



Failure to replicate the deleterious effects of safety behaviors in exposure therapy

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ABSTRACT

The current study attempted to replicate the finding obtained by Powers, Smits, and Telch (2004; *Journal of Consulting and Clinical Psychology*, 72, 448–545) that both the availability and utilization of safety behaviors interfere with the efficacy of exposure therapy. An additional goal of the study was to evaluate which explanatory theories about the detrimental effects of safety behaviors best account for this phenomenon. Undergraduate students ($N = 58$) with high claustrophobic fear were assigned to one of three treatment conditions: (a) exposure only, (b) exposure with safety behavior availability, and (c) exposure with safety behavior utilization. Participants in each condition improved substantially, and there were no significant between-group differences in fear reduction. Unexpectedly, exposure with safety behavior utilization led to significantly greater improvement in self-efficacy and claustrophobic cognitions than exposure only. The extent to which participants inferred danger from the presence of safety aids during treatment was associated with significantly less improvement on all outcome measures. The findings call into question the hypothesized deleterious effects of safety behaviors on the outcome of exposure therapy and highlight a possible mechanism through which the mere presence of safety cues during exposure trials might affect treatment outcomes depending on participants' perceptions of the dangerousness of exposure stimuli.

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Introduction

Phobias and other anxiety disorders are characterized by irrational beliefs about potential threat in one's environment which often persist despite the non-occurrence of feared outcomes. A key phenomenon posited to contribute to the maintenance of these beliefs is *safety behaviors* (Salkovskis, 1991). Safety behaviors are actions that are performed to prevent feared outcomes from occurring. Safety behaviors are theorized to play an important role in the maintenance of anxiety disorders by preventing disconfirmation of core dysfunctional beliefs; in other words, by preventing opportunities to acquire evidence that would disprove predictions of harm. To illustrate, a person with social anxiety may avoid eye contact because he or she is afraid of negative evaluation by others. Lack of eye contact, however, deprives the individual of opportunities to learn that the feared negative evaluation is not actually taking place. Avoidance of eye contact may even be construed by others as social ineptitude, thus bringing about the originally feared outcome.

A number of studies have shown that exposure therapy without the use of safety behaviors is more effective than exposure therapy in which patients are permitted to use safety behaviors. One investigation comparing variants of exposure therapy for panic disorder with agoraphobia found that patients who dropped safety behaviors during treatment showed a greater decrease in anxiety and panic-related cognitions than patients who did not receive instructions to drop safety behaviors (Salkovskis, Clark, Hackman, Wells, & Gelder, 1999). Wells et al. (1995) found that exposure treatment for social phobia was more effective when augmented with a decrease in safety behavior usage. Patients with social phobia who received group cognitive-behavioral therapy (CBT) with additional instructions to drop safety behaviors experienced greater treatment gains than patients who received standard CBT alone (Morgan & Raffle, 1999). Lastly, a meta-analysis of treatment trials for OCD showed that exposure treatment with total ritual prevention was associated with greater treatment gains than exposure treatment with partial or no response prevention (Abramowitz, 1996). In support of the notion that safety behaviors maintain pathological anxiety, these studies indicate that safety behaviors dilute the potency of exposure therapy.

A number of hypotheses and possible mechanisms have been proposed to explain how safety behaviors interfere with exposure

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therapy, but little research has been conducted to test their explanatory power. One explanation is the misattribution of safety hypothesis, which posits that safety behaviors prevent disconfirmatory learning because individuals attribute their safety not to the harmlessness of the situation, but to their use of safety behaviors (Salkovskis, 1991). Powers, Smits, Whitley, Bystritsky, and Telch (2008) gave placebo pills to participants during a claustrophobia exposure trial with one of three instructions: 1) the pill would make exposure harder, 2) the pill would make exposure easier, or 3) the pill would have no effect on treatment. Participants who were informed that the pill would make treatment easier exhibited more return of fear and reduced self-efficacy than those in the other two conditions. This finding implies that participants who received these instructions attributed their reduction of fear to the pill and not to the inherent lack of dangerousness of the situation, which would explain why fear returned when subjected to the situation again without the “helping” pill.

Additionally, the distraction hypothesis advanced by Sloan and Telch (2002) suggests that safety behaviors may impede fear reduction by drawing attention away from the exposure situation, which prevents people from fully examining their surroundings and acquiring sufficient information to determine that the situation that they fear is in fact not dangerous. Kamphuis and Telch (2000) assigned participants to one of four conditions during exposure treatment in a claustrophobia chamber: 1) guided threat reappraisal, in which participants were instructed to concentrate on their most feared prediction while in the chamber; 2) a cognitive load condition, in which participants performed several number-related tasks in the chamber; 3) the first two conditions combined; and 4) the exposure task without any of the above instructions. Participants who were given distraction tasks during exposure exhibited less fear reduction and treatment gains than participants who were instructed to concentrate on the task. These findings provide evidence that distraction, as defined by lack of attention to the perceived source of threat, is detrimental to threat disconfirmation.

In contrast to the findings of Kamphuis and Telch (2000), other studies have found that distraction *improves* fear reduction by increasing one's perceived control/self-efficacy over reactions and thoughts in anxiety-provoking situations. For example, Johnstone and Page (2004) reported that participants engaging in distracting conversation with an experimenter during a spider phobia exposure task showed greater fear reduction and greater self-efficacy for the task than participants who engaged in stimulus-relevant conversation. Similarly, Oliver and Page (2003) found that the addition of distracting conversation to exposure therapy for blood-injection-injury fear resulted in greater fear reduction as well as increased levels of perceived control when compared to exposure alone. In a subsequent investigation, Oliver and Page (2008) replicated the beneficial effects of distracting conversation during exposure therapy with the additional finding that distracting conversation about stimulus-irrelevant features of the environment more effectively enhanced exposure therapy than distracting conversation about the participant's non-anxiety related internal sensations. Although these findings appear to directly contradict that of Kamphuis and Telch (2000) and the distraction hypothesis in general, a potentially important distinction between the two sets of findings is the nature of the distraction. In the Kamphuis and Telch study, the distracter was a cognitive load-inducing number processing task whereas participants in the Johnstone and Page study engaged in stimulus-irrelevant conversation. It is possible that the cognitive load resulting from stimulus-irrelevant conversation was low enough that participants were able to evaluate the dangerousness of the spider at the same time, but high enough to distract them from feelings of anxiety. Parrish, Radomsky, and

Dugas's (2008) review of the distraction, safety behavior, and neutralization literatures suggests that while anxiety-control strategies may be maladaptive in many contexts, certain strategies may actually assist with completion of exposure tasks in some situations depending on factors including cognitive load, levels of attentional focus, and self-efficacy.

Finally, there is some evidence suggesting that people infer danger from the presence of safety aids in their environment. For example, the sight of hand sanitizer dispensers, face masks, and rubber gloves implies the presence of harmful bacteria. Although these safety aids ostensibly prevent danger, their presence may increase fear instead of reducing it. Telch et al. (2010) found that the presence of a defibrillator during a panic challenge task increased participants' anxiety and perceptions of dangerousness. Research is needed to determine whether an increased perception of danger would hinder exposure therapy. If inferences of danger result in higher anticipatory anxiety prior to exposure, the exposure stimulus may be more potent as a result. Moreover, to the extent that an inference of danger decreases perceived self-efficacy specific to the exposure task, inferences of danger may interfere with exposure since lower self-efficacy at pretreatment often relates to poorer treatment compliance and outcomes (Taal et al., 1993).

The aforementioned explanations for the deleterious effects of safety behaviors in exposure therapy generally do not differentiate between the *availability* of safety aids and the *utilization* of safety behaviors. However, this distinction is important in both clinical and research settings. If safety behavior utilization has detrimental effects but safety behavior availability does not, then having safety aids around “just in case” during exposure therapy (e.g., high-potency benzodiazepine medication for a patient with panic disorder) could be a source of comfort and subsequently greater treatment compliance. However, if the mere presence of safety aids in the environment interferes with exposure regardless of their actual use, clinicians should take care to remove access to anything that could be construed as a safety aid during treatment sessions.

Powers, Smits, and Telch (2004) separately examined the effects of the availability and utilization of safety behaviors by comparing variants of exposure treatment of claustrophobic fear. In the safety behavior utilization (SBU) condition, participants were instructed to use three coping aids to assist them in each treatment trial. The three coping aids, selected to address common feared outcomes of people with claustrophobia, were as follows: (a) opening a door in the side of the chamber to let in air blowing from a fan, (b) having the chamber door unlocked, and (c) communicating with the experimenter via two-way radio. In the safety behavior availability (SBA) condition, participants were informed of the availability of these three coping aids but were instructed to use them only if they must. No coping aids were offered in the exposure only (EO) condition. As the authors hypothesized, the EO condition showed greater fear reduction and changes in catastrophic cognitions than the safety behavior conditions. Surprisingly, the SBU and SBA conditions showed equally impaired fear reduction from pre to posttreatment despite the fact that no participants in the SBA condition actually used the available coping aids.

If the *utilization* of safety behaviors is required to interfere with exposure, then one would expect Powers et al.'s (2004) SBA condition to resemble the EO condition rather than the SBU condition in terms of fear reduction and cognitive change. These authors interpreted the lack of difference between the SBU and SBA conditions as evidence that it is the perceived availability of safety behaviors that interferes with learning during exposure. If safety behavior utilization has no additive effect beyond availability, it may be necessary to re-evaluate the safety behavior theories mentioned earlier. Powers et al. interpreted the misattribution of safety hypothesis as the attribution of safety “to the availability or

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