

Prejudice in the Dark: How Darkness Facilitates Negative Associations with a Feared Out-group

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Introduction

Emotions play an important role in intergroup relations (Smith, 1993). Recent perspectives on prejudice emphasize that people may not only experience general negative affect toward people from other groups, but that specific negative emotions – such as fear, disgust, or anger – are associated with different out-groups (e.g., Cottrell & Neuberg, 2005; Fiske, Cuddy, Glick, & Xu, 2002; Mackie & Smith, 2002).

Experiencing these emotions outside a group context may also affect implicit forms of prejudice toward a group that is associated with the activated emotion (Dasgupta, DeSteno, Williams, & Hunsinger, 2009). People who recalled an event in which they experienced disgust showed stronger negative associations toward homosexuals (a group associated with disgust) on a subsequent implicit association measure, but not toward Arabs (a group associated with anger). Recalling an anger-related event resulted in the opposite pattern of findings.

An explanation for these findings may be that people (unconsciously) search for causes of their emotional experience, because the negative emotion could be a signal for a potential threat in the environment (e.g., disgust could signal a contamination threat, anger a threat for resources, fear a physical threat, see Cottrell & Neuberg, 2005). While looking for potential sources of this threat, the emotional experience may be misattributed to the group that is associated with that emotion and its related threat. Negative characteristics of the group become salient, which may strengthen the negative associations with the group (see Dasgupta et al., 2009).

Following this line of reasoning, a more subtle and ecologically valid signal of threat

should result in similar emotion-specific effects on implicit prejudice. In the present research, we focus on an environmental cue that is strongly associated with danger, i.e., darkness (Grillon, Pellowski, Merikangas, & Davis, 1997). Specifically, we study the effects of a dark environment on the negative associations toward a group that is primarily related with the experience of fear (i.e., Moroccan males for female participants, see Wennekers, Holland, Wigboldus, & Van Knippenberg, 2012). According to recent findings, out-group males are the primary targets of ethnic prejudice (Navarrete et al., 2009), and this prejudice is based on anger in males and fear in females (Navarrete, McDonald, Molina, & Sidanius, 2010).

A previous study on the relation between darkness and out-group bias showed that a dark environment strengthened the stereotypic association between African-Americans and danger, but only for people with a chronic belief that our world is a dangerous place (Schaller, Park, & Mueller, 2003). However, if darkness is a general signal for danger, negative associations toward a feared outgroup should be enhanced (cf., Dasgupta et al., 2009).

In summary, we expected darkness to affect implicit negative associations with Moroccans for female participants. In accordance with emotion-specificity findings, a negative cue that is not associated with danger (i.e., a bad smell) should not increase negative associations with Moroccans. In the same vein, darkness should not enhance negative associations with an out-group that is not associated with fear or danger (i.e., obese people).

We tested these hypotheses in two studies. In the first study, we manipulated the environment by turning off the light

(darkness), or spreading a nasty odor (bad smell). In the control condition, the light was turned on and no odor was spread. Implicit associations toward Moroccans or obese people were measured using a Single-Target Implicit Association Test (ST-IAT; Wigboldus, Holland, & Van Knippenberg, 2004). In the second study, we focused only on the dark versus light manipulation, and measured implicit negative associations with Moroccans.

Study 1: Method and Results

Sixty-six female students of Radboud University Nijmegen participated in this study. They were randomly assigned to one of the 3 environmental cue conditions (darkness, bad smell, control). In the room with the environmental cue manipulation, they received two measures of implicit associations, one ST-IAT toward Moroccans and one ST-IAT toward obese people. The order of these measures was counterbalanced, but because of significant order effects of the two ST-IATs, we only analyzed the first ST-IAT, thus resulting in a between-subjects factor of type of ST-IAT (Moroccan versus obese people). The data of one participant from the bad smell condition were removed, because she reported a diminished smelling ability.

All participants started in a normally lit research room, where they completed a sequential priming task (Fazio, Sanbonmatsu, Powell, & Kardes, 1986, also known as Affective Priming Task; APT). In this task, they had to categorize pictures as being related to fear or disgust. These pictures were selected from the International Affective Picture System (IAPS; Lang, Bradley, & Cuthberth, 1999). Preceding the emotion picture, a prime was presented depicting a picture from one of four categories: Moroccan males, obese people, homeless people, or students. The prime pictures were selected from the Amsterdam Dynamic Facial Expressions Set (ADFES; Van der Schalk, Hawk, Fischer, & Doosje, 2011), the Internet, and from a picture set by Degner and Wentura (2011).

After the APT, participants were led to one of two identical cubicles containing a desk and a computer. Here, the environmental cue was manipulated. In one of the cubicles, we spread a bad smell by putting two drops of liquid odor (provided by *Smartnose*) on a cotton pad hidden underneath the desk. In the other cubicle, the glass window above the door was covered with dark carton paper. By turning off the light, the cubicle became completely dark, aside from the light coming from the computer screen. By turning on the light, this cubicle was normally lit. In the cubicle, participants performed the implicit association measures toward Moroccans and obese people (ST-IATs). Besides the difference in target category, the tasks were identical.

In the ST-IATs, participants first had to categorize pictures as being positive or negative. In the second and third block, positive and negative pictures had to be categorized, as well as pictures of the target category (obese people or Moroccan males). In one of the blocks, the pictures of the target category had to be categorized using the same key as the negative pictures (i.e., the compatible block), whereas these pictures had to be categorized using the same key as the positive pictures in the other block (i.e., the incompatible block). Each block consisted of 40 trials, and the order of the blocks was counterbalanced. Note that the ST-IAT had a black background screen in all conditions to minimize the amount of light coming from the screen. Importantly, the negative pictures consisted of the fear and disgust pictures that were used in the APT. The target category pictures consisted of the Moroccan male pictures and obese people pictures from the APT, supplemented by 3 new pictures, from the Internet and Radboud Faces Database (Langner et al., 2010).

After having finished the ST-IAT, participants were brought back to the first research room where they filled out some demographics and questions about the study.

Incorrect trials on the ST-IATs were coded as missing values, as well as latencies faster than 300 ms and slower than 3000 ms.

The remaining latencies were log-transformed, but the untransformed latencies will be reported for sake of clarity. For each participant, the mean latency in the compatible block was subtracted from the mean latency in the incompatible block. Higher difference scores thus reflect more negative associations toward the target group.

These ST-IAT scores were subjected to a 3 (environmental cue: dark, bad smell, normal) X 2 (social category: obese versus Moroccan) between-subjects ANOVA, which revealed a significant interaction between these two factors, $F(2,59) = 3.38$, $p = .041$, $\eta_p^2 = .103$. Simple contrast analyses revealed a significant effect of environmental cue for the Moroccan ST-IAT ($F(2, 59) = 3.75$, $p = .029$, $\eta_p^2 = .113$), but not for the obese people ST-IAT ($F < 1$, *n.s.*). As expected, ST-IAT scores toward Moroccan males were significantly higher in the dark condition ($M = 108$; $SD = 73$) as compared to the light condition ($M = 38$; $SD = 36$) or the bad smell condition ($M = 23$; $SD = 48$), respectively $p = .043$ and $p = .010$. However, the ST-IAT scores toward obese people did not differ significantly for the dark ($M = 45$; $SD = 58$), light ($M = 51$; $SD = 69$) or bad smell ($M = 78$; $SD = 69$) condition, all $ps > .319$. See *Figure 1* for an illustration.

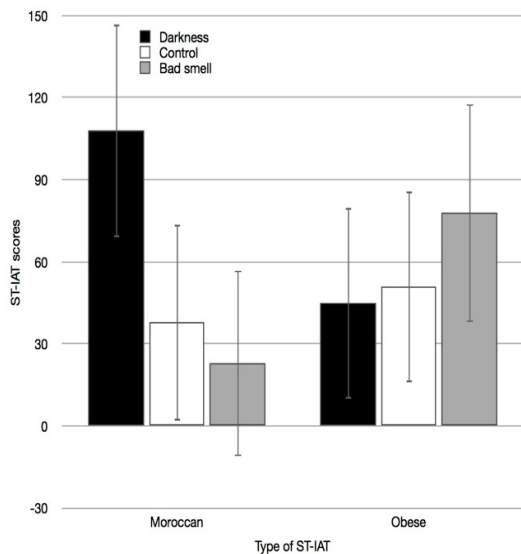


Fig. 1: The means and 95% CI of ST-IAT scores, depicted for environmental cue and type of ST-IAT.

Study 2: Method and Results

Forty-seven female students of Radboud University Nijmegen were randomly assigned to one of 2 environmental cue conditions (darkness versus light).

Participants again started in a normally lit research room, where they performed an evaluative priming task similar to the one of Study 1, but now including only Moroccan males and Dutch males as primes. After the APT, participants were brought to a cubicle that was either normally lit or dark (manipulated in the same way as in Study 1). Here, they performed a ST-IAT toward Moroccans, following the same procedure as in Study 1. In addition, we now asked participants to indicate on a slider from 0 (not at all) to 100 (very much) to what extent they experienced certain feelings at that moment, in the following order: fearful (*angstig*), relaxed (*ontspannen*), nervous (*nervous*), uncomfortable (*ongemakkelijk*), and calm (*rustig*). We started with ‘fearful’, because we were primarily interested in testing whether darkness increased feelings of fear. Finally, participants were brought back to the first research room where they filled out some extra questions.

The ST-IAT scores were prepared in the same way as in Study 1 and subjected to an ANOVA, which revealed a significant main effect of environmental cue, $F(1, 45) = 4.16$, $p = .047$, $\eta_p^2 = .085$. We replicated the findings of Study 1, showing that the ST-IAT scores toward people of Moroccan descent were significantly higher in the dark condition ($M = 71$; $SD = 63$) as compared to the light condition ($M = 30$; $SD = 50$). Thus, darkness again led to more negative implicit associations toward Moroccans as compared to a normally lit control condition.

Analyses of participants’ feelings in the cubicle only revealed a marginally significant effect for ‘fearful’, $F(1, 45) = 3.13$, $p = .084$, $\eta_p^2 = .065$, showing that people reported to be slightly more fearful in the dark cubicle ($M = 20.41$, $SD = 21.80$) as compared to the light cubicle ($M = 11.00$, $SD = 14.30$). On the other reported feelings, participants in the dark cubicle did not differ from participants in the light condition, all $Fs < 1.01$, *n.s.*

Discussion

In two studies, we show that darkness can temporarily strengthen negative associations with an out-group that is associated with fear. As expected, Study 1 suggests that the effects are not driven by mere negativity of the environmental cue, because negative associations toward a non-feared negative outgroup (obese people) were not affected by darkness, and non-fear related negative cue (a bad smell) did not enhance negative associations with Moroccans. The results of these studies fit nicely with previous effects of emotion recall on implicit prejudice (Dasgupta et al., 2009), but now using a subtle and ecologically valid threat cue.

Furthermore, the findings extend knowledge of effects of darkness on implicit out-group bias (Schaller, Park, & Mueller, 2003). Whereas this previous study found only an interaction effect between darkness and chronic beliefs about a dangerous world, we obtained a main effect of the darkness manipulation on implicit negative associations. However, other studies in the present research line suggest that our effects may be contingent upon the procedure in which we first prime fear and disgust pictures in the APT which then reappear in the ST-IAT. Possibly, darkness in itself is not a strong enough signal of threat (especially in a controlled laboratory environment), and our priming procedure enhances the associations between fear and Moroccans, which are then re-activated during the ST-IAT in the dark. Future research should shed more light on the processes underlying effects of darkness on implicit out-group bias.

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