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Brief article

To push or not to push? Affective influences on moral judgment depend on decision frame

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ABSTRACT

People's moods can influence moral judgment. Such influences may arise because moods affect moral emotion, or because moods affect moral thought. The present study provides evidence that, at least in the footbridge dilemma, moods affect moral thought. The results of two experiments are reported in which, after induction of positive, negative, or neutral moods and presentation of the footbridge scenario, participants were asked one of two differentially framed closing questions. In the active frame, participants were asked whether they would be active and push the man, making thoughts about pushing accessible; in the passive frame, they were asked whether they would be passive and not push the man, making thoughts about not pushing accessible. The results show that affective influences on moral judgment depended on participants' decision frame. Compared to neutral moods, positive moods induced utilitarian responding – i.e., deciding to push – in the active decision frame, but induced nonutilitarian responding – i.e., deciding to not push – in the passive decision frame; in negative moods, exactly the opposite picture arose. The results suggest that people's moods affect moral judgment by conferring value on moral thought. Positive moods promote and negative moods inhibit accessible thoughts.

1. Introduction

People's moods can influence moral judgment (Strohminger, Lewis, & Meyer, 2011; Valdesolo & DeSteno, 2006). Such influences can arise because moods affect moral emotion, or because moods affect moral thought (Greene & Haidt, 2002; Huebner, Dwyer, & Hauser, 2009). Imagine this scenario: "*You are standing on a footbridge over a trolley track and you notice a trolley hurtling down the track out of control. Five children are playing on the track, unaware of the danger. Next to you, there is an old man standing on the bridge. You realize that the only chance to save the children's lives is to push the man off the bridge. His body would stop the trolley. By killing him you can save the children.*" In this footbridge scenario, when asked whether they would push the man off the bridge, most people say that they would not push, although not pushing results in a larger number of deaths than pushing (Thomson, 1986). Such nonutilitarian responding – i.e., deciding to not push – has been suggested to arise from prepotent negative emotions that are related to moral violation (Greene, Sommerville, Nystrom, Darley, & Cohen, 2001; Haidt, 2001; for a review of global theories of moral judgment, see Waldmann, Nagel, & Wiegmann, 2012).

Utilitarian responding – i.e., deciding to push – can be enhanced by putting people into positive moods. Before presentation of the footbridge scenario, Valdesolo and DeSteno (2006) induced either positive or neutral moods in participants by showing them either a humorous or a neutral video clip. After presentation of the scenario, participants were asked whether they thought pushing was appropriate or not. Compared to the neutral-mood condition, the prior presentation of the humorous video clip increased the likelihood for a utilitarian decision. Valdesolo

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and DeSteno therefore proposed that positive moods may unhinge the direct relation between prepotent moral emotions and choice, thus reducing the causal efficacy of moral emotion in guiding moral judgment. The idea is consistent with the undoing hypothesis of Fredrickson, Mancuso, Branigan, and Tugade (2000), which, as an outgrowth of the broaden-and-build theory (Fredrickson, 1998), assumes that positive moods can undo the cognitive and physiological effects of negative emotions.

Here we propose that, in the footbridge dilemma, moods affect moral thought rather than moral emotion. This proposal is based on the view that moods influence cognitive processing by conferring value on accessible thoughts: Positive moods validate and thus promote accessible thoughts, whereas negative moods invalidate and thus inhibit accessible thoughts, as suggested in the affective-processing principle (Clore & Huntsinger, 2007, 2009). To test the proposal, in two experiments, we induced positive, negative, or neutral moods in participants immediately before they were presented the footbridge scenario. After presentation of the scenario, we posed a closing question in which participants were asked either whether they would be active and push the man (*active decision frame*) or whether they would be passive and not push the man (*passive decision frame*). If the framing of the closing question made different thoughts accessible – thinking about pushing vs. thinking about not pushing (Briñol, Petty, & Barden, 2007; Petrinovich & O'Neill, 1996; Tversky & Kahneman, 1981) and moods affected moral thought by conferring value on accessible thoughts (Clore & Huntsinger, 2007, 2009), then affective influences on moral judgment should vary with decision frame. Positive moods should validate thoughts about pushing in the active decision frame ("yes, it is appropriate to push") and validate thoughts about not pushing in the passive decision frame ("yes, it is not appropriate to push"), inducing utilitarian responding in the active frame and nonutilitarian responding in the passive frame. In contrast, negative moods should invalidate thoughts about pushing in the active decision frame ("no, it is not appropriate to push") and invalidate thoughts about not pushing in the passive decision frame ("no, it is not appropriate to not push"), inducing nonutilitarian responding in the active frame and utilitarian responding in the passive frame.

2. Experiment 1

Experiment 1 examined whether affective influences of positive and negative moods on moral judgment depend on participants' (active or passive) decision frame in the five-child version of the footbridge scenario.

2.1. Method

2.1.1. Participants

Four hundred participants (291 females, mean age 22.1 years, range 18–40 years) took part in Experiment 1. No participant knew the footbridge dilemma before participation.

2.1.2. Materials and design

Experiment 1 had a 2×2 between-participants design with the factors of *mood* (positive, negative) and *frame* (active, passive). The factor *mood* was manipulated by presenting different musical selections to induce positive (happy) and negative (sad) moods. In the positive-mood condition, participants listened to Mozart's "Eine kleine Nachtmusik (A Little Serenade)"; in the negative-mood condition, they listened to Barber's "Adagio for Strings, Opus 11" (e.g., Chepenik, Cornew, & Farah, 2007; Huntsinger, 2012; Huntsinger, Sinclair, Dunn, & Clore, 2010). Half of the participants additionally wrote down a positive or negative autobiographical memory to enhance positive or negative mood induction (e.g., Baker & Guttfreund, 1993). The factor *frame* was manipulated by asking participants different closing questions after presentation of the footbridge scenario. In the active-frame condition, participants were asked whether they thought it was appropriate to be active and push the man; in the passive-frame condition, they were asked whether they thought it was appropriate to be passive and not push the man. Participants gave simple yes/no answers.

2.1.3. Procedure

For each participant, one of the two musical selections was presented for 5 min via loudspeakers at medium volume level. While listening to the music, half of the participants additionally wrote down a positive or negative autobiographical memory. Recollection of autobiographical memories had no effect on the results and thus is not included as a factor in the present analyses. Following mood induction, the five-child version of the footbridge scenario, as described in the Introduction, was presented on a sheet of paper, read silently by the participants. The yes/no closing question was presented on a second sheet of paper. Half of the participants were asked: *"Do you think it is appropriate to be active and push the man?"*, the other half were asked: *"Do you think it is appropriate to be passive and not push the man?"* Finally, all participants rated valence and arousal of their current emotional state on a nine-by-nine affect grid (Russell, Weiss, & Mendelsohn, 1989).

2.2. Results

Mood induction was successful. Participants who decided to not push reported more positive valence when they were in the positive-mood condition than when they were in the negative-mood condition (5.3 vs. 4.0), $t_{304} = 6.5$, $p < .001$, $d = .74$; arousal ratings did not differ between conditions (5.7 vs. 5.6), $t_{304} < 1$. Participants who decided to push reported the same (negative) valence (4.0 vs. 3.8), and arousal (5.8 vs. 6.0) in the two mood conditions, both t_{92}s < 1, suggesting that utilitarian responding affected participant's valence in the positive-mood condition.

Affective influences on moral judgment varied with decision frame, $F(1,396) = 29.0$, $p < .001$, partial $\eta^2 = .07$ (Fig. 1). In the active-frame condition, utilitarian responding was more likely in positive moods than in negative moods, $t_{198} = 3.6$, $p < .001$, $d = .50$ (nonparametric

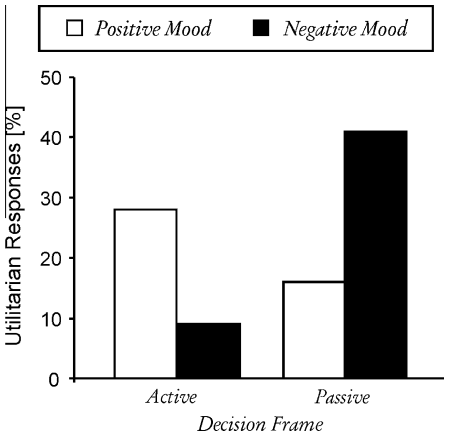

Fig. 1. Experiment 1: Relative number of utilitarian responses – i.e., decisions to push – as a function of participants' mood (positive or negative) and decision frame (active or passive).

Mann–Whitney U-test: $p < .001$). In contrast, in the passive-frame condition, utilitarian responding was more likely in negative moods than in positive moods, $t_{198} = 4.1$, $p < .001$, $d = .57$ (U-test: $p < .001$). Moral judgment depended on the decision frame both when participants were in positive moods, $t_{198} = 2.1$, $p < .05$, $d = .30$ (U-test: $p < .05$), and when they were in negative moods, $t_{198} = 5.6$, $p < .001$, $d = .79$ (U-test: $p < .001$).

3. Experiment 2

Experiment 2 examined whether affective influences of positive, negative, and neutral moods on moral judgment depend on participants' (active or passive) decision frame in the standard five-men-working-on-the-track version of the footbridge scenario.

3.1. Method

3.1.1. Participants

Three hundred sixty participants (188 females, mean age 21.4 years, range 18–31 years) took part in Experiment 2. No participant knew the footbridge dilemma before participation.

3.1.2. Materials and design

Experiment 2 had a 3 × 2 between-participants design with the factors of *mood* (positive, negative, neutral) and *frame* (active, passive). The factor *mood* was manipulated by presenting different musical selections and by asking participants to additionally write down a positive, negative, or neutral autobiographical memory. In the positive and negative-mood conditions, musical selections were the same as in Experiment 1. In the neutral-mood condition, participants listened to Kraftwerk's "Pocket Calculator" (Chepenik et al., 2007). The factor *frame* was manipulated as in Experiment 1. Participants responded on an 11-point scale ranging from *definitely YES* to *definitely NO*.

3.1.3. Procedure

The procedure was the same as in Experiment 1 with the following three exceptions: (a) While listening to the music, all participants additionally wrote down a positive, negative, or neutral autobiographical memory; (b) instead of the five-child version, the standard five-men-working-on-the-track version of the footbridge scenario was used (Thomson, 1986); (c) instead of dichotomous yes/no responding, participants responded on an 11-point scale ranging from *definitely YES* to *definitely NO*.

3.2. Results

Mood induction was successful: Valence ratings differed between mood conditions, $F(1,357) = 10.2$, $p < .001$, partial $\eta^2 = .05$. Valence ratings were more positive in the positive-mood condition than in the neutral-mood condition (5.4 vs. 4.9), $t_{238} = 2.1$, $p < .05$, $d = .26$, and they were more positive in the neutral-mood condition than in the negative-mood condition (4.4), $t_{238} = 2.5$, $p < .05$, $d = .32$. Arousal ratings did not differ between mood conditions (positive vs. negative vs. neutral: 5.3 vs. 4.9 vs. 5.2), $F(1,357) = 1.5$, $p = .22$.

Affective influences on moral judgment varied with decision frame, $F(1,354) = 21.5$, $p < .001$, partial $\eta^2 = .11$ (Fig. 2). In the active-frame condition, utilitarian responding was more likely in positive moods than in neutral moods, $t_{118} = 2.1$, $p < .05$, $d = .38$, and it was more likely in neutral moods than in negative moods, $t_{118} = 2.1$, $p < .01$, $d = .51$. In contrast, in the passive-frame condition, utilitarian responding was more likely in negative moods than in neutral moods, $t_{118} = 2.1$, $p < .05$, $d = .37$, and it was more likely in neutral moods than in positive moods, $t_{118} = 2.3$, $p < .05$, $d = .42$. Moral judgment depended on decision frame both when participants were in positive moods, $t_{118} = 4.1$, $p < .001$, $d = .66$, and when they were in negative

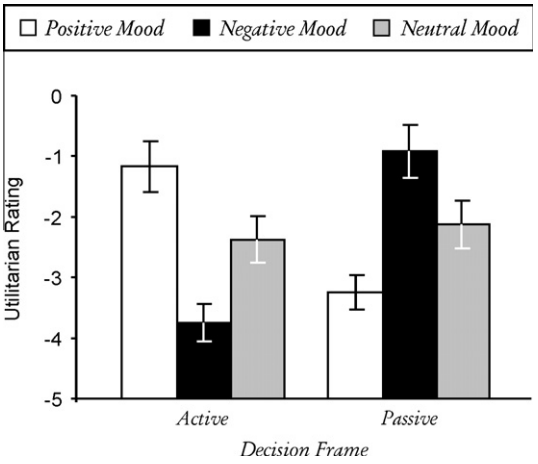

Fig. 2. Experiment 2: Participants' ratings on an 11-point scale ranging from strictly nonutilitarian responding (−5) – i.e., decisions to not push – to strictly utilitarian responding (+5) responding – i.e., decisions to push – as a function of participants' mood (positive, negative, or neutral) and decision frame (active or passive). Error bars represent standard errors.

moods, $t_{118} = 5.3$, $p < .001$, $d = .97$, but not when they were in neutral moods, $t_{118} < 1$.

Across mood conditions, correlational analysis showed a positive relationship between utilitarian responding and positivity of valence ratings in the active-frame condition, $r = .18$, $p < .05$, but a negative relationship in the passive-frame condition, $r = -21$, $p < .01$.

4. Discussion

The results of two experiments show that affective influences on moral judgment depend on participants' decision frame. Compared to neutral moods, positive moods induced utilitarian responding when participants were put into an active decision frame, but induced non-utilitarian responding when they were put into a passive frame; in negative moods, exactly the opposite picture arose. These results challenge the view that moods affect moral emotion. If mood had influenced moral emotion, i.e., positive moods had undone the influence of negative moral emotions (Fredrickson et al., 2000) and negative moods had not affected or increased participants' experienced negativity of moral emotion, then utilitarian responding should have been more likely in positive moods than in negative moods, regardless of decision frame. Rather, the results support the view that moods affect moral judgment by conferring value on accessible thoughts (Clore & Huntsinger, 2007, 2009). Positive moods validate and negative moods invalidate the very thoughts made accessible by decision framing: thoughts about pushing in the active frame and thoughts about not pushing in the passive frame.

Global theories of moral judgment often assume that emotions play a central role in moral decision making. The social-intuitionist model (Haidt, 2001), for instance, claims that moral emotion drives moral judgment and moral thought is recruited only to provide post hoc rationalization of intuitive moral responding. The dual-process model (Greene, Nystrom, Engell, Darley, & Cohen, 2004) assumes that both moral emotion and thought drive moral judgment. The model claims that two dissociable systems of moral emotion and moral thought operate independently in the brain, acquire different knowledge, and compete in control of moral behavior. The present results agree with Greene et al.'s view that both moral emotion and moral thought can drive moral judgment, but disagree with the view that (moral) emotion and thought are processed in dissociable and antagonistic systems in the brain. Rather, the results are more in line with the view that cognition and emotion interact in moral decision making. In fact, cognition and emotion have been shown to strongly interact in dynamic coalitions of brain networks, conjointly contributing to the control of thought and behavior (Pessoa, 2008). Because of these interlinked brain networks, cognition shapes affective reactions into elaborated emotions and emotion regulates thought and behavior (Clore, 2011). Regardless of theory, it is a high priority for future work to examine whether affective influences on moral judgment, as they were found in the present study, are restricted to moral judgment in hypothetical scenarios, like the footbridge scenario, or generalize to moral behavior in real-life situations (FeldmanHall, Dalgleish, et al., 2012; FeldmanHall, Mobbs, et al., 2012; Teper, Inzlicht, & Page-Gould, 2011).

The present experiments add to a series of recent studies demonstrating that the affective-processing principle applies to various phenomena in cognitive psychology. Huntsinger, Clore, and Bar-Anan (2010), for instance, examined affective influences on global–local judgments when either a local or a global focus was primed in participants prior to the decision task. When a global focus was made accessible in the priming task, positive moods led to more global judgments than negative moods. In contrast, when a local focus was made accessible in the priming task, this pattern reversed and positive moods produced more local judgments than negative moods. Huntsinger, Sinclair, et al. (2010) examined the effect of mood on stereotype activation. Positive moods increased stereotypic activation more than negative moods when stereotypic thoughts were made accessible, whereas the pattern reversed when counterstereotypic thoughts were made accessible in participants prior to the task. Most recently, examining affective influences on conflict processing in the Eriksen flanker task, Huntsinger (2012) showed that in positive moods irrelevant flanking distractors impaired participants' performance more than in negative moods when a global focus was made accessible, whereas the opposite picture arose when a local focus was made accessible in participants prior to the task. Together with the present findings, these studies indicate that the influence of affect is flexible and depends on which cognitions, thoughts, and response tendencies the affect happens to take as an object.

Extending on the prior work by Valdesolo and DeSteno (2006), Strohminger et al. (2011) recently showed that distinct positive emotions (mirth vs. elevation) can have distinct effects on people's moral judgments. Such opposing effects of positive moods cannot be explained by the undoing hypothesis (Fredrickson et al., 2000) and are more in line with the view that distinct positive (and negative) emotions can have distinct effects on (moral) cognitions and thoughts (DeSteno, Petty, Wegener, & Rucker, 2000; Tiedens & Linton, 2001; Ugazio, Lamm, & Singer, 2012), as is suggested by the appraisal-tendency theory (Han, Lerner, & Keltner, 2007; Lerner & Keltner, 2000). The appraisal-tendency theory assumes that distinct positive (and negative) emotions activate distinct appraisal tendencies on specific appraisal dimensions (e.g., certainty, control, pleasantness). In particular, it assumes that emotion-specific appraisals persist beyond the eliciting situation and affect cognitions and thoughts in subsequent unrelated tasks. This view on how emotion affects cognition and thought, in fact, is similar to the view proposed by the affective-processing principle (Clore & Huntsinger, 2007, 2009), although the appraisal-tendency theory has more degrees of freedom with respect to which specific appraisal(s) drive(s) a specific emotion–cognition effect and which do(es) not. The present results are consistent with both the affective-processing principle and the appraisal-tendency theory. Future work examining the influences of distinct positive and negative emotions

(others than happy and sad) on moral judgment as a function of decision frame may show whether affective influences on moral judgment are driven by specific appraisal(s) or not. For now, we conclude that influences of both positive and negative moods on moral judgment depend strongly on moral thought. It is the accessible thought that counts: "to push" or "not to push", that is the question.

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