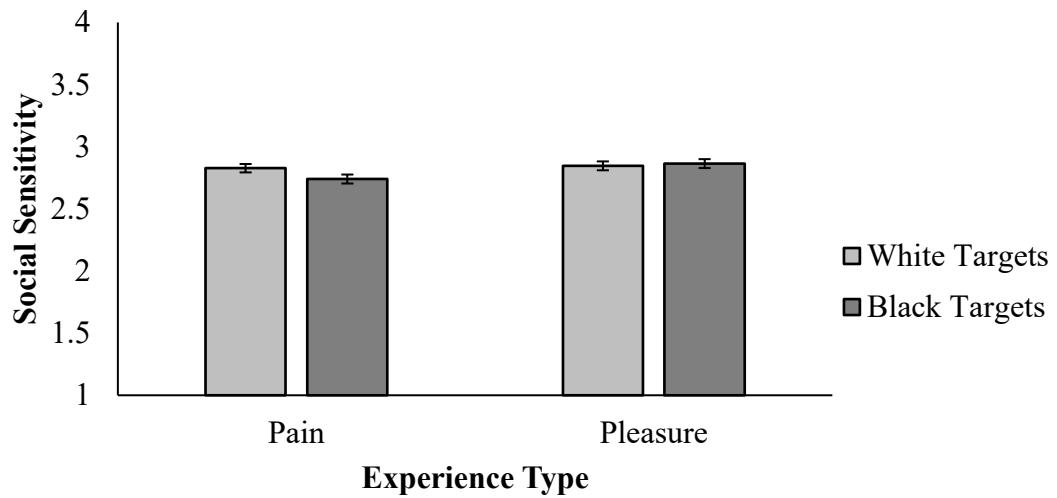


Figure 3. Judgments of social sensitivity as a function of Experience Type and Target Race in Study 5. Participants judged Black targets less sensitive to Social Pain than White targets but did not see White and Black targets as differentially sensitive to Social Pleasure. Error bars reflect standard error of the mean.

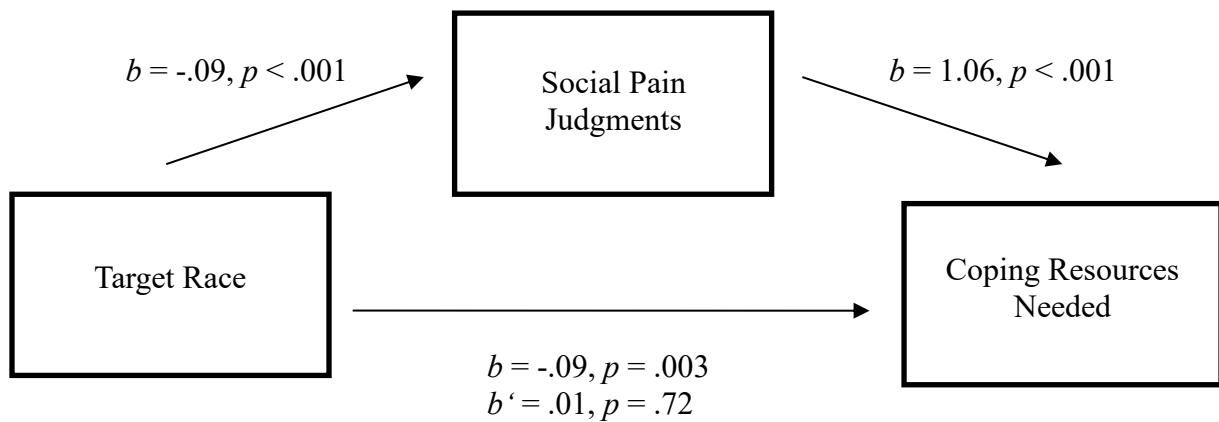


Figure 4. The mediation model predicting Coping Resources Needed as a function of Target Race (Black – White) indirectly through Social Pain Judgments in Study 6. The indirect effect is significant, $b = -0.10, SE = 0.02, 95\% CI [-0.14, -0.06]$.