



FlashReports

Look Black in anger: The role of implicit prejudice in the categorization and perceived emotional intensity of racially ambiguous faces

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ABSTRACT

Research has demonstrated that individuals high in implicit prejudice are more likely to classify a racially ambiguous angry face as Black compared to individuals low in implicit prejudice [Hugenberg, K., & Bodenhausen, G. V. (2004). Ambiguity in social categorization. *Psychological Science*, 15, 342–345]. The current study sought to replicate and extend this finding by examining whether the *same* expression of anger on a racially ambiguous face is perceived to be differentially intense when the face is judged to be Black or White. White participants viewed racially ambiguous, White, and Black faces displaying angry, neutral, or happy emotions. Participants' task was to identify the race, emotion, and intensity of emotion display. The results revealed that participants high in implicit prejudice reported significantly more of the racially ambiguous angry faces as Black compared to participants low in implicit prejudice. Further, participants high in implicit prejudice reported the intensity of the racially ambiguous angry emotion as greater when the *same* face had been categorized as Black compared to White. The results suggest that implicit prejudice is not only associated with the racial categorization of an ambiguous face but also the perceived intensity of the emotion displayed.

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How do people perceive racially ambiguous faces? Racial ambiguity occurs through factors such as having biracial parents, skin tone variation, hair color, and hair style (Hugenberg & Bodenhausen, 2004; MacLin & Malpass, 2001). However, classification of belonging to one particular group or another still occurs. Research has shown that stereotypic information may be used to make judgments of classifications in ambiguous situations (e.g., Hugenberg & Bodenhausen, 2004; MacLin & Malpass, 2001; Rule, Ambady, Adams, & Macrae, 2007). In the case of racial ambiguity, MacLin and Malpass (2001) found that ambiguous race faces given a hairstyle stereotypical to a particular race were more likely to be seen as members of that racial group. In another study, Hugenberg and Bodenhausen (2004) presented participants racially ambiguous faces and asked them to make a choice of whether the person was Black or White. These faces expressed the emotion of anger or happiness. Hugenberg and Bodenhausen found that White participants high in implicit prejudice were more likely than low implicit prejudice participants to judge a racially ambiguous face as Black when displaying anger, but that displays of happiness did not show a racial preference bias as a function of individual differences in implicit prejudice.

Individual differences in implicit prejudice have also been found to influence perceptions of facial threat. In one study, Hugenberg and Bodenhausen (2003) showed participants movies of Black or White faces moving from an angry expression to neutral or a neutral expression moving to anger. Participants were tasked with stopping the movie when they perceived the offset or onset of anger. It was found that White participants high in implicit prejudice reported seeing anger on the faces of Black targets for longer than participants low in implicit prejudice (Hugenberg & Bodenhausen, 2003).

Building upon extant research, the current study first examined the extent to which individual differences in implicit prejudice are related to the racial categorization of faces displaying emotion. To extend these findings, we also examined whether the judgment of race is associated with the perceived intensity of the emotion display. For example, is a racially ambiguous angry face judged to be Black perceived to be more angry than the *same* face judged to be White? Do these differences in perceived emotion intensity differ as a function of individual differences in implicit prejudice? If implicit prejudice is associated with the perception of out-groups and their displays of emotion, we would expect participants high in implicit prejudice to be more likely to perceive racially ambiguous angry faces as Black. Further, we also tested whether intensity ratings of angry emotions displayed by ambiguous targets judged to be Black would be greater than that of the same target when it is judged to be White.

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Method

Participants

Eighty-two White British Cardiff University undergraduate students (73 female, 9 male; mean age = 20.2 years) took part in the study in return for course credit.

Materials

Nine individual template faces were created using the Poser 6™ software program. This program creates computer-generated facial displays and allows the user to manipulate and select settings for ethnicity, racial features, and intensity of emotion, ensuring continuity of these facial aspects across stimuli. Having this control, we created nine different faces from each template face, based on a three (emotion; happy, neutral, angry) × three (race; Black, ambiguous, White) matrix that allowed us to ensure that each race face had identical emotion faces. Thus, the Black, ambiguous, and White faces for each template all had identical happy, angry, and neutral expressions and differed only on race. Similarly, the happy, angry, and neutral faces all had identical Black, ambiguous, and White ethnicity and differed only on expression type. Pre-tests of the template emotions, intensity of emotions, and ambiguity of race were carried out and ensured equivalence across all stimuli. The nine images from the nine templates provided our stimuli of 81 separate images. Although presentation of the stimuli was randomized using SuperLab Version 2™, each of the nine equivalent stimuli were placed in a separate block to minimize the possibility of concurrent display of faces from the same template.

Procedure

Participants were presented with computer-generated faces displayed on a computer monitor. For each face the following questions were asked: What emotion is being displayed? (happy, neutral, angry); How confident are you in this decision? (1—not at all confident to 9—very confident); How intense is the emotion being displayed? (1—not intense to 9—very intense);¹ and What race is this individual? (Black/White). Responses were made via the computer keyboard using keys indicated in the instructions, and reminders of the key choices were displayed below each question. A practice trial was completed before the experimental trials to ensure participants were using the correct response keys.

After the task, participants completed the Implicit Association Test (Greenwald, McGhee, & Schwartz, 1998) and other measures not relevant to the current paper. After completing all measures, participants were fully debriefed and thanked.

Results

Classification judgments of the unambiguous Black and White faces were, as expected, close to 100% accurate and will not be discussed further in the context of this short report. The main aim of the forced-choice item (i.e., was the face Black or White?) was to examine how the ambiguous race faces would be categorized. The number of times that ambiguous faces were classified as Black was calculated for each of the emotions (happy; neutral; angry).

To address whether categorization of the emotion faces differed as function of implicit prejudice, we conducted a 3 (emotion: happy, neutral, angry) × 2 (implicit prejudice: high versus low) Mixed-ANOVA. The analysis revealed a significant main effect of emotion, $F(2,79) = 7.33$, $p < .001$. Overall, racially ambiguous angry faces

Table 1

Mean intensity ratings for angry and happy racially ambiguous faces classified as Black or White as a function of implicit prejudice

Target judgment	Implicit prejudice	
	Low	High
Angry		
Black	7.73	8.02
White	7.85	7.45
Happy		
Black	8.07	7.58
White	7.89	7.67

Note: The higher the score, the higher the perceived intensity of the emotion display.

($M = 4.76$) were more likely to be judged as Black compared to either racially ambiguous neutral faces ($M = 4.24$) or racially ambiguous happy faces ($M = 4.12$; both $ps < .005$). This main effect was qualified by the interaction between emotion and implicit prejudice, $F(2,79) = 2.56$, $p = .08$. Subsequent analyses revealed that participants high in implicit prejudice were more likely to judge racially ambiguous angry faces as Black ($M = 5.12$) compared to participants low in implicit prejudice ($M = 4.39$), $t(80) = 1.91$, $p < .05$. Compared to chance, participants high in implicit prejudice were more likely to judge racially ambiguous angry faces as Black, $t(40) = 2.49$, $p = .02$. Implicit prejudice did not influence judgments of the racially ambiguous neutral faces ($t(80) < 1$; $M_H = 4.39$; $M_L = 4.10$) or the racially ambiguous happy faces ($t(80) < 1$; $M_H = 4.15$; $M_L = 4.10$). Overall, this pattern of findings is consistent with Hugenberg and Bodenhausen (2004).²

Turning to the intensity data, we tested whether the judgment of race influenced the perceived intensity of the emotion display of the racially ambiguous faces. To do this, we first calculated the average intensity of the angry and happy ambiguous faces categorized as Black or White. For example, if a participant perceived an ambiguous angry face as Black on 5 of 9 trials, their Black intensity score for anger was computed by averaging their intensity ratings for those 5 trials (with the White intensity score based on the average on the 4 trials when they perceived an ambiguous angry target as White). This was done for both the happy and angry emotion displays. These intensity data were subjected to a 2 (emotion: happy versus angry) × 2 (target judgment: Black versus White) × 2 (implicit prejudice: low versus high) mixed-ANOVA, with the first two factors being within-subject factors.³ The results of this analysis revealed a significant three-way interaction, $F(1,75) = 8.25$, $p < .01$. This interaction was decomposed as a function of whether the racially ambiguous face was displaying anger or happiness. When the racially ambiguous faces were angry, there was a significant interaction between implicit prejudice and target judgment, $F(1,75) = 8.44$, $p < .005$. As can be seen in the top panel of Table 1, participants high in implicit prejudice judged the racially ambiguous faces as being significantly more angry when judged as Black ($M = 8.02$) compared to when the same faces were judged as White ($M = 7.45$), $t(40) = 3.45$, $p < .001$. In contrast, participants low in implicit prejudice did not differ in judgments of perceived intensity of the racially ambiguous angry faces as a function of target judgment, $t(35) < 1$ ($M_B = 7.73$; $M_W = 7.85$). When the racially ambiguous faces

² Similar to Hugenberg and Bodenhausen (2004), we also conducted a regression analysis where implicit prejudice was used to predict frequency of categorization as Black for angry and happy faces (treating the difference in categorization of angry and happy faces as Black as the outcome variable). Consistent with the ANOVA results, this analysis revealed the expected effect, $\beta = .36$, $p < .001$.

³ Five participants' data were excluded from the intensity analysis as they had judged all of the racially ambiguous faces for either the happy or angry emotions to be of one race, thus making analysis of intensity across races not possible.

¹ The intensity question was excluded from faces displaying a neutral emotion.

were happy, there was a marginally significant main effect of implicit prejudice, $F(1,76) = 2.92, p = .09$ (see bottom panel of Table 1). Overall, participants low in implicit prejudice ($M = 7.98$) tended to perceive greater happiness than participants high in implicit prejudice ($M = 7.62$), regardless of whether an ambiguous face was judged to be Black or White.⁴

Discussion

The current study set out to examine whether individual differences in implicit prejudice are associated with the racial categorization and perceived intensity of emotion displayed by racially ambiguous faces. Specifically, would participants high in implicit prejudice be more likely to classify a racially ambiguous angry face as belonging to a racial out-group, and would they perceive the angry emotion displayed by a racially ambiguous face to be more intense when the same face was perceived to be an out-group member rather than an in-group member?

The findings showed that White participants high in implicit prejudice were significantly more likely to classify an angry ambiguous face as being Black compared to participants low in implicit prejudice. Furthermore, a significant interaction was found when examining the effects of implicit prejudice and target judgment on perceived intensity of emotion for racially ambiguous faces. In particular, when evaluating the intensity of anger displayed by a racially ambiguous face, participants high in implicit prejudice judged a face to be more angry when they perceived the face to be Black compared to when they perceived the same face as White.

The initial findings of the study, that racially ambiguous angry faces are more likely to be seen as Black by participants high in implicit prejudice, are consistent with the findings of Hugenberg and Bodenhausen (2004). The intensity data extend previous research by demonstrating that levels of implicit prejudice are also associated with the very perception of the emotion displayed. As Hugenberg and Bodenhausen (2003) found that participants high in implicit prejudice were faster and also recognized for longer anger displayed by a Black face, our findings show that individuals high in implicit prejudice also perceive the intensity of that display to be greater. These findings suggest that the same emotion display is perceived differently as a function of the perceived race and expression of the target.

In the current research, the happy display tended to be seen as less intense by high prejudice participants regardless of whether the racially ambiguous face was judged to be Black or White. This different pattern of effects for negative and positive emotion displays is consistent with previous research. For example, regarding the interpretation of a lack of an interaction between implicit prejudice and target evaluation for happy faces, Hugenberg and Bodenhausen (2004) also failed to find an influence of implicit prejudice on recognition of happy displays of emotion. Similarly, research on face perception and emotion failed to find evidence for happy emotions influencing perception (e.g., Ackerman et al., 2006). Nevertheless, it appears that individual differences in implicit prejudice are associated with the perceived intensity of both positive and negative emotion displays.

The analysis of intensity ratings revealed that while judgments of racially ambiguous faces were jointly influenced by implicit prejudice and target categorization, intensity ratings of racially unambiguous Black and White faces did not show a similar effect (see Footnote 4). What might underlie such a divergence? One possible

explanation comes from research suggesting that individuals high in implicit prejudice may alter their prejudicial responses when they encounter a situation that may show them to be prejudiced (as in rating the intensity of the angry display of the unambiguous Black faces), but that their prejudice may be revealed when faced with an ambiguous situation in which they can explain away their prejudice through other means (e.g., Dovidio & Gaertner, 1998; Dovidio, Gaertner, Kawakami, & Hodson, 2002). The failure of individuals high in implicit prejudice to alter their intensity ratings for the racially ambiguous faces may suggest that the emotion intensity is decided upon before the racial classification takes place, providing a possible avenue of exploration in the examination of the mechanisms.

As a consequence, one issue that should be addressed in future research is whether racial categorization influences the perception of emotion intensity or vice versa. Are participants high in implicit prejudice classifying the face as Black because they perceive anger as more intense and happiness as less intense, or are they making these intensity judgments based upon the classification of race? It may be possible to resolve this issue by asking the questions of race and intensity intermittently among other non-related questions, and manipulating the order of the questions to appear before or after each other. Not knowing whether they will be asked about racial classification, intensity, or both in a set of questions may activate the stereotypic information for each independently, allowing us to examine responses to each.

In conclusion, levels of implicit prejudice are associated with both the racial categorization of ambiguous faces and the rating of intensity of emotion displayed by those faces. Individuals high in implicit prejudice are more likely to classify an angry face as Black and are more likely to see this display of anger as more intense than those displayed by faces classified as White.

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References

- Ackerman, J. M., Shapiro, J. R., Neuberg, S. L., Kenrick, D. T., Becker, D. V., Griskevicius, V., et al. (2006). They all look the same to me (Unless they're angry): From out-group homogeneity to out-group heterogeneity. *Psychological Science, 17*, 836–840.
- Dovidio, J. F., & Gaertner, S. L. (1998). On the nature of contemporary prejudice: The causes, consequences, and challenges of aversive racism. In J. Eberhardt & S. T. Fiske (Eds.), *Confronting racism: The problem and the response* (pp. 3–32). Newbury Park, CA: Sage.
- Dovidio, J. F., Gaertner, S. L., Kawakami, K., & Hodson, G. (2002). Why can't we just get along? Interpersonal biases and interracial distrust. *Cultural Diversity and Ethnic Minority Psychology, 8*, 88–102.
- Greenwald, A. G., McGhee, D. E., & Schwartz, J. L. K. (1998). Measuring individual differences in implicit cognition: The implicit association test. *Journal of Personality and Social Psychology, 74*, 1464–1480.
- Hugenberg, K., & Bodenhausen, G. V. (2003). Facing prejudice: Implicit prejudice and the perception of facial threat. *Psychological Science, 14*, 640–643.
- Hugenberg, K., & Bodenhausen, G. V. (2004). Ambiguity in social categorization. *Psychological Science, 15*, 342–345.
- MacLin, O. H., & Malpass, R. S. (2001). Racial categorization of faces: The ambiguous race face effect. *Psychology, Public Policy and Law, 7*, 98–118.
- Rule, N. O., Ambady, N., Adams, R. B., & Macrae, C. N. (2007). Us and them: Memory advantages in perceptually ambiguous groups. *Psychonomic Bulletin & Review, 14*, 687–692.

⁴ We also tested whether there would be a significant three-way interaction among emotion, implicit prejudice, and intensity ratings for the unambiguous Black and White faces. This interaction was not significant, $F < 1$.