

Ethnic Faces Are Biased in the Prejudiced Mind

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In the late nineteenth century the Italian criminologist Cesare Lombroso claimed that criminals can be identified by their facial features, such as large jaws, low-sloping foreheads, and fleshy lips (Lombroso & Ferrero, 1895). Irrespective of real correlations, Lombroso was overstating his case (Zebrowitz, 1996). Lombroso also believed that Black people were inferior to White people (Pugliese, 2002). In our view, Lombroso's theory about criminal facial features (which closely resembled Black features) is caused by his prejudiced worldview, in which category representations of faces are biased. We propose that, in general, prejudiced people have biased mental representations of the faces of stigmatized out-groups.

People automatically categorize other persons into ethnic categories (Allport, 1954; Messick & Mackie, 1989) based on matches between perceived facial cues and their knowledge of what faces typical for these categories look like (i.e., their mental representations of these face classes). Furthermore, people associate ethnic facial features with stereotypical traits (Blair, Judd, Sadler, & Jenkins, 2002). We hypothesize that prejudiced people have more negatively stereotyped mental representations of ethnic faces than less prejudiced people.

To test this hypothesis we conducted two studies involving the category of Moroccans, a highly stigmatized immigrant group in the Netherlands. The first study consisted of two parts: image construction (Part 1) and image rating (Part 2). In Part 1, participants ($N = 28$) produced an image of a face based on their representation of Moroccan faces, using a forced-choice reverse-correlation image classification technique (Mangini & Biederman, 2004). In 390 trials participants repeatedly chose the most Moroccan-looking face from two stimulus faces presented side by side. All stimulus faces consisted of the same base face with random noise superimposed (Figure 1a, b; Footnote 1). Within a single trial, one stimulus consisted of the base face with a random noise pattern added, and the other consisted of the base face with the same pattern subtracted. Averaging all stimulus faces a participant chose as most Moroccan results in a personal classification image.

This classification image is a function of a participant's representation of Moroccan faces, the base face, and error.

Each participant's prejudice level was assessed using a Single Target Implicit Association Test (ST-IAT; see Greenwald, McGhee, & Schwartz, 1998; Karpinski & Steinman, 2006). It measured the relative strength of negative associations compared to positive associations with Moroccan names as indicated by reaction times. Based on this measure, participants were divided into low-, moderate-, and high-prejudice subgroups. For each subgroup, an average classification image was calculated representing this subgroup's average representation of a Moroccan face (Figure 1c).

In Part 2, independent participants ($N = 70$) rated the three subgroup images on two traits related to the Moroccan stereotype. Participants were first shown the three subgroup images to familiarize them with the stimulus set. Subsequently, each of the three subgroup images was rated on two traits: criminal (stereotypical trait) and trustworthy (counter-stereotypical trait). Image order was counter-balanced and trait rating order was randomized. Analyses of variance on the criminality, $F(2, 68) = 39.00$, $p_{rep} > .99$, $\eta^2_p = .53$, and trustworthiness ratings, $F(2, 68) = 43.95$, $p_{rep} > .99$, $\eta^2_p = .56$, showed that the image produced by highly prejudiced participants was rated as more criminal ($p_{rep} > .99$) and less trustworthy ($p_{rep} > .99$) than the image produced by moderately prejudiced participants, which was rated as marginally more criminal ($p_{rep} = .85$) and less trustworthy ($p_{rep} = .95$) than the image produced by low prejudiced participants.

The results of the first study suggest that images of Moroccan faces are biased depending on their producers' level of prejudice. We ran a second study using more trials in Part 1 (770 trials) to enhance the quality of individual participants' classification images ($N = 35$). This allowed us to replicate the findings of Study 1 on an individual rather than subgroup level. Otherwise, design and procedures were the same. In Part 2, independent participants ($N = 55$) rated all individual classification images produced in Part 1 on criminality in one block and trustworthiness in another block. Block order was counter-balanced and image order within blocks was randomized.

Within-participant standardized regression coefficients (Betas), representing the relation between producers' prejudice level and the current participant's rating of the classification image, were calculated for each rater and each trait. Subsequent *t*-tests on the Betas revealed that the more prejudiced the producers, the more criminal, $M_{beta} = .12$, $SD = .19$, $t(54) = 4.94$, $p_{rep} > .99$, and the less trustworthy, $M_{beta} = -.08$, $SD = .17$, $t(52) = 3.5$, $p_{rep} > .99$, their classification images were rated.

These results suggest that people's representations of ethnic faces are related to their level of prejudice. As repeated choices between two noisy faces most likely do not reflect a strategic decision process, our studies constitute a strong case for involuntarily biased representations of ethnic faces.

The present results have important implications for whom people identify as members of stigmatized groups. If highly prejudiced people have biased representations of the category Moroccan, they should also be more prone to categorize criminal-looking persons as Moroccan. This biased category identification process may serve as a mechanism to maintain current stereotypes. Because prejudiced people would sooner include a person with a stereotype-confirming face in the category, they risk never encountering people whose facial features may undermine the stereotype, because the latter are simply not identified as exemplars of the stigmatized group.

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Footnotes

1. The base face was the neutral male mean of the Karolinska Face Database (Lundqvist, Flykt, & Öhman, 1998). The noise consisted of 60 superimposed sinusoid images: six orientations (0° , 30° , 60° , 90° , 120° , and 150°) x five spatial frequencies (1, 2, 4, 8, and 16 cycles/image) x two phases (0 , $\pi / 2$), with random contrasts.

Figure Caption

Figure 1. Base image (a), stimuli (b), and averaged classification images (c) of Study 1. Scores below images represent trait ratings, ranging from -3 (not criminal/not trustworthy) to 3 (very criminal/very trustworthy).

Figure 1

a) Base image used in all stimuli across both studies.



Base image

b) Examples of actual stimuli used in studies. One trial consisted of two stimuli: base image plus noise and base image minus noise.



Base image + noise



Base image - noise

c) Classification images of the three subgroups in Study 1.



High prejudice
Criminal $M = 1.60$, $SD = 1.37$
Trustworthy $M = -1.57$, $SD = 1.26$



Moderate prejudice
Criminal $M = 0.16$, $SD = 1.95$
Trustworthy $M = -0.31$, $SD = 2.04$



Low prejudice
Criminal $M = -.44$, $SD = .51$
Trustworthy $M = .51$, $SD = .51$