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Reports

Target prototypicality moderates racial bias in the decision to shoot☆

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ABSTRACT

Research shows that target race can influence the decision to shoot armed and unarmed Black and White males (e.g., Correll, Park, Judd, & Wittenbrink, 2002). To date, however, research has only examined category level effects by comparing average responses to Blacks and Whites. The current studies investigated whether target prototypicality influences the decision to shoot above and beyond the effect of race. Here, we replicated racial bias in shoot decisions and demonstrated that bias was moderated by target prototypicality. As target prototypicality increased, participants showed greater racial bias. Further, when targets were unprototypic, racial bias reversed (e.g., participants mistakenly shot more unarmed Whites than Blacks). Study 2 examined whether these effects were observed among police officers. Although police showed no racial bias on average, target prototypicality significantly influenced judgments. Across both studies, sensitivity to variability in Whites' prototypicality drove these effects, while variation in Black prototypicality did not affect participants' decisions.

Introduction

The past decade witnessed an explosion of research dedicated to understanding police officers' shoot decisions (e.g., Correll, Park, Judd, & Wittenbrink, 2002; Greenwald, Oakes, & Hoffman, 2003; Payne, 2001; Plant, Peruche, & Butz, 2005). Correll et al. (2002), for example, present participants with a computer-based first-person shooter task (FPST) in which participants adopt the perspective of a patrolling police officer. Participants view scenes of public areas and periodically, a male target appears. Targets are Black or White and are armed (i.e., carrying a gun) or unarmed (i.e., carrying a benign object like a cellular phone or wallet). Participants are asked to press one button to indicate "shoot" when the target is armed or another to indicate "don't shoot" when the target is unarmed. Typically, participants are faster to shoot armed targets who are Black compared to White, but are faster to indicate "don't shoot" when unarmed targets are White rather than Black. Participants also mistakenly shoot unarmed Blacks more frequently than unarmed Whites, and fail to shoot armed Whites more frequently than armed Blacks. Although research on the decision to shoot has yielded critical insights, investigations to date have examined mean-level comparisons of responses to Black targets to White targets. This analytic approach reflects the predominant view that categorization processes are the basis for stereotyping and prejudice (e.g., Allport, 1954; Fiske & Taylor, 1991). Recently, however, some researchers have shifted away from the notion that category membership alone produces stereotypic inference by demonstrating that these processes are sensitive to, and further influenced by, within-category variation. The idea of graded categories is not new (e.g., Brewer, 1988; Rosch, 1978; Rothbart & John, 1985), although the idea has experienced a resurgence recently (e.g., Blair, Judd, & Chapleau, 2004; Blair, Judd, & Fallman, 2004; Blair, Judd, Sadler, & Jenkins, 2002; Eberhardt, Davies, Purdie-Vaughns, & Johnson, 2006; Livingston & Brewer, 2002; Maddox & Gray, 2002). This research finds that stereotyping and prejudice vary as a function of a target's goodness of fit within the category. This goodness of fit, which we refer to as prototypicality, represents how similar a target's physical features are to those traditionally associated with the category.

The current studies provide an empirical demonstration that within-category differences moderate the decision to shoot above and beyond the effects attributable to racial category. We begin by reviewing past research that has examined prototypicality effects on prejudice and stereotyping.

Prototypicality effects on implicit prejudice

Livingston and Brewer (2002) investigated the extent to which racial category and Afrocentricity (akin to prototypicality) impacted implicit prejudice. They showed that highly prototypic Black targets (e.g., broad nose, large lips, coarse hair texture, dark skin tone) elicited more prejudice than less prototypic targets (see also Uhlmann, Dasgupta, Elgueta, Greenwald, & Swanson, 2002). Research using functional magnetic resonance imaging (fMRI) has also demonstrated that exposure to dark-skinned White males (an unprototypic feature)

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elicited greater amygdala activation relative to light-skinned White males (Ronquillo et al., 2007). The amygdala is a subcortical brain structure that has been associated with threat and emotion processing, as well as prejudice (i.e., Phelps et al., 2000). In contrast to Livingston and Brewer (2002), Ronquillo et al. (2007) do not report differences in amygdala activation to Black males as a function of skin tone — prototypicality effects only emerged for White targets. This may be due to differences in the tasks participants completed, an idea we return to below.

Prototypicality effects on explicit stereotyping

The above research shows that prejudice can be feature-based, but does not demonstrate prototypicality-based stereotyping. In fact, Livingston and Brewer (2002) found that prototypicality affected prejudice, but *not* stereotype activation. Others, however, have shown that prototypicality does influence explicit judgments about a target's attributes. Early research by Anderson and Cromwell (1977) showed that fairer-complected individuals were associated with higher intelligence than those with darker skin tone, and in some criminal cases — those involving a Black assailant and a White victim — Black defendants are more likely to be sentenced to death the more prototypic they are (Eberhardt et al., 2006, see also Blair, Judd, & Chapleau, 2004).

Experimental investigations have established a causal relationship showing that more prototypic targets produce increased stereotyping on explicit judgment tasks. Blair and colleagues (Blair et al., 2002) presented participants with descriptions of a novel person that varied in terms of stereotypically Black behavior. Participants were given photographs of Blacks and Whites who varied in Afrocentricity and were asked to rate the probability that each photograph was the individual being described. Researchers found that more Afrocentric targets were rated as more likely to be the person in the stereotypically Black descriptions. Further, these effects occurred irrespective of cognitive resources and intention (Blair, Judd, & Fallman, 2004). Although a cognitive load manipulation caused participants to rely more on category information, load did not moderate participants' use of Afrocentricity. Moreover, when participants were told that Afrocentric features could bias their judgments and were instructed to avoid using features in their judgments, they failed to do so (although they were able to suppress the influence of racial category on their judgments), suggesting less controllability in feature-based stereotyping.

The present studies

The current research contributes to a growing body of work that focuses on the importance of category variability by testing whether prototypicality affects the decision to shoot. Replicating past research, we expected to find evidence for category-based bias in shoot decisions, but we further hypothesized that the magnitude of this bias would depend on prototypicality. We predicted that racial bias would be greater among targets that are rated as more prototypic of their racial category (i.e., highly Afrocentric Blacks and highly Eurocentric Whites), but attenuated for less prototypic targets. In Study 2 we examined whether police officers, who do not show category-based bias on the FPST (Correll et al., 2007), would show evidence of feature-based bias in their shoot decisions. In line with the suggestion that prototypicality effects unfold automatically despite attempts at suppression (Blair & Judd, 2011; Blair, Judd, & Fallman, 2004), we hypothesized that police officers would show feature-based bias, even though they do not show category-based bias.

Target prototypicality ratings

FPST targets were rated by a sample of 84 University of Chicago undergraduates who were shown 49[1] unarmed targets on a computer one at a time and asked to rate how prototypic each target was relative to other members of his respective race on a 7-point scale (1 = Not at all stereotypic, 7 = Extremely stereotypic). We used the term *stereotypic* rather than *prototypic* because we believed that participants would be more familiar with the former; however, we instructed participants to rate targets based on properties associated with prototypicality (e.g., skin tone, broadness of nose, etc.). Participants completed prototypicality ratings in blocks, either rating the Black targets before the White targets, or in the opposite order. For Black targets, the mean prototypicality rating was 3.97 (SD = 0.66), and the reliability of the ratings was .93. For White targets, the mean prototypicality rating was 4.13 (SD = 0.28), and reliability was .96. White and Black targets did not differ on the degree to which they were seen as prototypic of their respective racial categories, $t(48) = 1.54$, $p = .13$.

A separate sample of 18 University of Chicago undergraduates categorized the targets by race to ensure that targets, though differing in prototypicality, were perceived as members of their ostensible racial group. Participants were shown Black and White targets from the FPST, as well as Asian and Latino targets from a multiethnic version of the task (Sadler, Correll, Park, & Judd, submitted for publication). Participants categorized targets as White, Black, Latino, Asian, or Other. Asian and Latino targets were included to reduce the likelihood that participants would only classify targets as Black and White. Targets were presented in random order and participants were given unlimited time to respond. On average, participants classified Black targets as "Black" and White targets as "White" over 95% of the time. One target, a White male, was judged to be "White" by only 61% of participants (all other targets were categorized as anticipated by at least 78% of respondents). His exclusion did not affect the results. The following analyses include this target. With this one exception, perceivers showed high agreement that the White targets were "White" and the Black targets were "Black."

Study 1

Study 1 tested the hypothesis that a target's prototypicality affects the decision to shoot above and beyond the effect of target race. We hypothesized that target race would moderate responses to object (gun or non-gun) as in previous research and that this interaction would be qualified by prototypicality.

Method

Participants

Participants were 18 University of Chicago undergraduates (12 female). Eleven identified as White, six as Asian, and one as other[2]. The average age was 20.24 (SD = 1.09).

Procedure

Participants completed the FPST, including 16 practice trials and 100 test trials (i.e., 25 armed Blacks, 25 armed Whites, 25 unarmed Blacks, and 25 unarmed Whites). Each target appeared once armed and once unarmed (see Correll et al., 2007, for details). The response window was 630 ms, which previous research finds produces bias in errors (Correll et al., 2002). Participants were given points for correct decisions and were penalized for errors. They were shown a running total of their points between trials. Participants also provided demographic information.

Analytic procedure

For each participant, we regressed errors[3] for each test trial of the FPST on (a) contrast-coded race (White = −1, Black = 1), (b) contrast-coded object (Gun = −1, Non-Gun = 1), (c) mean-centered ratings of target prototypicality, (d) race × object, (e) race × prototypicality, (f) object × prototypicality, and g) race × object × prototypicality. The