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Safety Behavior Increases Obsession-Related Cognitions About the Severity of Threat

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This study investigated whether checking behavior, the most common safety behavior in obsessive–compulsive disorder (OCD), contributes to the development of OCD symptoms. Ninety healthy undergraduates spent a week between a pre- and posttest either actively engaging in clinically representative checking behavior on a daily basis (experimental group, n = 30), monitoring their normal checking behavior (monitor group, n = 30), or received no instructions on checking behavior (control group, n = 30). Cognitions about the severity of threat increased from pre- to posttest in the experimental group, but not in the monitor and control groups. Cognitions about the importance of checking decreased in the monitor group. The results indicate that checking behavior contributes directly to the exacerbation of OCD symptoms. Together with the findings of previous studies, this suggests that safety behavior may be involved in the development of anxiety disorders and OCD. Potential mechanisms of how engaging in safety behavior increases threat perception are discussed.

Keywords: safety behavior; obsessive–compulsive disorder; checking; threat overestimation

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Safety behavior is common in both anxiety- and obsessive–compulsive-related disorders (American Psychological Association, 2013), and refers to actions aimed at preventing or minimizing a feared outcome (Salkovskis, 1991). Patients with social phobia, for instance, avoid eye contact because they fear rejection, patients with panic disorder quickly sit down when they feel their heart beat rising to avoid a heart attack, and patients with obsessive–compulsive disorder (OCD) frequently check gas stoves, light switches, or electrical outlets, because they fear the catastrophe of their house burning down under their responsibility. Although these behaviors seem useful to patients and provide anxiety relief in the short term, they actually play a pivotal role in the maintenance of pathological anxiety in the long term (Clark, 1999; Salkovskis, Thorpe, Wahl, Wroe, & Forrester, 2003). Most importantly, safety behaviors cause a misattribution of safety, which prevents the acquisition of information that disconfirms inaccurate threat beliefs (Salkovskis, 1991), and divert attentional recourses away from this information (Sloan & Telch, 2002). For instance, in patients with OCD, the nonoccurrence of their house burning down may erroneously be attributed to the repeated checking of the gas stove (i.e., safety behavior).

In addition to their role in the maintenance of symptoms, safety behavior seems to contribute directly to the *exacerbation* and *development* of anxiety and OCD symptoms. To illustrate, individuals with hypochondriasis may increase health anxiety by constantly checking their body (e.g., feeling for lumps, inspecting skin spots; see Abramowitz, Schwartz, & Whiteside, 2002), and patients with checking compulsions paradoxically enhance memory uncertainty by perseverative checking (Boschen &

Vuksanovic, 2007). Recently, Engelhard, van Uijen, van Seters, and Velu (in press) showed that even in healthy individuals, the use of safety behavior leads to threat expectations to objectively safe stimuli. In a conditioning experiment, participants who displayed safety behavior (i.e., they could avoid a potential subsequent shock) to a safety cue (a stimulus that had never been paired with a shock) subsequently had higher threat expectations to this cue than participants who were not given the opportunity to avoid. Thus, safety behavior seems to increase anxiety not only by misattributing safety to the execution of this behavior, but also by directly attributing danger to safe situations.

The possibility that safety behavior exerts a causal influence on anxiety was recently investigated in two studies. First, Deacon and Maack (2008) investigated the effects of safety behavior on the fear of contamination in healthy participants with either high or low levels of contamination fear. After a weeklong baseline period, participants spent 1 week actively engaging in a wide range of contamination-related safety behaviors on a daily basis (e.g., washing and disinfecting hands excessively, trying to avoid touching public door handles), followed by a second weeklong baseline period. Independent of initial levels of contamination fear, participants reported increased contamination anxiety following the safety behavior manipulation. However, because this study lacked a control condition that did not perform any safety behavior, it remained unclear what the effect of the manipulation was. Therefore, in a subsequent study, healthy participants were divided in two groups, a safety behavior group and a monitor/control group (Olatunji, Etzel, Tomarken, Ciesielski, & Deacon, 2011). In between two weeklong baseline periods in which both groups monitored their normal use of safety behaviors, participants in the safety behavior condition were asked to spend 1 week engaging in a large array of health-related safety behaviors on a daily basis, whereas participants in the control condition kept monitoring their usual safety behavior. Results showed that, compared with the control condition, participants in the safety behavior condition reported higher levels of health anxiety, hypochondriacal beliefs, and avoidant responses to health-related behavioral tasks. Thus, even in healthy individuals, the mere act of engaging in health-related safety behaviors for 1 week increased health anxiety.

Although hypochondria was not classified as an anxiety disorder in DSM-IV, and OCD has been separated from the anxiety disorders in DSM-5 (American Psychological Association, 2013), there appears to be quite some overlap between these disorders and anxiety disorders (Deacon & Abramowitz, 2008). Thus, despite the distinct characteristics of the safety behaviors associated with these disorders, the role that safety behaviors may play in the development of OCD and anxiety disorders is expected to be functionally equivalent (Rachman, 2002; Telch & Lancaster, 2012). However, checking behavior, the most commonly observed safety behavior in patients with OCD (i.e., in 80% among those with lifetime OCD; Ruscio, Stein, Chiu, & Kessler, 2010), has unique features that include rigidity and repetitiveness. The present study was therefore conducted to experimentally investigate whether this more rigid and ritualistic safety behavior (i.e., checking) contributes to the development of OCD symptoms.

According to the self-perpetuating mechanism of compulsive checking (Rachman, 2002), the amount of checking behavior a person performs is determined by the sense of responsibility, probability of harm, and anticipated seriousness of the harmful outcome. Conversely, Rachman (2002) predicts that an increase in checking behavior will lead to an increase in the sense of responsibility, probability of harm, anticipated seriousness of the harmful outcome, and, additionally, a decrease in memory confidence. Since previous research has shown that people with OCD symptoms not only use checking behavior in response to their obsessions, but also have the tendency to display more checking behavior in mildly uncertain situations that are unrelated to obsessions (Toffolo, van den Hout, Engelhard, Hooge, & Cath, 2014; Toffolo, van den Hout, Hooge, Engelhard, & Cath, 2013), checking behavior itself may contribute to the development of the disorder. When people are habitually more inclined to use checking behavior, this may not only increase uncertainty levels (e.g., van den Hout & Kindt, 2003), but also have a direct effect on obsessional beliefs such as the perceived likelihood and severity of threat. Therefore, we conducted a study similar to the one by Olatunji et al. (2011), in which participants in the experimental condition engaged in a large number of checking-related safety behaviors for 7 consecutive days, to simulate the natural behavior of patients with checking OCD. Although patients with OCD often repeatedly check the same objects, their rigidity and the repetitiveness of their behavior may also become visible in mere checking rituals. This often involves checking a series of objects in a certain order, every time they leave the house or go to bed, for instance. In the present study we chose to include this last type of checking behavior, because it seemed more plausible that healthy participants would comply to this and be able to incorporate it into their daily life for a period of 1 week.