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# Do Status-Legitimizing Beliefs Moderate **Effects of Racial Progress on Perceptions** of Anti-White Bias? A Replication of Wilkins and Kaiser (2014)

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### **Abstract**

In three studies, Wilkins and Kaiser found that both chronic and experimental salience of racial progress in the United States increased the perceptions of anti-White bias only among people high in status-legitimizing beliefs (SLBs). We conducted four preregistered high-powered replications of this research. Studies 1, 2, and 3a were close replications of studies 1-3, respectively. Study 3b was a close replication that included an additional experimental condition. Contrary to the original findings, none of the four expected interaction effects tested were statistically significant in the predicted direction, and only one of the four survived a "small telescopes" analysis. We provide additional tests addressing whether changing social contexts explain our failures to replicate, with mixed conclusions. Whereas it is possible that changing social contexts may have eliminated a once true effect, it is also possible that the original results were false positives.

### **Keywords**

anti-White bias, racial progress, status, replication

Historically, racial discrimination in the United States has involved Whites as the perpetrators of discrimination and racial minorities as the victims. That said, following the election and reelection of their first Black U.S. president, Americans perceived greater progress toward racial equality (Sears & Tesler, 2011), and that discrimination toward minority groups was less of an issue now than it once was (Kaiser, Drury, Spalding, Cheryan, & O'Brien, 2009). Indeed, Norton and Sommers (2011) demonstrated that whereas both Whites and Blacks recognize anti-Black bias in racial discrimination in past decades, Whites (but not Blacks) currently perceive anti-White bias (i.e., greater discrimination against Whites than Blacks). Together, this work could suggest that as racial progress has increased over time, Whites' perceptions of anti-Black bias have decreased and their perceptions of anti-White bias have increased.

Wilkins and Kaiser (2014) examined whether perceptions of racial progress explain increased perceptions of anti-White bias, especially among Whites who endorse ideologies that justify existing status hierarchies, that is, status-legitimizing beliefs (SLBs; e.g., Jost & Banaji, 1994). In Study 1, they found that Whites' perceptions of racial progress were associated with increased perceptions of anti-White bias, but only among people high in SLBs. In Study 2, they experimentally manipulated perceptions of racial progress, finding that reminders of racial progress increased perceptions of anti-White bias, but only among people high in SLBs. In Study 3, building on the assumption that racial progress is threatening to Whites high in SLBs, all participants were reminded of racial progress and were assigned to either a self-affirmation or nonaffirmation condition. Self-affirmation reduced the perceptions of anti-White bias, but only among people high in SLBs.

We conducted four high-powered, preregistered close replications of Wilkins and Kaiser's (2014) three studies. Besides the general importance of replicability in psychological science (e.g., Brandt et al., 2014; Open Science Collaboration, 2015), it is important to replicate these studies for two primary reasons. First, there are statistical concerns. The original sample sizes were fairly small (Ns = 71, 160, and 95 in Studies 1-3, respectively). This is especially concerning given that designs with continuous interaction effects (such as in the original studies) are commonly underpowered (Aguinis, Boik, & Pierce, 2001), and underpowered studies typically overestimate effect

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sizes (Ingre, 2013). Further, there is reason for concern when multiple reported *p* values are just under .05 (Simonsohn, Nelson, & Simmons, 2014); *p* values for the interaction terms were .05, .01, and .04 in studies 1–3, respectively. Second, between the racist rhetoric surrounding Donald Trump's candidacy and presidency, and increased attention to shootings of unarmed Black men by police officers and subsequent protests, one may question whether these effects would replicate due to changes in the social context (Van Bavel, Mende-Siedlecki, Brady, & Reinero, 2016) between when the original studies were collected (in 2012, under Barack Obama's presidency) and today (in 2017).

Studies 1, 2, and 3a are close replications of the original studies 1–3, respectively. Study 3b was also a close replication of study 3, except that we added an "enhanced" racial progress condition to the design to counter potential changes in social context. The replications were preregistered on the Open Science Framework (OSF; full project page: https://osf.io/dt9za/; preregistration for Studies 1, 2, and 3a: https://osf.io/8m73q/; preregistration for Study 3b: https://osf.io/nfqvq/). If these studies fail to replicate, it is likely impossible to rule out changing social contexts as an explanation. Nevertheless, we report exploratory analyses to address this possibility.

# Method

# **Participants**

Wilkins and Kaiser (2014) recruited 79, 168, and 100 White participants for studies 1–3, respectively. Following exclusion for random clicking, 71, 160, and 95 participants remained in their analyses for studies 1-3, respectively. Based on Simonsohn's (2015) recommendation, we aimed to collect samples at least 2.5 times larger than the original samples. We recruited 222, 410, and 264 White participants for our Studies 1, 2, and 3a. We recruited 5 times the original sample size of study 3 for our Study 3b (N = 505) because we added a third condition to the original two-condition design. Following exclusion for random clicking, 215, 394, 257, and 487 participants remained in Studies 1, 2, 3a, and 3b, respectively. Studies 1 and 2, and 3a were collected in July 2017 (participants were randomly assigned to one of the three studies), and Study 3b was collected in March 2017 (55% female in Study 1; 50% female in all other studies).

As in the original studies, we recruited participants through Mechanical Turk. In the original studies, participants were compensated either US\$0.25 (Studies 1 and 2) or US\$1.00 (Study 3). We compensated participants US\$0.60 (Studies 1, 2, and 3a) or US\$0.65 (Study 3b).

### Materials and Procedure

For each replication study, we used Wilkins and Kaiser's (2014) original materials. Unless otherwise noted, we followed their procedures to produce close replications of the original studies. Unless otherwise noted, all measures were scored on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*). In each

study, scale items were presented in random order. In Studies 1, 2, and 3a, gender, age, and ethnicity were measured during the initial prescreening, and education, income, political ideology, and political party were measured at the end of the study. In Study 3b, gender, age, ethnicity, education, income, and socioeconomic status were measured during the prescreening, and ideology and party were measured at the end. All materials are available on the OSF.

Study 1. Participants first completed Levin, Sidanius, Rabinowitz, and Federico's (1998) 12-item SLBs measure ( $\alpha = .91$ ). Next, they completed a 5-item measure assessing perceptions of racial progress ( $\alpha = .82$ ), followed by an 8-item measure assessing perceptions of anti-White bias ( $\alpha = 0.91$ ). Wilkins and Kaiser (2014) developed the latter two measures.

Study 2. Participants were told that they would be participating in two separate and unrelated studies. In the first "study," participants were randomly assigned to either the racial progress or control condition. The racial progress condition highlighted particular racial minority group members (e.g., Barack Obama, Condoleeza Rice) who held positions of power traditionally held by Whites, as well as increased social mobility for racial minorities in the United States. The control condition described an underdog swim team that managed to capture a national championship. Both articles therefore highlighted gains in status for lower status groups. As a memory check, participants answered several questions about the article after reading it.

The second study was described as a study of social perceptions. Participants completed the anti-White bias measure ( $\alpha = .90$ ) followed by a single-item manipulation check ("Blacks in the United States are better off now than they ever have been;" M = 5.27, SD = 1.31) and then the SLB measure ( $\alpha = .88$ ).

Study 3a. Participants first completed the SLB<sup>2</sup> measure ( $\alpha =$ .91). All participants then read the same shortened version of the Study 2 racial progress article Wilkins and Kaiser (2014) used in their study 3, along with a single memory check item. Participants were then randomly assigned to either the selfaffirmation or nonaffirmation condition. In the selfaffirmation condition, participants viewed a list of values (e.g., social life, relationships, etc.), selected the value most important to them, and wrote of a time when their behavior exemplified that value. In the nonaffirmation condition, participants described what they had eaten the previous day. Participants then completed the anti-White bias measure ( $\alpha = .89$ ). Following all of the measures contained in the original protocol, we included Heatherton and Polivy's (1991) 20-item Self-Esteem Scale (1 = not at all; 5 = extremely) as a check on the self-affirmation manipulation (M = 3.76, SD = .68,  $\alpha = .92$ ). This measure was not included in the original study.

Study 3b. Study 3b was identical to Study 3a with two exceptions.<sup>3</sup> First, prior to the self-affirmation manipulation, participants were randomly assigned to the racial progress narrative originally included in Wilkins and Kaiser's (2014) study 3,

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or an enhanced racial progress narrative meant to highlight racial progress despite Donald Trump's election. Second, we did not include the self-affirmation manipulation check. Measures of SLBs ( $\alpha=.93$ ) and anti-White bias ( $\alpha=.91$ ) were the same as in Study 3a.

### Results

# Correlations Among Variables

In all four studies, SLBs and anti-White bias were positively correlated (rs > .50, ps < .001). In Study 1, racial progress was positively correlated with anti-White bias, r(211) = .60, p < .001, and with SLBs, r(207) = .55, p < .001. In Study 2, perceptions of racial progress (i.e., the manipulation check) were positively correlated with SLBs, r(388) = .32, p < .001, and anti-White bias, r(389) = .43, p < .001. Bivariate correlations among these variables were not reported in the original paper.

## Manipulation Checks

In Study 2, belief that Blacks in the United States are better off now than in the past was higher in the racial progress condition (M = 5.47, SD = 1.21) than in the control condition, M = 5.06, SD = 1.38, t(394) = 3.13, p = .002, d = .32. This replicates findings from Wilkins and Kaiser's (2014) study 2, and suggests that conditions were sufficient for us to observe the predicted interaction effect.

In Study 3a, there were no differences in self-esteem between participants in the self-affirmation condition (M=3.69, SD=.72) and control condition, M=3.82, SD=.64, t(242)=1.43, p=.158, d=.19. At least on this measure of self-esteem, the manipulation had no effect. It is, however, fairly uncommon to include a manipulation check in this particular self-affirmation experimental paradigm (the original study did not). Thus, participants in the self-affirmed condition may have been more self-affirmed than those in the non-affirmed condition, but we may have used an unreliable or invalid measure to capture its effect, or its effect may have dissipated by the time self-esteem was measured.

# Replications of Interaction Effects

In all four studies, we used Hayes' (2013) PROCESS macro to test the key interaction effect. Studies 1 and 2 tested SLB  $\times$  Racial Progress interactions. Racial progress was measured in Study 1 and manipulated in Study 2 (0 = control; 1 = racial progress). Studies 3a and 3b tested SLBs  $\times$  Affirmation (0 = nonaffirmation; 1 = affirmation) interactions. Continuous variables were mean centered.

Study 1. Consistent with the original study, SLBs were positively associated with anti-White bias, b=.50, SE=.08, 95% CI [.35, .66], t=6.51, p<.001. Inconsistent with the original study, racial progress was positively associated with anti-White bias, b=.41, SE=.07, 95% CI [.26, .56], t=5.52, p<.001. There was a significant SLB  $\times$  Racial Progress

interaction, b = -.10, SE = .04, 95% CI [-.18, -.02], t = -2.52, p = .013; however, this effect was in the *opposite direction* of the original finding. Greater perceived racial progress was associated with greater anti-White bias among people high in SLBs (i.e., 1 SD above the mean of SLBs), b = .29, SE = .09, 95% CI [.12, .47], t = 3.30, p = .001, and this relationship was somewhat stronger among people low in SLBs (i.e., 1 SD below the mean of SLBs), b = .53, SE = .09, 95% CI [.36, .70], t = 6.10, p < .001. In contrast, Wilkins and Kaiser (2014) found a significant and positive relationship between racial progress and anti-White bias among people high in SLBs, and a negative and nonsignificant relationship among people low in SLBs.

Further, greater SLB endorsement was related to greater perceived anti-White bias among people high in perceived racial progress (i.e., 1 SD above the mean of racial progress), b=.40, SE=.09, 95% CI [.21, .58], t=4.24, p<.001, and this relationship was somewhat stronger among people low in perceived racial progress (i.e., 1 SD below the mean of racial progress), b=.61, SE=.08, 95% CI [.45, .77], t=7.35, p<.001. In contrast, the relationship between SLBs and anti-White bias was greater among people high rather than low in perceived racial progress in the original study.

Study 2. Consistent with the original study, there was a positive relationship between SLBs and anti-White bias, b = .71, SE = .06, 95% CI [.59, .83], t = 11.29, p < .001, and no relationship between the racial progress condition variable and anti-White bias, b = -.18, SE = .11, 95% CI [-.41, .04], t = -1.60, p = .112. Inconsistent with the original study, the SLB × Racial Progress condition interaction was not significant, b = .10, SE = .13, 95% CI [-.15, .34], t = .77, p = .441.

Study 3a. Consistent with the original study, there was a positive relationship between SLBs and anti-White bias, b = .58, SE = .07, 95% CI [.44, .72], t = 8.04, p < .001, and no relationship between the affirmation condition variable and anti-White bias, b = .02, SE = .14, 95% CI [-.26, .30], t = .15, p = .881. Inconsistent with the original study, the SLB × Affirmation condition interaction was not significant, b = .00001, SE = .14, 95% CI [-.28, .28], t = -.0003, p = .9997.

Study 3b. Recall that prior to random assignment to the self-affirmation or nonaffirmation conditions, participants in Study 3b were randomly assigned to either the original narrative condition or the enhanced narrative condition. When examining only participants who read the original narrative, there was a positive relationship between SLBs and anti-White bias, b = .58, SE = .07, 95% CI [.43, .72], t = 7.90, p < .001, and no relationship between the affirmation condition and anti-White bias, b = -.09, SE = .15, 95% CI [-.40, .21], t = -.59, p = .554, consistent with the original study. Inconsistent with the original study, however, the SLB × Affirmation interaction was not significant, b = .05, SE = .15, 95% CI [-.24, .34], t = .35, p = .727. The interaction was also not significant when only examining participants who read the enhanced narrative, b = -.14,

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Studies	Original N	Replication N	Point Estimate (β)	Power, Point estimate	β, Upper 90% CI	Power of β, Upper 90% CI		
Study I	71	207	10	20.80%	03	6.60%		
Study 2	160	389	.10	12.60%	.30	43.20%		
Study 3a	95	254	.00	7.80%	.23	20.90%		
Study 3b	95	242	.05	8.20%	.29	29.90%		

Table I. Results of Small Telescopes Analyses.

Note. The interaction effect in Study I was significant but in the opposite direction of the original effect. In Study 3b, small telescopes analyses are limited to participants who read the original racial progress narrative.

SE = .15, 95% CI [-.44, .16], t = -.93, p = .351, and if anything, was in the opposite direction.

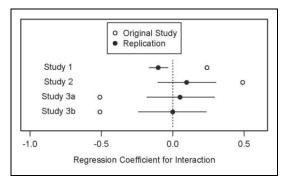
# Would the Replication Effects Have Been Detectable in the Original Studies?

We adapted Simonsohn's (2015) "small-telescopes" approach to evaluate the success of our four replications. This approach examines whether the effect sizes observed in our replications would have been detectable in the original studies. In other words, were our observed effects so small as to be undetectable using the original studies' sample sizes? To do so, we estimated the power of each interaction effect (Studies 1 and 2: SLBs  $\times$ Racial Progress; Studies 3a and 3b: SLBs × Affirmation) given the original studies' sample sizes, and calculated the 90% CIs around this estimate, as well as the power associated with the upper bound of that CI. If the estimated power of the point estimate is lower than 33%, and especially if estimated power at the upper bound of the 90% CI is less than 33%, then the original study would not have had adequate power to capture the effect observed in the replication. All of these analyses were performed using a simulation method to construct CIs and estimate statistical power empirically (Ruscio, 2017).

Table 1 reports the original and replication sample sizes, effect size estimates (β) for each interaction effect and their corresponding power estimates, and effect size estimates at the upper bound of the 90% CI and their corresponding power estimates. In no case did the power for the point estimate of the effect size exceed 33%, and the power estimate at the upper bound of the 90% CI exceeded 33% in only one case (43.2%; Study 2). These findings suggest very weak statistical power to detect the effect sizes we observed in our replications given the sample sizes in the original studies. Figure 1 reports the effect sizes for the interaction effects from the original and replication studies.

# **Exploratory Analyses**

It is impossible to conclusively determine whether potential changes in Americans' perceptions of racial progress since the presidential campaign and election of Donald Trump help explain why the original studies failed to replicate across four replication attempts. We can, however, look for clues in our own data, and in comparisons between our data and the data from the original studies. For instance, in Study 2, the racial progress manipulation increased perceptions of racial progress



**Figure 1.** Point estimates from original and replication studies, with 90% confidence intervals from the small telescopes analysis. Point estimates for the original effect for Studies 3a and 3b are the same because they each reflect the point estimate from the original study 3. The point estimate for Study 3b only includes participants from the original affirmation condition. Based on coding in the original study, positive effects were supportive of the hypothesis in studies 1 and 2, and a negative effect was consistent with the hypothesis in study 3. This is why the original effects are on opposite sides of the vertical zero-point line for Studies 1 and 2 compared to Studies 3a and 3b.

relative to the control condition, suggesting that we were able to produce the conditions sufficient for us to observe the predicted interaction effect in that study.

We could also ask two additional questions: (1) Were our observed levels of perceived racial progress commensurate with those from the original study? and (2) Did people generally perceive more racial progress than otherwise in our replication studies (i.e., Was perceived racial progress significantly higher than the scale midpoint)?

We measured perceptions of racial progress in Studies 1 and 2. Table 2 reports the Ms and SDs from our data, and the same data from the original studies. Regarding Study 1, perceived racial progress was higher in the original study than in the replication. Regarding Study 2, there was no difference in perceived racial progress between the original study and the replication in either the control or racial progress conditions. Therefore, the evidence is mixed regarding whether racial progress levels are lower now than when the original data were collected. However, on average, our participants believe that racial progress has been made, even in 2017, as perceptions of racial progress were higher than the midpoint in Study 1, t(214) = 14.08, p < .001, d = 1.92, and Study 2 (collapsed across conditions), t(393) = 19.27, p < .001, d = 1.24.

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Table 2. Comparison of Levels of Perceived Racial Progress, SLBs, and Anti-White Bias Between the Original and Replication Studies.

Dependent Measures	Original M(SD)	Replication M(SD)	df	t	Þ	d
Dependent reasures	771(3D)	771(3D)	91		Ρ	
Perceived racial progress						
Study I	5.41(.87)	5.02(1.06)	284	2.80	.005	.40
Study 2 (control condition)	4.96(1.24)	5.06(1.38)	276	<b>−.56</b>	.574	.08
Study 2 (racial progress condition)	5.64(1.12)	5.47(1.21)	276	1.08	.280	.15
Status-legitimizing beliefs	, ,	, ,				
Study I	3.54(1.02)	3.65(1.15)	284	0.72	0.473	.10
Study 2	3.46(.90)	3.56(1.03)	552	1.07	0.284	.10
Study 3a	3.52(.88)	3.53(l.11)	350	0.08	0.937	.01
Study 3b	3.52(.88)	3.39(1.19)	580	1.01	0.312	.11
Anti-White bias	` '	,				
Study I	4.46(1.14)	4.37(1.34)	284	0.51	0.612	.07
Study 2	4.21(1.12)	4.40(1.31)	552	1.61	0.108	.15
Study 3a	3.52(1.04)	4.26(1.27)	350	5.08	<.001	.61
Study 3b	3.52(1.04)	4.32(1.34)	580	5.50	< .001	.62

Note. SLBs = status-legitimizing beliefs.

One may wonder whether levels of SLBs and anti-White bias were comparable across original and replication studies. Table 2, therefore, also reports Ms and SDs for SLBs and anti-White bias from our data and the original studies. There were no significant differences in levels of SLBs between the original and replication studies. This is also the case for anti-White bias, with the exception of the Study 3 comparison. However, this difference seems due to the relatively low levels of anti-White bias observed in the original study 3; the M in that study is sizably lower than that observed in the original studies 1 and 2, which were quite similar to our own (which we should note were based on much larger sample sizes). Therefore, it appears that there is little evidence of differing levels of SLBs and anti-White bias between the original and replication studies.

### **General Discussion**

We conducted four preregistered, high-powered replications of Wilkins and Kaiser's (2014) three original studies. We replicated their observed main effect of SLBs on anti-White bias, and we replicated their observed effect of the racial progress manipulation on perceptions of racial progress (i.e., manipulation check, Study 2). However, inconsistent with the original studies, none of the key interaction effects were statistically significant in the predicted direction, and one was even significant in the opposite direction. We supplemented these traditional decisions about replicability (i.e., Is p < .05 in the predicted direction?) with a "small telescopes" approach (Simonsohn, 2015). Statistical power never exceeded 33% for a point estimate of effect size, and the power estimate for the effect size at the upper bound of the 90% CI exceeded 33% (specifically, 43.2%) in only one of four cases (Study 2), meaning we could not rule out failure to replicate in this one case, but could in the other three.

### Why Did the Original Studies Fail to Replicate?

The two most obvious potential explanations for why the original effects failed to replicate are that the original findings are false positives, or that intervening social changes have eliminated the original effect. We are not able to indisputably adjudicate between these two possibilities, and so can only review evidence for or against each explanation. As noted, the original studies were likely underpowered, and their three reported p values for the key interaction effects hovered around p = .05(i.e., ps = .05, .01, and .04). Multiple failures to replicate underpowered studies that carried relatively large p values clearly make it quite possible that the original effects were false positives. In fact, research also collected during the Obama Presidency (Wellman, Liu, & Wilkins, 2016) suggests that SLBs are associated with anti-White bias even in the absence of a racial progress prime (as we observed, but inconsistent with effects observed in Wilkins & Kaiser's [2014] study 2; see also Study 3 in which there was no relationship between SLBs and anti-White bias in the affirmation condition). If a lack of a relationship between SLBs and anti-White bias under "normal" conditions (as observed in Wilkins & Kaiser, 2014, but not in Wellman et al., 2016, or the present studies) is a fluke, then this may suggest that the significant SLB × Racial Progress interactions observed in Wilkins and Kaiser (2014) were artefacts of this abnormality.

That said, perhaps people, especially those high in SLBs, no longer perceive racial progress in the wake of Trump's campaign and election, or at least less than they did during the Obama presidency, when the original studies were collected. Our evidence is mixed on this point. On the one hand, perceptions of racial progress in our Study 1 were significantly lower than in the original study, which is consistent with an argument that changes in social context may have eliminated the original effect. On the other hand, the manipulation check in our Study 2 indicated that perceptions of racial progress were effectively primed, and levels of perceived racial progress in our Study 2

were equivalent to those reported in the original study. Further, average perceptions of racial progress were well above the scale midpoint in our Studies 1 and 2, and in study 2, such perceptions were actually stronger among people high in SLBs, creating especially ripe conditions to observe the original effect. Finally, our attempt to counter the effect of Trump's election on perceptions of racial progress through the enhanced racial progress condition in Study 3b did not produce the original effect. Note, however, that because of discrepancies with the original study, we do not include the results of Study 3b in our judgments about whether the original effect replicated (e.g., it is not included in the small telescopes analyses).<sup>5</sup>

### Conclusion

It is clear that Wilkins and Kaiser's (2014) original findings do not replicate. What is unclear is whether these failures to replicate are because the original findings were false positives, because the original findings were small and theoretically or practically insignificant, or because of changing sociopolitical realities. This is a particular challenge of reproducibility of social psychological phenomena. At least at the present time, one cannot expect the salience of racial progress to increase perceptions of anti-White bias among people who endorse ideologies that justify status hierarchies in the United States. Or, it may be that the effect was only observable under the presidency of an African American (i.e., the effect also might not have been observable under U.S. presidencies prior to Obama's). Researchers may consider revisiting this question if and when social contexts mirror those that held when the original data were collected. Further, it may be possible to test these effects in contexts outside of the United States, for which racial progress has not experienced any real or perceived setbacks. There has been increased attention to understanding the sources of Whites' perceptions of anti-White bias (e.g., Norton & Sommers, 2011). The present studies indicate that there is little justification for relying on the findings reported in the original studies to describe the effects of racial progress on anti-White bias among people high in SLBs as a phenomenon one could expect across time and context.

### **Declaration of Conflicting Interests**

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

### **Funding**

The author(s) received no financial support for the research, authorship, and/or publication of this article.

### Notes

- 1. Study 2 approximated but was not at least 2.5 times the original sample size (i.e., 2.46 times the original sample size).
- As in Wilkins and Kaiser (2014), the SLB measure used in Studies 1 and 2 explicitly referred to ethnic minority groups, but the SLB measure used in Studies 3a and 3b did not.

- 3. After all original protocol materials, we included additional measures to examine extensions of the original findings, but all effects were null. They are not reported here because they do not directly assess replicability of the original findings. Data are available on the OSF.
- 4. We preregistered an additional study to collect more evidence regarding current levels of perceived racial progress. Whereas levels were lower than in the original study 1 and study 2 (racial progress condition only), we hesitate to draw firm conclusions from this data because unlike the original and replication studies we did not measure SLBs or anti-White bias prior to measuring perceived racial progress. Asking participants to consider racial hierarchies and racial bias could reasonably influence levels of perceived racial progress.
- 5. Further, in the study described in Note 4, perceived racial progress was not greater in the enhanced racial progress condition than in the original racial progress condition (or control condition).

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Handling Editor: Joseph Simmons