Attributions to Discrimination in Multiracial Contexts:

Isolating the Effect of Target Group Membership

Supplemental Online Materials

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Data exclusions

Across all experiments, we conducted additional analyses to understand how many participants answered the attention and manipulation checks correctly and whether these patterns varied across conditions. The attention check asked participants to identify the race/ethnicity of the manager (held constant across conditions) and the manipulation check asked participants to identify the race/ethnicity of the rejected job applicant.

Experiment 1

In Experiment 1, the percentage of participants who correctly identified the (White) race of the manager ranged from 78.3% in the Asian American applicant condition to 90.3% in the White American applicant condition, χ^2 (2) = 15.88, $p < .001$. See Table S1 for additional information.

Table S1: Participants answers to the attention check in Experiment 1

		What race was the manager?		
Condition	% correct	White American	Asian American	Black American
White American (n = 269)	90.3%	243	5	21
Asian American (n = 272)	78.3%	213	48	11
Black American (n = 277)	86.3%	239	6	32

The percentage of participants who correctly identified the race of the job applicant ranged from 75.0% in the Asian American applicant condition to 86.6% in the Black American applicant condition, χ^2 (2) = 12.43, $p = .002$. See Table S2 for additional information.

Table S2: Participants answers to the manipulation check in Experiment 1

		What race was the applicant?		
Condition	% correct	White American	Asian American	Black American
White American (n = 269)	82.2%	221	12	36
Asian American (n = 272)	75.0%	45	204	23
Black American (n = 277)	86.6%	33	4	240

Experiment 2

In Experiment 2, the percentage of participants who correctly identified the Latino ethnicity of the manager did not vary by condition, χ^2 (2) = 0.78, p = .678. See Table S3 for additional information.

Table S3: Participants answers to the attention check in Experiment 2

		What is the race/ethnicity of the manager?			
Condition	% correct	White American	Asian American	Black American	Latino American
White (n = 98)	89.8%	7	0	3	88
Asian (n = 98)	85.7%	11	2	1	84
Black (n = 93)	88.2%	9	0	2	82

The percentage of participants who correctly identified the race of the job applicant ranged from 89.8% in the White American applicant condition to 100% in the Black American applicant condition, χ^2 (2) = 16.71, p < .002. See Table S4 for additional information.

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Table S4: Participants answers to the manipulation check in Experiment 2

Condition	% correct	What is the race/ethnicity of the applicant?			
		White American	Asian American	Black American	Latino American
White (n = 98)	89.8%	88	4	4	2
Asian (n = 98)	98.9%	1	97	0	0
Black (n = 93)	100%	0	0	93	0

Experiment 3

In Experiment 3, the percentage of participants who correctly identified the Latino ethnicity of the manager did not vary by condition, χ^2 (2) = 8.96, p = .176. See Table S5 for additional information.

Table S5: Participants answers to the attention check in Experiment 3

Condition	% correct	What is the race/ethnicity of the manager?			
		White American	Asian American	Black American	Latino American
White (n = 99)	77.8%	17	2	3	77
Asian (n = 96)	69.7%	18	9	2	67
Black (n = 95)	73.7%	21	2	2	70

The percentage of participants who correctly identified the race of the job applicant ranged from 89.8% in the White American applicant condition to 100% in the Black American applicant condition, χ^2 (2) = 10.17, p = .006. See Table S6 for additional information.

Table S6: Participants answers to the manipulation check in Experiment 3

| | % correct | What is the race/ethnicity of the applicant? | | | |
Condition		White American	Asian American	Black American	Latino American
White (n = 98)	89.8%	88	4	4	2
Asian (n = 98)	98.9%	1	97	0	0
Black (n = 93)	100%	0	0	93	0

Experiment 4

In Experiment 4, the percentage of participants who correctly identified the race (White) of the manager did not vary by condition, $\chi^2 (2) = 3.63$, $p = .163$. See Table S7 for additional information.

Table S7: Participants answers to the attention check in Experiment 4

| | % correct | What is the race/ethnicity of the manager? | | | |
Condition		White American	Asian American	Black American	Latino American
Asian (n = 241)	92.5%	223	1	5	2
Latino (n = 244)	95.9%	234	1	2	7
Black (n = 241)	95.9%	231	1	8	1

The percentage of participants who correctly identified the race of the job applicant did not vary across applicant condition, χ^2 (2) = 0.68, p = .712. See Table S8 for additional information.

Table S8: Participants answers to the manipulation check in Experiment 4

Condition	% correct	What is the race/ethnicity of the applicant?			
		White American	Asian American	Black American	Latino American
Asian (n = 241)	96.3%	7	232	1	1
Latino (n = 244)	97.5%	0	4	2	238
Black (n = 241)	98.3%	1	1	237	2

Experiment 5

In Experiment 5, the percentage of participants who correctly identified the ethnicity (Latino) of the manager did not vary by condition, χ^2 (2) = 5.63, p = .060. See Table S9 for additional information.

Table S9: Participants answers to the attention check in Experiment 5

Condition	% correct	What is the race/ethnicity of the manager?			
		White American	Asian American	Black American	Latino American
White (n = 114)	96.5%	3	0	1	110
Asian (n = 113)	95.6%	3	1	1	108
Black (n = 115)	89.6%	7	1	4	103

The percentage of participants who correctly identified the race of the job applicant did not vary across applicant condition, $\chi^2 (2) = 4.78$, $p = .092$. See Table S10 for additional information.

Table S10: Participants answers to the manipulation check in Experiment 5

Condition	% correct	White American	Asian American	Black American	Latino American
		What is the race/ethnicity of the applicant?			
White (n = 114)	97.4%	111	0	1	2
Asian (n = 113)	100%	0	113	0	0
Black (n = 115)	95.6%	3	0	110	2

Experiment 6

In Experiment 6, the percentage of participants who correctly identified the ethnicity (Latino) of the manager did not vary by condition, $\chi^2 (2) = 1.79$, $p = .410$. See Table S11 for additional information.

Table S11: Participants answers to the attention check in Experiment 6

Condition	% correct	White American	Asian American	Black American	Latino American
		What is the race/ethnicity of the manager?			
White (n = 118)	89.0%	6	6	1	105
Asian (n = 114)	83.3%	11	7	1	95
Black (n = 115)	87.8%	5	5	4	101

The percentage of participants who correctly identified the race of the job applicant did not vary across applicant condition, χ^2 (2) = 4.69, p = .096. See Table X for additional information.

Table S12: Participants answers to the manipulation check in Experiment 6

Condition	% correct	What is the race/ethnicity of the applicant?			
		White American	Asian American	Black American	Latino American
White (n = 118)	93.2%	110	0	4	4
Asian (n = 114)	97.4%	0	111	1	2
Black (n = 115)	98.3%	0	1	113	1

Piloting Photographs

After using photos from the Chicago Face Database for Experiments 1 and 2, we piloted additional photos from the web for subsequent experiments to obtain a racially diverse sample of photos of smiling people dressed in business attire. We conducted two pilot studies to select the photos. In the first pilot study, we recruited 125 participants who rated a combined total of 20 photos including 5 photos of Black women, 5 photos of Asian women, 5 photos of Latina women, and 5 photos of White women. All women were dressed in business attire. Photographs were selected from commercially available stock photography websites. Each participant rated one randomly selected photograph from each of the four racial identity groups. We then selected four photographs of women who were comparable on ratings of attractiveness, intelligence, and age. For the second pilot study, we recruited 125 participants and used an identical procedure except that participants rated a combined total of 20 photos of 5 Black men, 5 Asian men, 5 Latino men, and 5 White men. We then selected four photographs of women who were comparable on ratings of attractiveness, intelligence, and age. See Table S13 for ratings of selected photos.

Table S13 Pilot testing of photographs

Target Photos	Attractiveness M (SD)	Intelligence M (SD)	Age M (SD)
Black American woman	5.85 (1.38)	5.85 (1.22)	26.19 (4.02)
Asian American woman	5.28 (0.98)	6.44 (0.65)	27.56 (4.27)
White American woman	5.92 (1.12)	5.60 (1.29)	26.24 (4.02)
Latino American woman	5.04 (1.30)	5.54 (1.32)	26.83 (6.99)
Black American man	5.65 (1.14)	6.00 (0.97)	26.70 (3.56)
Asian American man	5.50 (1.11)	6.04 (0.87)	28.85 (4.18)
White American man	5.52 (1.34)	5.65 (0.98)	30.52 (4.80)
Latino American man	5.33 (1.05)	5.73 (0.88)	27.95 (5.52)

Supplemental Experiment

The first time we attempted to conduct Experiment 4, we failed to meet our participant recruitment goals. We report the results of that study here for the purpose of transparency and for potential use in meta-analyses. The study was pre-registered on OSF:

https://osf.io/gy9qk/?view_only=297ca94f67b444f8810c9220a19a9047

Method

Participants

The final sample included 217 individuals (M_{age} = 19.13, SD = .98; 38.7% men, 60.8% women, 0.5% non-binary/unknown). Most participants were White (70.5% White, 4.6% Black/African American, 6.9% Hispanic/Latino, 9.7% Asian/Asian American, 8.3% Multiracial). [REDACTED] University undergraduate students were recruited and compensated using the same strategies as Experiments 2 & 3. With an average of 72 participants in each target race condition, we had .80 power to detect a minimum effect size of d = .54, after applying a Bonferroni correction. All data exclusions were pre-registered; see data cleaning and screening section.

Procedure

Participants were randomly assigned to condition in a 3 (target race: Asian, Latino, or Black) × 2 (target gender: male or female) between subjects design. The procedure is identical to Experiment 4 reported in the primary manuscript.

Measures

The measures were the same as Experiment 4 reported in the primary manuscript; ATDs (α = .97), internal attributions (r = .69, $p < .001$), and perceptions of whether the decision was justified (r = .81, $p < .001$) were all reliable.

Data Cleaning and Screening

Based on the a priori power analysis conducted for Experiment 2, the target sample size was set to 318, or as many participants as we could recruit before the academic semester, whichever happened first. Ultimately, we were only able to recruit 260 participants before the end of the semester, missing our recruitment goal. Of the individuals who participated, 241 of them provided permission to include their data in the analyses. Participants were removed from analyses if they failed to correctly identify the hiring manager's racial group (n = 14) or failed to correctly identify the applicant's race (n = 16). The final sample for analyses consisted of 217 participants. There were no cases identified as outliers.

Results and Discussion

Preliminary analyses

Mean, standard deviations, and correlations among the dependent variables are reported in Table S14.

Table S14: Descriptive Statistics for Supplemental Study

Variable	M	SD	1	2
1. ATDs	6.20	2.32	—	
2. Justified	2.91	2.18	-.64*	—
3. Internal Attributions	2.68	2.25	-.48*	.68*

*$p < .01$

Hypothesis Testing

A 3(applicant race) × 2(applicant gender) ANOVA performed on ATDs yielded the predicted main effect of applicant race, $F(2, 211) = 9.01$, $p < .001$, $\eta^2 = .079$, 90% CI [.026, .137]. See Figure S1. Consistent with the hypothesis, and replicating Experiments 1 - 3, ATDs were significantly higher when the applicant was Black American as compared to Asian

American, t (211) = *4.24, p* < .001, *d* = 0.663. However, when the applicant was Latino

American, ATDs were not significantly different from either the Black American applicant

condition, t (211) = *2.18, p* = .031, *d* = 0.401 or the Asian American applicant condition, t (211)

= *1.95, p* = .052, *d* = 0.317.

Neither the main effect of applicant gender, F (1, 211) = 1.33, *p* = .251, η^2 = .006, 90%

CI [.000, .035], nor the applicant gender by applicant race interaction, F (2, 211) = 0.38, *p* =

.684, η^2 = .004, 90% CI [.000, .020], were significant.

Exploratory Analyses

A 3(applicant race) × 2(applicant gender) ANOVA performed on internal attributions

yielded nonsignificant effects of applicant race, F (2, 211) = 0.52, *p* = .594, η^2 = .005, 90% CI

[.000, .025], applicant gender, F (1, 211) = 2.32, *p* = .130, η^2 = .011, 90% CI [.000, .058], and

the applicant gender by applicant race interaction, F (2, 211) = 2.87, *p* = .059, η^2 = .026, 90% CI

[.000, .066].

A 3 (applicant race) × 2 (applicant gender) ANOVA performed on perceptions that the

decision was justified yielded a significant effect of applicant race, F (2, 211) = 10.76, *p* < .001,

η^2 = .093, 90% CI [.036, .153]. Participants perceived the decision as significantly less justified

when the applicant was Black American as compared to when they were either Asian American,

t (211) = *-4.60, p* < .001, *d* = *-0.751*, or Latino American, t (211) = -2.72, *p* = .007, *d* = -0.482.

Perceptions that the decision was justified did not differ in the Latino American and the Asian

American applicant conditions, t (211) = *-1.77, p* = .078, *d* = -0.275.

Neither the main effect of applicant gender, $F(1, 211) = 2.81$, $p = .095$, $\eta^2 = .013$, 90% CI [.000, .049], nor the interaction between applicant gender and applicant race, $F(2, 211) = 2.51$, $p = .084$, $\eta^2 = .023$, 90% CI [.000, .061], were significant.

Figure S1

Supplemental Experiment: Attributions as a Function of Applicant Race
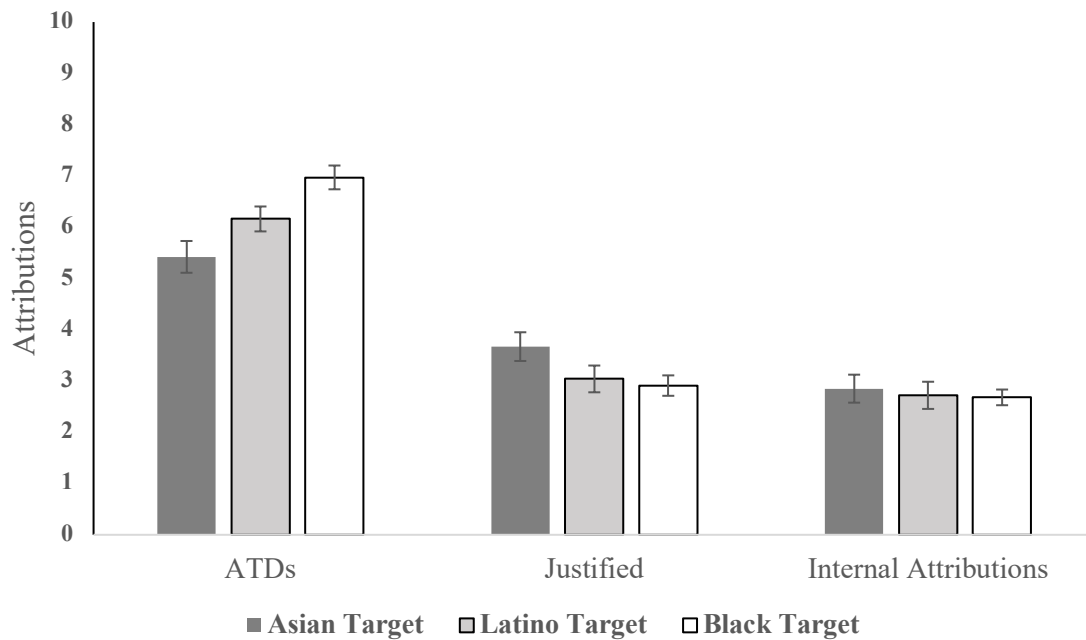
Note. Error bars represent standard error.

<div align="center">**Re-analysis of ATDs for Experiments 1 – 4: White participants Only**</div>

We re-analyzed the results of Experiments 1 – 4, restricting the analyses to White/European American monoracial participants only.

Experiment 1: Results

A one-way ANOVA performed on ATDs was significant, F (2, 444) = 47.23, $p < .001$, η^2 = .175. See Table S15 for conditional means and standard deviations. In Experiment 1 (as well as all subsequent experiments), we followed up significant ANOVAs by conducting pairwise comparisons with the critical p-value set to .017, consistent with a Bonferroni correction for three comparisons. Consistent with predictions and replicating results reported in the primary manuscript, ATDs were significantly higher when the manager rejected a Black American applicant as compared to a White American applicant, t (444) = 9.71, $p < .001$, $d =$ 1.070. ATDs were higher than when the applicant was Black American as compared to Asian American, t (444) = 4.13, $p < .001$, $d = 0.498$, and when the applicant was Asian American as compared to White American, t (444) = 5.01, $p < .001$, $d = 0.590$.

Table S15: Re-Analysis of Attributions to Discrimination: White Participants Only

	White American	Asian American	Black American
Experiment 1	2.79$_a$ (3.16)	4.61$_b$ (2.97)	6.10$_c$ (3.02)
Experiment 2	1.97$_a$ (1.99)	5.01$_b$ (2.53)	6.57$_c$ (2.55)
Experiment 3	2.28$_a$ (2.14)	3.96$_b$ (2.68)	5.79$_c$ (2.04)

Note. Means within the same row that do not share a subscript are different at $p < .017$.

Experiment 2: Results

An ANOVA performed on ATDs was significant, F (2, 175) = 57.19, $p < .001$, η^2 = .395. Consistent with predictions and replicating results reported in the primary manuscript, ATDs

were significantly higher when the manager rejected a Black American applicant as compared to a White American applicant, t (175) = 10.48, $p < .001$, $d = 2.013$. ATDs were higher than when the applicant was Black American as compared to Asian American, t (175) = *3.57, p < .001, d =* 0.613, and when the applicant was Asian American as compared to White American, t (175) = *7.05, p < .001, d* = 1.332.

Experiment 3: Results

An ANOVA performed on ATDs was significant, F (2, 139) = 29.08, $p < .001$, $\eta^2 = .295$. Consistent with predictions, and replicating results reported in the primary manuscript, ATDs were significantly higher when the manager rejected a Black American applicant as compared to a White American applicant, t (139) = 7.64, $p < .001$, $d = 1.675$. ATDs were higher than when the applicant was Black American as compared to Asian American, t (139) = *3.79, p < .001, d =* 0.771, and when the applicant was Asian American as compared to White American, t (139) = *3.59, p < .001, d* = 0.703.

Experiment 4: Results

A 3(applicant race) × 2(applicant gender) ANOVA performed on ATDs yielded the predicted main effect of applicant race, F (2, 462) =8.77, $p < .001$, $\eta^2 = .037$. Replicating the results reported in the manuscript, ATDs were significantly higher when the manager rejected a Black American (M = 6.28, SD = 2.77) applicant as compared to an Asian American (M = 5.01, SD = 2.98) applicant, t (462) = 3.87, $p < .001$, $d = 0.451$. ATDs were also significantly higher when the manager rejected a Black American applicant as compared to a Latino American (M = 5.15, SD = 2.94) applicant, t (462) = *3.47, p < .001, d* = 0.397; however, ATDs were not significantly different for the Latino American and the Asian American applicant, t (462) = *.43, p* = .671, $d = 0.047$.

Neither the main effect of applicant gender, $F(1, 462) = 0.84$, $p = .359$, $\eta^2 = .002$, nor the applicant gender by applicant race interaction, $F(2, 462) = 0.17$, $p = .847$, $\eta^2 = .001$, were significant.

Summary

We re-analyzed the data for attributions to discrimination from Experiments 1 – 4, excluding participants with racial and ethnic minority identities, focusing exclusively on White monoracial participants. The results were almost identical to those reported in the primary manuscript. All F tests that were reported as significantly in the manuscript were still significant when excluding racial and ethnic minority participants. Similarly, all pairwise comparisons that were reported as significant in the manuscript were still significant when the analysis was restricted to White participants. Finally, the sole pairwise comparison reported in the primary manuscript as nonsignificant (the comparison between the Asian American and Latino American rejected applicant in Experiment 4) was similarly nonsignificant when the analysis was restricted to White participants.