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A behavioral test of contamination fear in excessive health anxiety



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ABSTRACT

Background and objectives: Health anxiety is characterized by a preoccupation with the possibility of having a serious health condition or disease. Contemporary conceptualizations of health anxiety have improved in recent years to incorporate a fear of acquiring an illness; however, there is limited experimental data demonstrating the presence of fear of contamination among health anxious individuals.

Method: The present study utilized behavior approach tasks (BATs) to examine the degree to which contamination fear is present in elevated health anxiety. Participants were 60 undergraduate students who reported elevated health anxiety, contamination fear, or no anxiety about either health or contamination. Participants completed four BATs from which avoidance, anxiety, and disgust ratings were derived.

Results: Health anxious and contamination fearful individuals exhibited a similar degree of avoidance during the BATs. Contamination fearful participants reported significantly more anxiety and disgust relative to the non-anxious controls, but not the health anxious participants. Health anxious participants did not report more anxiety or disgust than the non-anxious participants.

Limitations: The use of an analogue sample may limit the extension of these findings to clinical populations. Additionally, the role of general negative affect could not be reliably determined in the absence of an anxious control group.

Conclusions: These findings suggest that contamination fear may be a source of conceptual overlap between health anxiety and other disorders characterized by contamination fear. This highlights the importance of considering contamination fear in excessive health anxiety.

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1. Introduction

Health anxiety is characterized by an exaggerated fear response in the presence of physical or cognitive cues that are perceived as indicative of threat toward the physical well-being of the individual. These cues motivate safety seeking behaviors aimed at providing assurance of good health and subsequently reducing anxious arousal. The *Diagnostic and Statistical Manual of Mental Disorders* (5th Edition; DSM-5; American Psychiatric Association [APA], 2013) has assigned the labels *illness anxiety disorder* and *somatic symptom disorder* to clinical manifestations of health anxiety. The preoccupation with threat toward physical health occurs in the absence of a diagnosed physical illness in the case of illness anxiety disorder. When health-focused anxiety occurs in the

presence of a diagnosed physical illness, but the anxiety response is determined to be in excess of what is appropriate for the disorder, the DSM-5 specifies a diagnosis of somatic symptom disorder. A more thorough discussion of these disorders is beyond the scope of the present study, and indeed is unlikely to meaningfully contribute to the understanding of health anxiety in the absence of taxonomic examinations of these diagnostic labels. Thus, the present analysis approaches health anxiety as a psychological construct that underlies the terms used in the current diagnostic nomenclature.

Theoretical and statistical analyses have provided support for the differentiation of health anxiety into two constructs: *disease conviction* and *disease phobia* (Bianchi, 1973; Cote et al., 1996; Fergus & Valentiner, 2010; Kellner, 1986; Pilowsky, 1967). The former term refers to an individual's often strongly held belief that they presently have a disease and is distinguished from a preoccupation that they will have a disease at some point in the future. Disease phobia refers to the fear of currently *having* an illness. This includes a fear of the consequences of having an illness, or more generally as a fear of simply being physically ill. Additionally, an

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individual may present with catastrophic thoughts about the personal costs of having an illness, the potential negative effect of illness on longevity, and a belief that illness will necessarily result in death. For example, an individual presenting with disease phobia may fear the repercussions that having cancer has on the ability to live a normal life, as well as the fact that the illness is likely to result in a long and especially painful death. Importantly, the emphasis in disease phobia is on the fear that the individual already has the illness, rather than the fear that one may acquire the illness at a later point.

Contemporary theoretical models of health anxiety have furthered the concept of disease phobia and disease conviction as distinct factors in health anxiety (Barsky, 1992; Taylor & Asmundson, 2004; Warwick & Salkovskis, 1990). Nonetheless, health anxiety remains an evolving construct as improved conceptual models continue to better delineate its underlying factors (Abramowitz, 2008; Noyes, 2005). Indeed, the cognitive-behavioral conceptualization of health anxiety has advanced the functional understanding of health anxiety which has subsequently led to improved treatment (Taylor & Asmundson, 2004). This model in particular has an advantage over other approaches (e.g., a categorical classification system based on symptom topography) by focusing on the functional relation between internal events, such as catastrophic cognitions, and behaviors that may serve to relieve these cognitions. Additionally, the cognitive-behavioral model of health anxiety is a flexible model which allows for the presence of constructs that are often excluded by the artificial boundaries presented by traditional categorical classification systems.

Several studies have shown potential overlap in the phenomenology of contamination-based obsessive-compulsive disorder (OCD) and health anxiety (Brady, Cisler, & Lohr, 2013; Deacon & Abramowitz, 2008; Olatunji, 2009; Sulkowski et al., 2011). Contamination fear is met with attempts to either prevent contact with the source of contamination (e.g., not using public restrooms), or if contact cannot be prevented, to neutralize the threat posed by the contaminant (e.g., washing a predetermined number of times after touching a potential source of contamination). The overlap between contamination-based OCD and health anxiety suggests that contamination fear may function as a potential mechanism that drives the catastrophic cognitions and avoidant behaviors typical of excessive health anxiety. The studies cited above underscore the importance of determining the degree to which contamination fear contributes to excessive health anxiety; however, these studies are primarily cross-sectional designs using self-report data. Additional findings using observable, behavioral data in an experimental format are needed to further this line of research. To our knowledge, no studies have employed behavioral methods to experimentally test the degree to which contamination fear is present or absent in excessive health anxiety relative to contamination-based OCD.

1.1. Present study

The present study used a behavioral test to determine the degree to which contamination fear is present in health anxiety. Health anxiety is often conceptualized as a fear that an individual presently *has* an illness or is in the process of developing an illness of unknown etiological origin, rather than a fear of acquiring an illness (Noyes, Carney, & Langbehn, 2004). However, an increasing number of descriptive, correlational studies suggest that contamination fear may be more closely related to health anxiety than previously recognized (Olatunji, 2009; Thorpe, Patel, & Simonds, 2003). This study tested the role of contamination fear in health anxiety in an experimental format using a behavioral approach task (BAT). The BAT methodology has been used substantially in the

study of various forms of psychopathology, especially anxiety (Deacon & Olatunji, 2007; Koch, O'Neill, Sawchuk, & Connolly, 2002; Olatunji, Lohr, Sawchuk, & Tolin, 2007; Steketee, Chambless, Tran, Worden, & Gillis, 1996). The procedure followed in the present study provides a test of contamination fear in health anxiety by comparing avoidance of sources of contamination by individuals reporting elevated health anxiety to that of individuals reporting elevated contamination fear, and a non-anxious comparison group. We predicted that the health-anxious and contamination-fearful individuals would refuse a greater number of steps than the non-anxious controls (NACs), and that they would not differ between each other, after controlling for the effects of neuroticism and trait anxiety. Additionally, we predicted that the health-anxious group would report more subjective anxiety than the contamination-fearful and NACs during the BATs, and conversely, that the contamination-fearful group would report more disgust.

2. Method

2.1. Participants

Sixty participants were recruited from the general research pool at a large southern university (62% female, *M* age = 20.2). Participants were selected on the basis of scores on the Short Health Anxiety Inventory (SHAI; Salkovskis, Rimes, Warwick, & Clark, 2002) and contamination-washing subscale of the Padua Inventory-Revised (PI-COWC; Burns, Keortge, Formea, & Sternberger, 1996). A cut-off score of 14 on the PI-COWC was used to approximate the analogue of contamination-based OCD (Burns et al., 1996). A cut-off of 25 on the SHAI was used to approximate a clinical level of excessive health anxiety. This score fell two standard deviations below the mean for the clinical sample from Salkovskis et al. (2002), and two standard deviations above the means of the student samples from Salkovskis et al. and Abramowitz, Olatunji, and Deacon (2007). This score was also two standard deviations above the mean from the overall sample of respondents from the undergraduate research pool. These scores were used to form the three participant groups for the present study. Participants assigned to the health-anxious group (*n* = 20) had scores greater than 25 on the SHAI, and less than 16 on the PI-COWC. These criteria resulted in the exclusion of approximately 42% of individuals reporting elevated health anxiety, but also elevated contamination fear. Conversely, participants assigned to the contamination-fearful group (*n* = 20) had scores greater than 16 on the PI-COWC, and less than 25 on the SHAI. This resulted in the exclusion of approximately 10% reporting elevated contamination fear, but also elevated health anxiety. Finally, participants in the non-anxious control (NAC) group (*n* = 20) had scores of less than 16 and 25 on the PI-COWC and SHAI, respectively. Participants were offered course credit in exchange for participation in the present study. Though the exclusion of participants who demonstrated shared features across health anxiety and contamination fear groups may reduce external validity, this is balanced by the improved internal validity provided by the non-overlap of the health anxiety and contamination fear constructs.

2.2. Self-report measures

The Short Health Anxiety Inventory (SHAI; Salkovskis et al., 2002) is a brief version of the Health Anxiety Inventory (Salkovskis et al., 2002). The SHAI includes 18 items assessing an individual's level of health anxiety on a 0–3 Likert-type scale. A recent review of the SHAI reported that the measure possesses good to excellent psychometric properties, with Cronbach's alphas

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