



Research - Basic Empirical Research

## The Implicit Relational Assessment Procedure (IRAP) as a measure of obsessive beliefs in relation to disgust



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### ABSTRACT

The Implicit Relational Assessment Procedure (IRAP) was utilized as a means of interpreting disgust in terms of the six domains of Obsessive-Compulsive Disorder as defined by the Obsessive Compulsive Cognitions Working Group; excessive responsibility, overestimation of threat, perfectionism, intolerance for uncertainty, over importance of thoughts and need to control thoughts. A non-clinical sample ( $N=44$  undergraduate students) completed an IRAP designed to assess appraisals of disgust-inducing pictorial stimuli based on the six belief domains at the implicit level. A series of self-report measures including the Obsessive-Beliefs Questionnaire, the Padua Inventory and the STAI were also implemented. Results indicated that a greater bias toward appraising disgusting stimuli as being negative was related to excessive responsibility and overestimation of threat along with perfectionism and intolerance for uncertainty. Critically, these effects were found to be independent of anxiety supporting the influence of disgust responding in the etiology of OC tendencies.

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### 1. Introduction

The role of disgust in the etiology of psychopathologies such as Obsessive-Compulsive Disorder (OCD) has been the focus of much research in the last decade. Disgust is a universally experienced negative emotion which has implications for the cognitive and behavioral domains of OCD. Many experiences may elicit disgust, for example, body-envelope violations, experiences involving animals or body waste or particular socio-moral scenarios (Haidt, McCauley & Rozin, 1994). Measures (both implicit and explicit) have been developed to assess individual differences in general disgust and its two constituents, disgust propensity (i.e., an individual's tendency to experience disgust) and sensitivity (i.e., how negatively the individual appraises their experience of disgust) (Nicholson & Barnes-Holmes, 2012a; van Overveld, De Jong, Peters, Cavanagh & Davey, 2006). Numerous studies have utilized such measures in an attempt to delineate the influence of disgust, as an individual emotion, in the etiology of OCD.

Disgust has been related to general OCD symptoms and washing concerns in OCD, using self-report measures and this effect was independent of anxiety (Olatunji et al., 2007). Moretz & McKay (2008) demonstrated that disgust influences general OCD symptoms and beliefs, including washing concerns and contamination fears, without any influence of anxiety. Thus, it appears

from the literature that disgust does not merely influence the symptomatology of OCD through anxiety, rather it is a distinct emotion worthy of individual empirical investigation. While the evidence is promising, the specific cognitive mechanisms through which disgust influences OCD remain largely unclear. Cognitive approaches to obsessions posit that it is the misinterpretation of intrusive thoughts, feelings and images as being highly important which drives problematic behavior such as avoidance, reassurance seeking and excessive washing (Rachman, 1997, 1998; Salkovskis, 1985; Salkovskis, Shafran, Rachman & Freeston, 1999). Thus, it may be that overtly negative interpretations of the initial feeling of disgust result in behaviors specific to OCD such as excessive washing and checking (Teachman, 2006).

The Obsessive Compulsive Cognitions Working Group (1997) have highlighted the relevance of cognitive content and processes in the etiology and maintenance of OCD. Critically, they have emphasized the importance of the interpretations (e.g., beliefs and appraisals) that follow intrusive thoughts such as "For me, having bad urges is as bad as actually carrying them out" or "Even if harm is unlikely, I should try to prevent it at any cost" (Obsessive Compulsive Cognitions Working Group (2005). These background beliefs provide a context in which the intrusive thought is more likely to cause distress which result in the individual engaging in compulsive and problematic behaviors as a means of reducing this distress (Rachman, 1998). The OCCWG has identified six cognitive belief domains of OCD (1) excessive responsibility; (2) overestimation of threat; (3) perfectionism; (4) intolerance of uncertainty; (5) over-importance of thoughts and (6) need to

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control thoughts **Obsessive Compulsive Cognitions Working Group (2001)**. These six domains have been narrowed down to three factors which can be measured by the **Obsessive Belief Questionnaire**, (1) responsibility/overestimation of threat; (2) perfectionism/intolerance of uncertainty; (3) over-importance/need to control thoughts (OBQ-44; **Obsessive Compulsive Cognitions Working Group, 2005**). These beliefs lead individuals to appraise otherwise harmless thoughts, feelings and images as being harmful and dangerous (Wu & Carter, 2008).

Teachman (2006) argued that these cognitive domains provide a useful platform on which to establish the interpretation processes at work in disgust. Evidence from the literature suggests there are inconsistencies regarding the exact nature of the relationship between disgust responding, contamination fear and cognitive belief domains. For instance, Moretz & McKay (2008) found that disgust propensity as measured by the Disgust Scale (van Overveld, De Jong, Peters & Schouten, 2011) was related to obsessive beliefs. David, Olatunji, Armstrong, Ciesielski, Bondy & Broman-Fulks (2009) found that disgust sensitivity failed to remain a significant predictor of OCD symptoms when controlling for obsessive beliefs (as measured by the OBQ). Evidence from Cisler, Brady, Olatunji & Lohr (2010) suggests that cognitive beliefs may influence the role played by disgust in contamination fear, but this evidence is based on disgust propensity, which is the initial intrusive feeling of disgust. To the best of our knowledge, no previous study has attempted to delineate the relationship between disgust and obsessive beliefs by specifically measuring obsessive beliefs (as measured by the OBQ) in response to disgust-eliciting stimuli.

The IRAP is a computer-based procedure which requires participants to respond accurately and rapidly to sets of stimuli in a manner that is consistent or inconsistent with their previous learning history. It was derived from a modern behavior-analytic account of human language and cognition called Relational Frame Theory (RFT; see Hayes, Barnes-Holmes & Roche, 2001). The basic assumption of RFT is that the fundamental components of human language and cognition are relational, and thus the IRAP focuses on assessing relations between stimuli (e.g. Hughes, Barnes-Holmes & De Houwer, 2011). The unit of measurement is response latency from the presentation of the stimuli to the emission of a correct response. The fundamental hypothesis is that responding should be quicker across blocks of trials that are consistent rather than inconsistent with a previously established bias. The IRAP provides an advantage over other so-called implicit measures as it can assess propositional relations between concepts rather than mere associations (see Hughes et al., 2011 for a detailed treatment of this issue).

The fundamental IRAP effect which posits that responding should be quicker on bias consistent relative to bias-inconsistent trials has been explained in terms of the Relational Elaboration and Coherence model (REC; Barnes-Holmes, Barnes-Holmes, Stewart, & Boles, 2010). The REC model assumes that brief and immediate relational responses (BIRRs) will occur on most trials of the IRAP before a participant presses a response key. These responses will be based on historical and existing contextual variables, with the most likely response being emitted first (Barnes-Holmes et al., 2010). This effect has been demonstrated in numerous studies pertaining to, for example, self-esteem (Vahey, Barnes-Holmes, Barnes-Holmes & Stewart, 2009), spider fear (Nicholson & Barnes-Holmes, 2012b), sexual attraction to children among sexual offenders (Dawson, Barnes-Holmes, Gresswell, Hart & Gore, 2009) and cocaine dependence (Carpenter, Martinez, Vadhan, Barnes-Holmes & Nunes, 2012), to name a few.

Implicit measures offer many advantages over traditional self-report measures in the study of anxiety due to the seemingly uncontrollable and often conflicting nature of anxious phenomena, such as obsessions. In effect, the uncontrollable nature of

anxiety seems to overlap with the types of psychological phenomena that implicit measures were designed to target (see Wiers, Teachman & De Houwer, 2007). Critically, research suggests that participants have limited control over their responses on the IRAP (e.g., Dawson, et al., 2009; McKenna, Barnes-Holmes, Barnes-Holmes & Stewart, 2007). Further, recent evidence suggests that implicit measures may be able to provide insight into psychological constructs, the exact nature of which was previously unclear. A study on disgust using the IRAP demonstrated the utility of the IRAP at providing construct validity for an emotion (i.e., disgust) that had been previously ill-defined (Nicholson & Barnes-Holmes, 2012a). Thus, implicit measures appear to offer promising methodologies for measuring the cognitive mechanisms underlying anxiety disorders such as OCD.

Increasing evidence from research using the IRAP suggests that it is the appraisal that follows the initial disgust-related thought that is indicative of avoidance behavior rather than the initial thought itself (e.g., Nicholson & Barnes-Holmes, 2012a). This research utilized two IRAPs, one for disgust propensity and another for disgust sensitivity. Results demonstrated that each construct had a relationship with OC tendencies; however, these relations were different at the behavioral and symptomatic levels. It was found that disgust sensitivity predicted avoidance behavior independently of anxiety and was related to OC tendencies, specifically washing concerns. On the other hand, disgust propensity predicted OC tendencies and obsessing symptoms, independently of anxiety. This evidence suggests that not only can disgust interpretations be measured by the IRAP but they can be used to predict avoidance behavior and OC symptoms. However, this study merely examined disgust as being fearful, worrisome and intolerable with no reference to the cognitive belief domains specific to OCD such as excessive responsibility, perfectionism, overestimation of threat, intolerance of uncertainty and the need to control thoughts. As such the IRAP may offer a way of assessing the relevance of the obsessive beliefs domains in disgust responding.

The finding that appraisal of an initial feeling or intrusive thought appears to be a fundamental aspect of OCD provides support for both the seminal work of Salkovskis' (1985) on obsessions and more recent conceptual analyses arising from Acceptance and Commitment Therapy (ACT). Specifically, Salkovskis argued that intrusive thoughts, in the context of OCD carry little no valence until they are positively, negatively or neutrally appraised. Similarly, the ACT model suggests that treatment should target responses to cognitive experiences (such as intrusive thoughts) rather than specific content or emotions (Twohig, 2009). According to both views, therefore, it is not the initial reaction to OCD-relevant stimuli, but the reaction to the reaction that is key in defining and perhaps treating OCD itself. Thus research which builds on that of Nicholson & Barnes-Holmes, 2012b could be seen as being directly relevant to both "traditional" CBT work in this area as well as "third-wave" behavior therapies.

The current study aimed to assess obsessive beliefs, as measured by the OBQ-44, in relation to disgust at the implicit level. The IRAP was used as a means to measure appraisals pertaining to obsessive beliefs in response to both disgust-eliciting and generically pleasant pictorial stimuli as well as positive descriptive words in response to the same stimuli. Questionnaires assessing obsessive beliefs, general OC tendencies and anxiety were also implemented as a comparison to the IRAP. As this was the first study to assess disgust in this manner, we refrained from making specific predictions. However, it was assumed that those who score highly on the explicit measures, specifically the OBQ, would produce greater implicit negative appraisals of the disgusting stimuli.

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