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Self-reported hygiene-related behaviors among individuals with contamination-related obsessive-compulsive disorder, individuals with anxiety disorders, and nonpsychiatric controls

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ABSTRACT

Obsessive-compulsive disorder (OCD) related contamination concerns are often associated with excessive handwashing. Less is known about other hygiene-related behaviors (HRBs) in OCD. In contrast, extensive public health research has examined the frequency and duration of personal (e.g., handwashing) and household (e.g., scrubbing tub/shower) HRBs in community members. The present study connected these literatures by examining self-reported HRB frequency and duration in 25 patients with OCD with predominant contamination-related symptoms, 95 patients with social anxiety disorder, 36 patients with panic disorder with agoraphobia, and 31 nonclinical community members. Participants reported the frequency or duration of common HRBs. Patients with OCD reported greater frequency of daily handwashing, but the groups did not differ with respect to the frequency/duration of other HRBs or the overall frequency/duration of HRBs. A minority of participants in all groups had high levels of engagement in at least one hygiene-related activity, and within each group, different psychological factors were associated with high hygiene engagement. These findings suggest that for many patients with OCD and contamination concerns, the frequency of handwashing is heightened, whereas frequencies/durations of other HRBs are similar to those for people without OCD. More research is needed on the mechanisms associated with high hygiene engagement.

1. Introduction

Obsessive-compulsive disorder (OCD) is a heterogeneous disorder that includes individuals with different symptom presentations (American Psychiatric Association, 2013). Nearly half of treatment-seeking patients with OCD report prominent contamination-related symptoms (Brady, Adams, & Lohr, 2010), with the most common compulsion being excessive handwashing (Rachman, 2004). Case studies describe patients who wash their hands 40–50 times per day (Giles, 1982), engage in ritualized washing of each finger, and develop dermatitis (Kawahara, Ueda, & Mitsuyama, 2000). Findings from qualitative studies of patients with contamination-related OCD support these clinical observations; for example, in one study all 20 patients with OCD with mental contamination concerns reported washing their hands at least 20 times a day (Coughtrey, Shafran, Lee, & Rachman, 2012). With respect to handwashing duration, in experimental research, patients with contamination-related OCD washed their hands for longer than did nonpsychiatric controls (Hinds, Woody, Van Ameringen, Schmidt, & Szechtman, 2012) and patients with OCD and primarily checking concerns (Wahl, Salkovskis, & Cotter, 2008). Consistent with the amount of time they spent on handwashing, most (70%) patients with contamination-related OCD also self-reported spending "a lot of time" each day in their total washing and cleaning of themselves, their family, and belongings (Coughtrey et al., 2012, p. 169).

Other hygiene-related behaviors (HRBs) of patients with contamination-related OCD have received less empirical attention. Case studies describe behaviors that individual patients use to contain perceived contamination, including frequent showering (Tallis, 1996) and repeated disinfecting of particular objects (Riggs & Foa, 2007). But researchers have not established whether extreme engagement in these other HRBs characterizes most patients with contamination-related OCD. It has been suggested that patients' perception of contamination

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on the hands is easily spread to perception of contamination of other areas (Fowle & Boschen, 2011), but empirical research is largely lacking. In an exception, Zor, Fineberg, Eilam, and Hermesh (2011) videorecorded both patients with OCD performing a self-selected "current and frequently performed" (p. 816) cleaning compulsion and control participants performing the same behavior. Patients with OCD took nearly three times longer than controls to perform the same cleaning behavior, but details about the cleaning (such as what each patient cleaned) were not provided.

In contrast, in the public health literature, substantial information has accrued about the hygiene behaviors of community members (e.g., Larson, Lin, & Gomez-Pichardo, 2004). Participants in these studies have self-reported the frequency and/or duration of particular personal (e.g., handwashing) and household (e.g., scrubbing tub/shower) HRBs either by choosing a categorical option (e.g., always, usually, occasionally, never; Stevenson et al., 2009) or occasionally by giving a specific number (Larson et al., 2004). However, the responses of community members have not been compared to those of patients with contamination-related OCD or patients with other anxiety disorders, thus preventing any conclusions about whether there are differences between the hygiene activities of community members, people with contamination-related OCD, or people with anxiety disorders. An additional issue is that within the public health literature, community members are not usually screened for symptoms of psychopathology. Perhaps partly as a result of this lack of screening, responses for a specific hygiene behavior in the public health literature tend to be variable across participants (Miko et al., 2012). To illustrate, in one study, community members reported washing their hands daily on average 12.4 times, but values as high as 50 times were noted (Larson et al., 2004).

Thus, information about whether patients with contamination-related OCD differ from nonclinical community members and patients with anxiety disorders in their engagement in common hygiene activities could inform both the OCD and the public health literatures. The major objective of the present study was to compare the extent to which patients with contamination-related OCD, patients with either social anxiety disorder (SAD) or panic disorder with agoraphobia (PDA), and nonclinical community members report engaging in common household and personal hygiene activities. Patients with SAD and those with PDA were psychiatric controls; patients with other anxiety disorders were less frequent at the clinic where data for patients were collected. We conceptualized engagement in hygiene activities in four ways by examining: 1) the behavioral parameters (frequency, duration) reported for each hygiene activity; 2) a composite score of overall engagement in these hygiene activities; 3) the proportion of participants who had high hygiene engagement (defined as an extremely high outlier value on at least one hygiene activity); and 4) for those with high hygiene engagement (HHE), the number of HRBs in which they had high engagement. Overall engagement in HRBs was considered to explore the aforementioned finding that many patients with OCD reported extensive daily time in cleaning and washing; previously, controls and patients with anxiety disorders were not included in such research (Coughtrey et al., 2012). Additionally, in the current study, each participant was classified as either having HHE, defined as having an extremely high outlier value on one or more HRBs (relative to other participants) or not having HHE, defined as not having any extremely high outlier values. This categorization was then used to examine whether a greater proportion of patients with OCD would have at least one HRB that was problematic for them, relative to members of the other groups, and provided a different way (relative to examining mean values) of assessing engagement in hygiene activities. We were also then able to consider how many HRBs those with HHE reported. We hypothesized that patients with contamination-related OCD might differ in their hygiene engagement from patients with anxiety disorders or control participants in a way not completely captured by mean values on hygiene items (e.g., a greater proportion of patients with OCD would report high activity in more HRBs).

Further, this classification enabled us to examine whether those with and without HHE would differ in terms of their symptoms of negative mood and of OCD, which was a secondary exploratory objective of the current project. The negative emotions of depression, anxiety, and tension-stress (on the DASS-21) were included because they are consistent (Antony, Bieling, Cox, Enns, & Swinson, 1998) with the major tripartite model of anxiety and depression (Clark & Watson, 1991) and also have been considered in other studies on HRBs (e.g., Stevenson et al., 2009). Symptoms of OCD on the *Obsessive-Compulsive Inventory-Revised* (OCI-R; Foa et al., 2002) were included as well since most scales (except Hoarding and Obsessions; Tolin, Woods, & Abramowitz, 2006) have shown to correlate with hygiene concerns on the *Disgust Scale* (Haidt, McCauley, & Rozin, 1994; Tolin et al., 2006). For patients with OCD only, we also considered severity of OCD and the presence of different types of compulsions (in addition to cleanliness/washing) on the self-report *Yale-Brown Obsessive-Compulsive Scale* (Y-BOCS-SR; Baer, 2000). This approach allowed us to examine whether patients with contamination-related OCD and HHE would have more severe OCD or would be more likely to have other types of compulsions, compared to patients with contamination-related OCD without HHE.

Given the central role that compulsive handwashing has played in contamination-related OCD (e.g., Brady et al., 2010), we hypothesized that patients with OCD and contamination concerns would report more frequent and lengthier handwashing than the other groups. We did not make predictions for the individual HRBs other than handwashing. On the one hand, perceptions of contamination on the hands in patients with OCD are thought to spread (e.g., Rachman, 2004); on the other hand, empirical research on most HRBs in patients with OCD is sparse, and clinical observation suggests that patients with contamination-related OCD may avoid some hygiene behaviors (e.g., showering) as they report needing to complete them in a ritualized way that can engender exhaustion. Additional hypotheses were that patients with contamination-related OCD would report higher levels on the composite variable assessing overall engagement in hygiene activities (e.g., Coughtrey et al., 2012) and that a greater proportion of patients with contamination-related OCD would report HHE. We did not make predictions about which aspects of negative mood and OCD symptoms would differentiate those with and without HHE as to the best of our knowledge this is a novel issue that has not received theoretical or empirical attention.

2. Method

2.1. Participants

The sample included 25 patients with a principal diagnosis of OCD with prominent contamination concerns, 95 patients with a principal diagnosis of SAD, 36 patients with a principal diagnosis of PDA, and 31 nonclinical community members. Patients were outpatients at an anxiety disorders clinic. Diagnoses were based on the *Diagnostic and Statistical Manual of Mental Disorders*, fourth edition, text revision (DSM-IV-TR; American Psychiatric Association, 2000) as data for this study were collected before the release of DSM-5. Diagnoses were made by experienced clinicians using the *Structured Clinical Interview for DSM-IV* (SCID-IV; First, Gibbon, Spitzer, & Williams, 1996). Patients with SAD or PDA did not have a current or lifetime history of OCD. Patients with OCD were allowed to have SAD or PDA as an additional diagnosis; seven patients with OCD had an additional diagnosis of SAD, four patients with OCD had an additional diagnosis of PDA and one had panic disorder without agoraphobia. The presence of prominent contamination concerns in the patients with OCD was determined through the self-report *Yale-Brown Obsessive-Compulsive Scale* (Y-BOCS-SR; Baer, 2000) as is described in the *Procedure*. The nonclinical community members were derived from the Greater Toronto Area and were