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## The effect of disgust conditioning and disgust sensitivity on appraisals of moral transgressions

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### ABSTRACT

A growing body of research suggests that the experience of disgust increases the severity of moral judgments. In addition, individual difference variables such as Disgust Sensitivity (DS) are associated with differential appraisals of moral transgressions. However, the influence of combined trait and state levels of disgust on judgments of such transgressions has not been fully explored. The present study examined how trait level DS, and state level disgust, induced via evaluative conditioning (EC), affect judgments of moral transgressions. Participants ( $n = 61$ ) were exposed to a differential EC paradigm where a neutral word (part) was paired with disgusting images (CS+). Participants then provided disgust and morality ratings of moral transgressions that either contained the conditioned word ('part') or a neutral word that was not conditioned with disgust ('some'). Transgressions containing the conditioned disgust elicitor 'part' were evaluated as more disgusting, but not more morally wrong than those containing 'some'. This greater perceived disgust for transgressions containing 'part' versus 'some' was significantly predicted by disgust conditionability, but not by disgust sensitivity. The implications of these findings to better understand the role of disgust in moral decision-making are discussed.

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### 1. Introduction

Although moral judgment is traditionally thought of as guided by 'divine' principles such as fairness and respect for others' well being (e.g., Kant, 1959; Kohlberg, 1969), more recent theoretical (e.g., Haidt, 2001; Haidt, Rozin, McCauley, & Imada, 1997; Looy, 2004) and empirical developments (e.g., Chapman, Kim, Susskind, & Anderson, 2009; Greene, Morelli, Lowenberg, Nystrom, & Cohen, 2008; Schnall, Haidt, Clore, & Jordan, 2008; Wheatley & Haidt, 2005) suggest that morality may be guided by basic affective processes. For example, Haidt (2007) proposed that immediate judgments about morality are experienced as a "flash of intuition" and that these *affective intuitions* operate quickly, associatively, and outside of conscious awareness (Haidt, 2001; Schnall, Haidt et al., 2008). While these automatic responses can be reappraised via moral reasoning (a more deliberate, effortful and slow process), moral intuitions are thought to be elicited prior to conscious moral reasoning, and are therefore hypothesized to have a greater influence on moral judgments (Schnall, Haidt et al., 2008).

Several affective states (e.g., guilt, anger) have been identified as 'moral emotions' (Haidt, 2003). However, it has been hypothesized that appraisals of morality are most strongly related to disgust

(e.g., Haidt, 2003; Rozin, Haidt, & McCauley, 2000). Disgust is a universal, basic emotion that functions to protect the organism from ingesting potentially harmful substances, thereby promoting disease avoidance (Oaten, Stevenson, & Case, 2009). Disgust is also conceptualized as an evaluative sentiment that may regulate moral behavior (e.g., Looy, 2004; Miller, 1997; Schnall, Haidt et al., 2008). Experiencing disgust may signal that objects, behaviors, or persons are to be avoided in order to maintain "purity." Consistent with this notion, Schnall, Benton and Harvey (2008) found that people make less morally severe judgments of others when the concept of cleanliness is made salient. This finding suggests that reducing the experience of disgust and the subsequent threat of psychological impurity dampens the perceived severity of moral transgressions.

Experimental research has begun to reveal a direct functional relationship between disgust and morality. For example, Wheatley and Haidt (2005) found that hypnotically induced disgust results in more severe moral judgments of morally relevant and non-moral behaviors. A recent series of studies, in which disgust was induced using different methods (via an unpleasant odor, a movie clip, a dirty work environment, and a writing task), found that for those sensitive to internal sensations (high private body consciousness), induced disgust led to increased moral severity in judgments of morally relevant behaviors, but not in non-moral ones (Schnall, Haidt et al., 2008). Research further suggests that individual differences in disgust sensitivity (DS), the propensity to experience disgust (Haidt, McCauley, & Rozin, 1994) influences judgments

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about moral transgressions. For example, recent research (e.g., Inbar, Pizarro, Knobe, & Bloom, 2009; Olatunji, 2008) has shown that those high in DS tend to make harsher moral judgments. DS also correlates with moral objections to the use of animals in research (Herzog & Golden, 2009), and implicit negative moral attitudes towards homosexuals (Inbar et al., 2009). The association between DS and such negative attitudes about homosexuals was found to be partially mediated by more intense moral scruples and conservative sexual ideology (Olatunji, 2008). DS is also associated with “moral hypervigilance”, such that individuals high in DS are more likely to think that suspects, briefly described in a vignette, are culpable, and are more inclined to attribute evilness to criminals and recommend lengthy sentences (Jones & Fitness, 2008).

Although DS appears to be associated with decisions about morality, it is not clear if the causal link between experienced disgust and moral decision-making applies for all individuals or only for those high in DS. To address this gap in the literature, the present study examined moral judgments of participants with varying degrees of DS in the presence or absence of an acute disgust elicitor, induced via evaluative conditioning (EC). EC is defined as the transfer of affect, from one stimulus to another, through contiguous pairing in a classical conditioning paradigm (De Houwer, Baeyens, Vanssteenwegen, & Eelen, 2000). Prior research suggests that EC is a potent means by which disgust responses may be acquired (e.g., Schienle, Stark, & Vaitl, 2001) and disgust that is acquired via EC has been shown to be resistant to extinction (Olatunji, Forsyth, & Cherian, 2007). On the basis of prior work (e.g., Horberg, Oveis, Keltner, & Cohen, 2009; Moretti & di Pellegrino, 2010; Schnall, Haidt et al., 2008; Wheatley & Haidt, 2005), it was predicted that narratives of moral transgressions that contain a neutral word, conditioned with disgust in a prior task, would be appraised as more disgusting and consequently more morally wrong compared to narratives of moral transgressions that do not contain the conditioned neutral word. Degree of disgust conditioning is also predicted to be associated with disgust and morality ratings of transgressions that contain the conditioned disgust cue. Consistent with prior research on the effects of DS on moral judgments (e.g., Inbar et al., 2009; Jones & Fitness, 2008), it was also predicted that the presence of a conditioned disgust cue in descriptions of a moral transgression would lead to more severe disgust and morality ratings for those higher in DS.

## 2. Method

### 2.1. Participants

Sixty-one undergraduate students (61% females, 80% Caucasians) participated in exchange for course credit.

### 2.2. Materials

#### 2.2.1. Disgust sensitivity scale-revised

The *Disgust Sensitivity Scale-Revised* (DS-R; Haidt et al., 1994, modified by Olatunji, Williams et al., 2007) is a 27-item scale that measures DS across domains of core, animal reminder, and contamination disgust. The DS-R had an alpha coefficient of .84 in the present study.

#### 2.2.2. Conditioned stimuli

The CSs included the following words that have been identified previously in a pilot study as similar in terms of affective neutrality: PART and CYLINDER.

#### 2.2.3. Unconditioned stimuli

The UCSs consisted of 24 different color pictures, half of which depicted graphic disgust content (i.e., bodily mutilation), whereas

the remaining 12 pictures depicted commonplace neutral items (e.g., pencil). Prior research has shown that the 12 disgust and 12 neutral images discriminate highly with respect to ratings of disgust but did not differ with respect to brightness and clarity (Olatunji, Forsyth et al., 2007).

#### 2.2.4. Self-report of EC

Participants rated a set of neutral words (part, cylinder, some, briefly, serious) on 5 affective dimensions (“How *disgusted*, *angry*, *anxious*, *sad*, and *happy* does this word make you feel?”) before and after EC on a 7-point rating scale (1 = not at all – 7 = extremely).

#### 2.2.5. Moral transgressions

One-sentence descriptions of 6 moral offenses adapted from the literature were used (Wheatley & Haidt, 2005): shoplifting, littering, stealing from the library, taking bribes, cousins having sex, and a lawyer chasing an ambulance. These moral transgressions were modified to include the word part (CS+) or some. Given the semantic similarity with ‘part’ (CS+), ‘some’ was not used as the CS– in the evaluative conditioning task to prevent generalization of disgust conditioning from the from CS+. For each of these offenses, participants rated on a scale from 0 (not at all) to 9 (extremely) how morally wrong and how disgusting they found the offense.

### 2.3. Procedure

Participants first provided evaluative ratings (*disgusted*, *angry*, *anxious*, *sad*, and *happy*) for the list of neutral words. They were then exposed to an EC paradigm, adopted from Olatunji, Forsyth and colleagues (2007), that consisted of 12 reinforced CS+ pairings of the word ‘part’ with each of the 12 different aversive UCS pictures, and 12 pairings of the CS– word ‘cylinder’ with each of the 12 neutral pictures. CS– pairings were included as a contrast to the CS+ pairings, to make explicit the specific association between ‘part’ and disgust. During EC, CS offset coincided with UCS onset. The UCSs remained on the screen for 20 s whereas all CSs were 8 s in length. The intertrial interval (ITI) varied randomly between 16 and 20 s. The CS+ pairings and CS– pairings were presented in random order. After EC, participants again provided evaluative ratings for the list of neutral words.

Participants were then asked to evaluate a list of moral transgressions. Data from a pilot study suggested that the combined mean moral severity rating for shoplifting, taking bribes, and a lawyer chasing an ambulance was equivalent to that of littering, stealing from the library and cousins having sex. Therefore, the 6 offenses were divided into 2 sets (SET A – shoplifting, taking bribes, chasing ambulance, SET B – littering, stealing from library, cousin sex)<sup>1</sup>. Each participant rated all 6 offenses, presented in the same order in both conditions, for disgust and moral severity. However, the conditioned word ‘part’ was embedded in SET A and the neutral, semantically similar word ‘some’ was embedded in SET B, or vice versa.

For example, half the participants read:

“Rachel started shoplifting, and she walks out with clothes under her jacket PART of the time”.

The other participants read:

“Rachel started shoplifting, and she walks out with clothes under her jacket SOME of the time”.

Participants then completed the DS-R.

<sup>1</sup> Paired samples *t*-tests confirmed that SET A and SET B transgressions were perceived as equally morally wrong [ $t(60) = -.95$ , *n.s.*], and disgusting [ $t(60) = -.64$ , *n.s.*] in the current study.

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