



The effects of safety behaviors on health anxiety: An experimental investigation

Bunmi O. Olatunji^{a,*}, Erin N. Etzel^a, Andrew J. Tomarken^a, Bethany G. Ciesielski^a, Brett Deacon^b

^a Vanderbilt University, 301 Wilson Hall, 111 21st Avenue South, Nashville, TN 37203, USA

^b University of Wyoming, USA

ARTICLE INFO

Article history:

Received 8 March 2011

Received in revised form

12 July 2011

Accepted 14 July 2011

Keywords:

Health anxiety
Hypochondriasis
Safety behaviors
Avoidance

ABSTRACT

The present study examined the extent to which safety behaviors exacerbate symptoms of hypochondriasis (severe health anxiety). Participants were randomized into a safety behavior ($n = 30$) or control condition ($n = 30$). After a baseline period, participants in the safety behavior condition spent one week actively engaging in a clinically representative array of health-related safety behaviors on a daily basis, followed by a second week-long baseline period. Participants in the control condition monitored their normal use of safety behaviors. Compared to control participants, those in the safety behavior condition reported significantly greater increases in health anxiety, hypochondriacal beliefs, contamination fear, and avoidant responses to health-related behavioral tasks after the safety behavior manipulation. In contrast, general anxiety symptoms did not significantly differ between the two groups as a function of the manipulation. Mediation analyses were consistent with the hypothesis that changes in the frequency of health-related thoughts mediated the effects of the experimental manipulation on health anxiety. These findings suggest that safety behaviors are associated with increases in health anxiety, perhaps by fostering catastrophic thoughts about health. The implications of these findings for the conceptualization of hypochondriasis as an anxiety disorder are discussed.

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According to the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR; American Psychiatric Association, 2000)*, the cardinal feature of hypochondriasis is a preoccupation with the inaccurate belief that one has, or is in danger of developing, a serious medical condition based on misinterpretations of benign (or minor) bodily sensations. The *DSM-IV-TR* also emphasizes a “disease conviction” that persists despite appropriate medical evaluation and reassurance of good health. Preoccupation with medical illness in hypochondriasis might focus on specific signs or symptoms (e.g., sore throat), diseases (e.g., cancer), organs (e.g., heart), or vaguely defined somatic phenomena (e.g., “my aching veins”). Typically, the sufferer attributes unwanted bodily sensations to the possible disease (e.g., “this headache means I have a brain tumor”) and is highly concerned with their cause and authenticity. Preoccupation with disease in hypochondriasis can be disruptive to social, occupational, and family functioning, and is associated with substantial economic costs (Katon & Walker, 1998).

Although hypochondriasis is currently classified as a somatoform disorder in the *DSM-IV (American Psychiatric Association, 2000)*, the validity of this categorization is not without debate. It has been argued that hypochondriasis may be best conceptualized

as an anxiety disorder (Olatunji, Deacon, & Abramowitz, 2009). This argument is based largely on empirical observations that symptoms of hypochondriasis overlap with certain anxiety disorders: namely, panic disorder (PD) and obsessive-compulsive disorder (OCD). Like those with hypochondriasis, patients with PD are hypervigilant to benign, arousal-related body sensations and often erroneously attribute them to organic causes such as heart attacks, strokes, and other serious medical conditions (Barsky, Barnett, & Cleary, 1995). Similarities have also been observed between hypochondriasis and certain presentations of OCD in terms of preoccupation with health and disease, and the repetitive and pervasive nature of such preoccupation (Abramowitz, 2005; Fallon, Javitch, Hollander, & Liebowitz, 1992). Much like PD and OCD, cognitive-behavioral models (Abramowitz, Schwartz, & Whiteside, 2002; Warwick & Salkovskis, 1990) posit that hypochondriasis is an extreme form of health anxiety that emerges from the misinterpretation of benign and normally occurring experiences (e.g., arousal-related sensations, intrusive thoughts about harm) that lead to anxiety and the use of safety behaviors which paradoxically maintains the anxiety (Abramowitz, Deacon, & Valentiner, 2007; Abramowitz, Olatunji, & Deacon, 2007).

Safety behaviors include actions designed to detect a perceived impending threat, avoid it entirely, or endure it when avoidance is not an option (Helbig-Lang & Petermann, 2010). Although the use of safety behaviors in the presence of actual threat is essential for

* Corresponding author.

E-mail address: olubunmi.o.olatunji@vanderbilt.edu (B.O. Olatunji).

survival, excessive and inflexible use of safety behaviors has been observed to maintain anxiety disorder symptoms (e.g., Salkovskis, 1991). Common examples of safety behaviors include excessive hand washing and repetitive checking in OCD, avoidance of eye contact and social interactions in social phobia, and carrying “safety aids” such as a water bottle, cell phone, or prescription anti-anxiety medication in PD (Kamphuis & Telch, 1999). Safety behaviors readily observed in hypochondriasis include seeking reassurance from external sources (e.g., doctors, Internet, books), body checking (e.g., taking blood pressure, feeling for lumps, inspecting excretions) and avoidance of cues associated with disease (e.g., hospitals, cancer floors, funerals, Abramowitz, 2008). These behaviors may be employed in hypochondriasis to reduce the perception of threat, consequently producing a short-term reduction in health anxiety (Abramowitz & Moore, 2007). However, research has also shown that safety behaviors are negatively reinforcing in that they maintain anxiety symptoms in the long-term (Salkovskis, Thorpe, Wahl, Wroe, & Forrester, 2003).

Safety behaviors may maintain health anxiety by preventing the acquisition of information that disconfirms inaccurate threat beliefs through a misattribution of safety (Salkovskis, 1991; Tang et al., 2007) and/or by diverting attentional resources away from disconfirming information (Powers, Smits, & Telch, 2004; Sloan & Telch, 2002). These functional properties of safety behaviors are clearly shared by hypochondriasis and anxiety disorders such as OCD. Indeed, there are hypochondriac patients whose concerns are identical in quality to the intrusive thoughts of patients with OCD (Barsky, 1992). Thus the form and function of safety behaviors may also be identical in the subgroup of hypochondriac patients who are closer in symptoms to the anxiety disorders in general and to OCD in particular. Contemporary cognitive-behavioral models of anxiety disorders also emphasize the role of safety behaviors in explaining why irrational fears do not self-correct in the face of repeated disconfirmation (Clark, 1999; Salkovskis, 1991; Thwaites & Freeston, 2005). Such behaviors may maintain the irrational beliefs that underlie the strong “disease conviction” in hypochondriasis by preventing the disconfirmation of such beliefs. Although excessive engagement in safety behaviors may maintain health anxiety, it remains unclear if safety behaviors also exert a causal influence on health anxiety. It has been observed that safety behaviors may give rise to hypochondriasis by transmitting illness threat information (Abramowitz et al., 2002). A recent study also found that the mere act of engaging in safety behaviors exacerbated contamination concerns that are commonly observed in OCD (Deacon & Maack, 2008). This finding is largely consistent with the concept of ex-consequencia reasoning (Arntz, Rauner, & van den Hout, 1995) where the act of engaging in relevant safety behaviors may lead the actor to experience health anxiety and infer the presence of danger.

Although safety behaviors are thought to maintain pathological anxiety by preventing the disconfirmation of inaccurate threat beliefs (Abramowitz & Moore, 2007; Salkovskis, 1991), the extent to which safety behaviors contribute to the development and exacerbation of health anxiety symptoms remains largely unknown. In fact, the negative impact of safety behaviors in general remains somewhat of a controversial issue. For example, some have recommended a more rigorous procedure of identifying safety behaviors and abandoning them throughout therapy (Helbig-Lang & Petermann, 2010), others contend that an unqualified rejection of safety behaviors should be reconsidered given research showing that the judicious use of safety behaviors, especially in the early stages of treatment, can be facilitative (Rachman, Radomsky, & Shafran, 2008). Thus, the widely asserted notion that safety behaviors are generally detrimental is questionable and the specific effects of safety behaviors on self-report and behavioral indicators of health anxiety remains untested.

In the present study, participants engaged in a large number of health-related safety behaviors each day for one week, thereby simulating the behavior of individuals with health anxiety. Week-long baseline periods during which participants behaved as they typically do occurred immediately before and after the safety behavior manipulation. It was predicted that compared to a control condition, participants in the safety behavior manipulation would evidence significantly greater health anxiety, hypochondriacal beliefs, and behavioral avoidance. It was also hypothesized that responses to the manipulation would be specific to health anxiety symptoms rather than anxiety symptoms in general. As a preliminary step toward a comprehensive cognitive-behavioral model, the present study also examined whether changes in the frequency of health-related thoughts mediate the effects of the safety behavior manipulation on changes in health anxiety.

Method

Participants

Sixty undergraduate participants were randomly assigned to either a control ($n = 30$; 73.3% female) or safety behavior ($n = 30$; 80.0% female) group. The mean age of the total sample was 19.33 ($SD = 1.11$) and 84.7% of participants described themselves as Caucasian. Mean age, percent female, and distribution of ethnicity did not significantly differ between the two groups.

Experimental design

This study utilized a simple phase change A/B/A design (Hayes, Barlow, & Nelson-Gray, 1999) between subjects. For those in the safety behavior condition the three-week study period consisted of the following week-long phases (described in further detail below): (a) baseline phase during which participants monitored their normal frequency of health-related safety behaviors, (b) safety behavior phase, during which participants were instructed to engage in (and monitor) a high frequency of health-related safety behaviors each day, and (c) return to baseline phase, during which participants once again were instructed to engage in (and monitor) their normal frequency of safety behaviors. Those in the control condition monitored their normal use of safety behaviors at each phase. Study assessments included self-report and behavioral measures and were conducted before and after each phase, yielding a total of four assessment time points.

Measures

Short-Form Health Survey (SFHS; McHorney, Ware, & Raczek, 1993)

The general health perceptions subscale of the SFHS consists of four items assessing participants' perceptions about their general health status. The subscale was administered only during the initial assessment. The scale had good internal consistency in the present study ($\alpha = .83$).

Short Health Anxiety Inventory (SHAI; Salkovskis, Rimes, Warwick, & Clark, 2002)

The SHAI contains 18 items that assess health anxiety and other symptoms of hypochondriasis independently of physical health status. Items assess worry about health, awareness of bodily sensations or changes, and feared consequences of having an illness. The SHAI has demonstrated good reliability and validity in clinical and nonclinical samples (Abramowitz, Deacon, et al., 2007; Abramowitz, Olatunji, Deacon, Abramowitz, & Valentiner, 2007; Salkovskis et al., 2002). The SHAI had good internal consistency at each assessment time point in the present study ($\alpha_s = .84, .89, .89,$

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