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#### Clinical report

# The potentiating effect of disgust sensitivity on the relationship between disgust propensity and mental contamination



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#### ABSTRACT

Disgust is important to mental contamination, a contamination fear that arises in the absence of physical contact with a perceived contaminant. Researchers have distinguished between disgust propensity, defined as one's general tendency to experience disgust, and disgust sensitivity, defined as one's negative appraisal of the experience of disgust. Based upon speculations that disgust sensitivity may amplify the experience of disgust propensity on disgust-relevant outcomes, this study examined the interaction of disgust propensity and disgust sensitivity in relation to mental contamination among a community sample of adults located in the United States recruited through Amazon's Mechanical Turk (N=478). The results suggest that disgust sensitivity potentiates the effect of disgust propensity on mental contamination. The interactive effect was robust to the effects of negative affect and broader contamination fears. These results indicate that mental contamination is particularly strong among individuals with concurrently high disgust propensity and disgust sensitivity. Implications and future directions are explored.

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#### 1. Introduction

A common trigger for psychological distress comes from a desire to keep one's self or environment clean. This desire for cleanliness is often perpetuated by a fear of contamination (Rachman, 2004). As noted by Rachman (2004), fear of contamination is a near-universal experience and is defined as a fear related to coming into contact with a person or item that is believed to be dirty, whether this contact is direct (e.g., as when one touches garbage) or indirect (e.g., as when one touches an object that trash may have once touched). Those who have a severe fear of contamination tend to either try to limit their contact with potentially unclean people or items and/or engage in cleansing behavior after they come into contact with a perceived contaminant (Rachman, 2004).

Whereas contact contamination originates from physical contact with a perceived unclean stimulus, contamination can arise from merely observing or thinking about something unclean, immoral, or undesirable (Rachman, 2004). As described by Rachman (2004), contamination that occurs in the absence of physical contact with a contaminant is called mental contamination. Mental contamination differs from contact contamination along a

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number of qualities, including that mental contamination, unlike contact contamination, can develop due to reflection upon certain thoughts, memories, and images (see Fairbrother, Newth, & Rachman, 2005, for a review). Moreover, mental contamination, unlike contact contamination, does not require a tangible external source (Fairbrother et al., 2005). As such, Fairbrother et al. (2005) noted that it may be difficult for an individual to identify the source of mental contamination or the location of perceived dirtiness, as mental contamination can be generated from an internal process.

Although they share overlap, mental contamination and contact contamination are distinguishable (Coughtrey, Shafran, Knibbs, & Rachman, 2012) and, thus, studies have focused specifically upon improving our understanding of mental contamination as its own distinct construct (e.g., Badour, Feldner, Blumenthal, & Bujarski, 2013; Badour, Ojserkis McKay, & Feldner, 2014; Coughtrey, Shafran, & Rachman, 2014; Elliott & Radomsky, 2009; Fairbrother et al., 2005; Herba & Rachman, 2007; Radomsky, & Elliott, 2009; Radomsky, Rachman, Shafran, Coughtrey, & Barber, 2014). A consistent finding across these prior studies is an association between disgust and mental contamination, which provides support for the viewpoint that contamination concerns originate as a result of disgust or anticipated exposure to stimuli that elicit disgust (Olatunji, Cisler, McKay, & Phillips, 2010).

Disgust is a basic emotion that has traditionally been thought to arise as the result of a need to beware of potentially harmful contact substances; however, its application is also seen in the

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repulsion of morally or socially disgusting acts (Olatunji & Sawchuk, 2005). Researchers have distinguished between two disgust-related vulnerability factors: (a) disgust propensity, defined as one's general tendency to experience disgust, and (b) disgust sensitivity, defined as one's negative appraisal of the experience of disgust (van Overveld, De Jong, Peters, Cavanagh & Davey, 2006). Extensions of these definitions propose that disgust propensity is a predisposition toward a specific type of negative affect (i.e., disgust) and disgust sensitivity represents fear of experiencing disgust (Olatunji et al., 2010). Empirical support for the distinctiveness of disgust propensity and disgust sensitivity comes from research finding that they are structurally distinguishable (Olatunii, Cisler, Deacon, Connolly, & Lohr, 2007; Fergus & Valentiner, 2009; van Overveld et al., 2006) and evidence a unique pattern of associations with criterion variables (Cisler, Olatunji, & Lohr, 2009; Fergus & Valentiner, 2009; Olatunji et al., 2007, 2010).

As noted, prior studies have supported an association between disgust and mental contamination. However, prior studies examining this association have often used single-item indicators of disgust (e.g., Rachman, Radomsky, Elliott, & Zysk, 2012) or measures that only target disgust propensity (e.g., Radomsky & Elliott, 2009). In fact, only one known published study has examined how disgust sensitivity relates to mental contamination. In that study, Badour et al. (2013) found that disgust sensitivity shared a positive association with mental contamination. A notable limitation of Badour et al.'s (2013) study is that they isolated the relation between disgust sensitivity and mental contamination rather than simultaneously examining how both disgust propensity and disgust sensitivity relate to mental contamination. Isolating relations between each disgust vulnerability factor is a notable limitation because "disgust propensity and sensitivity may interact and predict disgust-related psychopathological complaints" (van Overveld et al., 2006, p. 1242).

Disgust sensitivity would conceptually be expected to serve as the moderator of the relationship between disgust propensity and outcomes, as van Overveld et al. (2006) noted that the construct of disgust sensitivity parallels Reiss's (1987) concept of the fear of anxiety (i.e., anxiety sensitivity). According to Reiss (1987), fear of anxiety enhances the discomfort level of anxiety and, thus, serves as an amplifying factor. Consistent with this possibility, research has found that fear of anxiety moderates the relationship between the propensity to experience anxiety and outcomes (e.g., Dixon, Stevens, & Viana, 2014). Providing evidence that disgust sensitivity may similarly serve as an amplifying factor, Engelhard, Olatunji, and de Jong (2011) found that disgust sensitivity moderates the relationship between disgust reactions experienced during a traumatic event and posttraumatic stress symptoms.

We propose that the moderating effect of disgust sensitivity extends to mental contamination. Clinical observations made by Coughtrey, Shafran, Lee, and Rachman (2013) indicate that the misappraisal of negatively valenced emotions is related to mental contamination, such that individuals misappraise emotions as a sign of having done something wrong and, consequently, experience an internal sense of dirtiness. Further, disgust evokes physiological changes in heart rate and skin conductance, indicating parasympathetic nervous system response (Cisler, Olatunji, Sawchuk, & Lohr, 2008). It is possible that individuals who are marked by heightened fear of disgust (i.e., disgust sensitivity; Olatunji et al., 2010) may be more likely to misinterpret those reactions as a sign of internal dirtiness. Indeed, as reviewed, mental contamination typically does not involve an external contaminant, but occurs as a result of internal cues (Fairbrother et al., 2005). As such, and paralleling the amplifying nature of the fear of anxiety (Dixon et al., 2014; Reiss, 1987), disgust sensitivity may contribute to misappraisals of disgust reactions and, thus, strengthen the association between the frequency of disgust reactions (i.e., disgust propensity) and mental contamination.

If our speculation is tenable, disgust sensitivity should moderate the association between disgust propensity and mental contamination. If an interaction between disgust propensity and disgust sensitivity was supported, we next sought to examine its robustness by controlling for negative affect, which is a correlate of disgust and contamination fears (e.g., Cisler et al., 2009). We also controlled for the effects of contamination fears more broadly to account for overlap with contamination fears that extend beyond mental contamination. Study findings were expected to contribute to research seeking to identify factors that may help account for the experience of mental contamination (e.g., Herba & Rachman, 2007).

#### 2. Method

#### 2.1. Participants

The sample consisted of 478 adults located in the United States recruited through Amazon's Mechanical Turk (MTurk), an online crowdsourcing website. Recruitment was limited to MTurk workers over 18 years of age and worker specifications included requiring participants to have internet protocol (IP) addresses located in the United States. Methods to improve MTurk data quality are important and have been of interest to researchers (Paolacci & Chandler, 2014). Although "catch" questions are sometimes used in an attempt to improve data quality, Paolacci and Chandler (2014) recommend not using such questions because they "have high measurement error, rely on the questionable assumption that measured attentiveness is constant throughout the task, and may tap into correlated traits rather than state-level differences in attentiveness" (p. 186). We followed Paolacci and Chandler's (2014) recommendation and sought to improve data quality by restricting MTurk worker approval ratings, as research has found that "catch" questions do not improve data quality above and beyond recruiting MTurk workers with approval ratings above 95% (Peer, Vosgerau, & Acquisti, 2014). Worker specifications in the present study included restricting participation to MTurk workers who had approval ratings above 95% (following Peer et al., 2014).

The mean age of the sample was 33.5 years (SD=12.5; ranging from 18 to 75) and respondents predominantly self-identified as female (58.8%). In terms of racial identification, 79.5% of the sample self-identified as White, 7.1% as Asian, 5.7% as Black, 3.6% as multi-racial, 3.4% as Latino, and 0.8% as American Indian. A majority of the sample reported receiving a two-year college degree or higher (59.7%) and as currently employed at least part-time (67.8%).

#### 2.2. Measures

## 2.2.1. Vancouver Obsessional Compulsive Inventory-Mental Contamination Scale (VOCI-MC; Radomsky et al., 2014)

The VOCI-MC is a 20-item measure that assesses mental contamination fears on a trait level (e.g., *I often feel dirty or contaminated even though I haven't touched anything dirty*) using a 5-point scale (ranging from 0 to 4). The items of the VOCI-MC initially were developed for inclusion in the VOCI (Thordarson et al., 2004), but were not formally included in the published measure. The VOCI-MC shares a strong correlation with a measure of contact contamination (*rs* ranging from .61–.76) and that correlation is stronger than its correlation with general distress (*rs* ranging from .12–.41; Radomsky et al., 2014). Further, the VOCI-MC continues to relate to criterion variables after controlling for the

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