

# Disgust sensitivity as a predictor of obsessive-compulsive contamination symptoms and associated cognitions

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## Abstract

Disgust sensitivity has been hypothesized to play a key role in the etiology and maintenance of several anxiety disorders. The association between disgust sensitivity, trait anxiety, and washing and contamination-related concerns was tested using two different measures of obsessive-compulsive contamination fears using linear structural modeling. Two different models were tested, one where trait anxiety mediated the relationship between disgust sensitivity and contamination fear, and a second model unmediated by trait anxiety. A total of 740 undergraduates completed self-report measures of disgust sensitivity, trait anxiety, and obsessive-compulsive symptoms for course credit. The results indicated that there was insufficient evidence for the mediating role of trait anxiety, and the more parsimonious structural models specifying direct effects between disgust sensitivity and both washing and contamination concerns fit the data well. The results of this research support the central role of disgust in contamination fear. © 2007 Elsevier Ltd. All rights reserved.

*Keywords:* Disgust; Contamination; Obsessive-compulsive disorder; Mediated model; Trait anxiety

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## 1. Introduction

Disgust sensitivity is the trait-like predisposition of a person to become disgusted in response to a particular group of stimuli, known as disgust elicitors (Woody & Teachman, 2000). As the word itself suggests, the first definitions of disgust focused on its relation to taste and ingestion. Rozin and Fallon (1987) defined disgust as “revulsion at the prospect of (oral) incorporation of an offensive object” (p. 23), and they identified through a review of a number of experimental studies that disgust elicitors are primarily related to animals or animal products, particularly feces.

More recently, disgust has been described as a basic emotion that serves the adaptive function of protecting humans from contact with contaminated stimuli (Woody & Teachman, 2000). Disgust is no longer defined in the psychological literature as solely food-related, as proposed by Rozin and Fallon (1987), but the concept has been expanded to encompass seven different domains of disgust elicitors, including food, animals, body products, sex, body envelope violations, death, and hygiene (Haidt, McCauley, & Rozin, 1994).

Disgust has been linked to several anxiety disorders. The bulk of the research conducted on disgust sensitivity has involved phobias of small animals, like spiders and snakes (Matchett & Davey, 1991), or blood-injection-injury phobias (Sawchuk, Lohr, Tolin, Lee, & Klein-knecht, 2000; Tolin, Lohr, Sawchuk, & Lee, 1997). A growing body of research has indicated that there is a relationship between disgust sensitivity and obsessive-

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compulsive disorder (OCD), particularly contamination fear. OCD is an anxiety disorder characterized by the presence of disturbing intrusive thoughts and/or repetitive behaviors (*Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision; DSM-IV-TR*; American Psychiatric Association, 2000). Fear of contamination has been identified as one of the most common obsessive concerns among people who suffer with OCD (Foa & Kozak, 1995; Foa et al., 1995), and this preoccupation with avoiding contamination points to its plausible connection to disgust sensitivity. Tolin, Woods, and Abramowitz (2006) suggested that disgust may uniquely contribute to contamination-based OCD because feelings of disgust lead to phobic avoidance of certain stimuli that are relieved through compulsive behavior, and the behavior is sustained through negative reinforcement.

### 1.1. *The role of disgust in contamination fear*

Disgust has been found to be associated with a wide range of OCD symptoms (cf. Muris et al., 2000; Scheinle, Stark, Walter, & Vaitl, 2003; Thorpe, Patel, & Simonds, 2003). There is also empirical support for a specific connection between disgust sensitivity and OCD contamination symptoms using multiple regression analyses (Mancini, Gragnani, & D'Olimpio, 2001; Olatunji, Sawchuk, Lohr, & de Jong, 2004) and structural equation models (Olatunji, Williams, Lohr, & Sawchuk, 2005).

Mancini et al. found a significant positive relationship between disgust and obsessive-compulsive symptoms in a non-clinical sample. Washing and checking behaviors were significantly and uniquely predicted by disgust sensitivity, for both males and females, using multiple regression analysis, after controlling for age, state and trait anxiety, and depression. Mancini et al. did not find a strong link between disgust sensitivity and other OCD subscales, e.g., impulses and rumination, among female participants. For male participants however, disgust was a weak but significant predictor of the rumination subscale along with trait anxiety. Olatunji et al. (2004) found that participants high on contamination fear scored higher on disgust sensitivity than those low on contamination fear.

Woody and Tolin (2002) found that OCD patients with washing compulsions reported significantly higher disgust sensitivity than non-anxious controls, and somewhat higher disgust sensitivity than OCD patients without washing symptoms. The correlation between disgust sensitivity and compulsions was notably stronger than the correlation between disgust sensitivity

and obsessions, which suggests that compulsions may be related to disgust sensitivity while cognitive components of OCD are not.

As opposed to using a self-report measure of disgust sensitivity, Tsao and McKay (2004) found that participants high on self-report washing compulsions could be differentiated from participants with high trait anxiety using behavioral avoidance tasks (BATs) designed to assess six domains of disgust. They found that on two of the BATs, animal-related disgust and sympathetic magic, the contamination fearful group had significantly higher disgust sensitivity than the high trait anxiety group. However, four of the tasks revealed no significant differences between disgust and trait anxiety groups.

Olatunji, Williams, et al. (2005) utilized a structural equation modeling (SEM) approach to determine whether a two-factor or one-factor model of disgust was significantly related to contamination-related obsessions and compulsions in OCD. The two-factor model proposed was based on Rozin, Haidt, and McCauley's (2000) conceptualization of Core and Animal Reminder disgust. Core disgust is comprised of stimuli such as rotting foods, waste products, and small animals. On the other hand, Animal Reminder disgust elicitors remind individuals of their animal origins (e.g., sexual acts, poor hygiene, death, and stimuli associated with exposure to internal viscera). Core disgust was found to significantly predict contamination obsessions and washing compulsions, while Animal Reminder disgust did not.

### 1.2. *The role of trait anxiety in contamination fear*

Fear, or anxiety, has traditionally been addressed as the core component of most anxiety disorders in the DSM, while disgust has been widely neglected (Rachman, 2004). Trait anxiety has been proposed to mediate the relationship between disgust and anxiety psychopathology (Muris, Merckelbach, Schmidt, & Tierny, 1999; Thorpe & Salkovskis, 1998). Thorpe and Salkovskis suggested that the relationship between disgust and anxious psychopathology is due to the possible interaction of these two emotions, such that in the presence of fear, disgust is galvanized. Woody and Tolin (2002) suggested that trait anxiety and disgust are related because they are both partially mediated by neuroticism, but that they may be functionally separate at times. In other words, disgust and trait anxiety may operate independently of one another in some situations and interact at others. Tsao and McKay (2004) also found evidence for the mediating role of trait anxiety in the relationship between disgust and contamination fear.

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