



Effects of safety behaviors on fear reduction during exposure

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ARTICLE INFO

Article history:

Received 15 December 2009

Received in revised form

21 August 2010

Accepted 25 August 2010

Keywords:

Safety behavior

Exposure therapy

Anxiety disorders

Specific phobia

Cognitive-behavioral therapy

ABSTRACT

The use of safety behaviors has been considered one of the primary maintaining mechanisms of anxiety disorders; however, evidence suggests that they are not always detrimental to treatment success (Milosevic & Radomsky, 2008). This study examined the effects of safety behaviors on behavioral, cognitive, and subjective indicators of fear during exposure for fear of spiders. A two-stage design was used to examine fear reduction and approach distance during an *in vivo* exposure task for participants ($N = 43$) assigned to either a safety behavior use (SBU) or no safety behavior use (NSB) condition. Overall, both groups reported significant and comparable reductions in self-reported anxiety and negative beliefs about spiders at posttest and 1-week follow-up. Participants in the SBU group approached the spider more quickly than did participants in the NSB condition; however, participants in the SBU condition showed a small but significant decrease in approach distance at follow-up. These results call for a re-conceptualization of the impact of safety behaviors on *in vivo* exposure.

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The success of systematic exposure in cognitive-behavioral therapy (CBT) for the treatment of anxiety disorders has been well documented in numerous randomized controlled trials and meta-analyses (Deacon & Abramowitz, 2004); however, the precise mechanisms underlying exposure therapy are not entirely clear. Although some research points to neurobiological explanations for fear reduction during exposure (see McNally, 2007), cognitive theories are increasingly recognizing the role of new learning as a critical mechanism of change underlying exposure treatment (see Craske et al., 2008). Considerable evidence indicates that fear reduction occurs as a result of extinction learning; that is, after repeated exposure to the feared object or situation in the absence of the expected catastrophic consequence, an individual comes to associate the feared stimulus with relative safety (Hofmann, 2008). Exposure brings about new learning and this new learning mediates the relationship between exposure and fear reduction. Therefore, anything that might interfere with this learning process, either by directing attention away from “corrective” information, or by failing to provide unambiguous disconfirming evidence, may, theoretically, interfere with fear reduction.

Safety behaviors have traditionally been considered one of the primary mechanisms for maintaining anxiety disorders and may interfere with exposure (Rachman, Radomsky, & Shafran, 2008).

Safety behaviors are actions that are intended to prevent a feared outcome from occurring, and may take the form of overt actions (e.g., escape or avoidance) or subtle strategies (e.g., cognitive distraction and thought suppression). Distraction, such as imagining being somewhere else or focusing on thoughts other than the feared stimulus, has been conceptualized as a particular class of safety behavior. Foa and Kozak (1986) suggest that cognitive distraction simultaneously directs attention away from corrective information and limits engagement in the exposure, thus interfering with belief change. Alternatively, it may be that distraction limits the cognitive resources available for processing disconfirming evidence (Telch et al., 2004).

Although safety behaviors may alleviate acute anxiety when an individual is in the presence of a feared stimulus, many researchers believe that such behaviors ultimately interfere with successful treatment. Safety behaviors are thought to interfere with corrective learning because the nonoccurrence of the feared outcome can be misattributed to the use of the safety behaviors rather than to the disconfirmation of inaccurate threat-related beliefs (Salkovskis, 1991). For example, an individual with panic disorder who fears passing out during a panic attack might sit down and breathe deeply in response to a momentary feeling of lightheadedness. She then comes to believe that deep breathing prevented a blackout without considering that there was little objective danger of passing out in the first place. In taking preventive measures to avert the feared outcome, the person does not encounter unambiguous evidence about the relative safety of the feared stimulus and the inaccurate beliefs persist.

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Safety behaviors have been implicated in the exacerbation and maintenance of several psychological conditions, including sleep disorders (Harvey, 2002), depression (Moulds, Kandris, Williams, & Lang, 2008), and psychosis (Freeman et al., 2007); however, nowhere has it received more empirical investigation than in the area of anxiety disorders. Safety behaviors have been shown to limit the effectiveness of exposure for social phobia (Kim, 2005; McManus, Sacadura, & Clark, 2008; Wells et al., 1995), panic disorder (Salkovskis, Clark, Hackmann, Wells, & Gelder, 1999), obsessive-compulsive disorder (OCD) (Salkovskis, Thorpe, Wahl, Wroe, & Forrester, 2003), and specific phobias (Powers, Smits, & Telch, 2004; Sloan & Telch, 2002), and eliminating safety behaviors appears to improve treatment outcome. For example, Morgan and Raffle (1999) examined differences in reported anxiety after intensive group CBT for social phobia with and without instructions to use safety behaviors. After three weeks, both groups experienced significant improvement in social anxiety symptoms; however, those instructed not to use safety behaviors made greater gains.

Not only are safety behaviors proposed to interfere with successful treatment, but in some contexts they may also make the feared outcome more likely to occur. McManus et al. (2008) found that when engaging in safety behaviors and self-focus, participants reported greater anxiety during brief conversations with a conversation partner, perceived themselves to be more anxious, and performed more poorly compared to when they engaged in social interactions without the use of safety behaviors. Perhaps more importantly, the conversation partner rated the participant's performance more poorly and described the participant as more anxious and less likeable than those who did not use anxiety management strategies. Similarly, Deacon and Maack (2008) found that the use of safety behaviors increased fears of contamination, even among people without pre-existing contamination fear. Despite best efforts to minimize the possibility of a feared outcome, using such strategies may inadvertently contribute to the perceived problem.

The results of these studies illustrate the potentially counter-therapeutic effect of safety behavior use during exposure treatment. However, the existing literature is inconclusive and suggests that the use of safety behaviors does not always interfere with fear reduction (e.g., Rachman, Craske, Tallman, & Solyom, 1986), and may even *facilitate* exposure therapy (Milosevic & Radomsky, 2008).

In an experimental test of traditional beliefs about the detrimental nature of about safety behaviors, Milosevic and Radomsky (2008) had participants with a subclinical fear of snakes approach the snake with or without the use of safety equipment (e.g., gloves, apron). The safety behavior group approached the snake at a faster rate than did the control group; however, at the end of a 45-min exposure session, both groups showed significant and comparable improvements in subjective fear, proximity to the spider, and negative cognitions. This suggests that the use of safety behaviors does not necessarily preclude new learning about a feared stimulus, which is the presumed mechanism of change during exposure. Unfortunately, this study did not include a follow-up session and thus does not provide evidence of between-session fear reduction, which appears to be the key to successful treatment (Foa, Huppert, & Cahill, 2006). Several studies indicate that within-session fear reduction is not a necessary condition for successful treatment (Jaycox, Foa, & Morral, 1998; Kozak, Foa, & Steketee, 1988), and may be vulnerable to factors that are thought to interfere with treatment, such as insufficient activation of one's fear, possibly as a result of distraction, or by failing to provide unambiguous disconfirming evidence. Therefore, although the findings of Milosevic and Radomsky (2008) suggest that a more flexible approach to exposure therapy may be warranted, more research is needed to

determine the effects of safety behavior use on the durability of treatment gains.

This has led some to argue for the "judicious" use of safety behaviors (Rachman et al., 2008), particularly at the beginning of treatment, to increase the tolerability of exposure therapy and reduce the likelihood of client dropout. Over time, as new learning occurs regarding the relative safety of the feared situation, safety behaviors can gradually be titrated, and exposure can continue in its traditional form. The value of using safety behaviors then may lie in reducing anxiety enough to enter a feared situation and attend to disconfirming information. Alternatively, the facilitative effects of safety behaviors may be related to increased self-efficacy and perceived control, which has been shown to promote the effects of exposure (Bandura, Jeffery, & Wright, 1974; Johnstone & Page, 2004; Rachman et al., 1986).

No definitive statements can be made about the use of safety behaviors in practice until research helps reconcile previous contradictory findings. The purpose of this study was to examine the effects of safety behavior use on behavioral, cognitive, and subjective indicators of fear during an exposure task for fear of spiders, while improving upon the methodological limitations of previous research in this area. For example, most studies include an experimental condition in which safety strategies are either encouraged or discouraged and a neutral instruction comparison condition in which participants are given an extinction rationale and no information about safety behaviors. However, using a cognitive rationale (i.e., seek disconfirming evidence to modify inaccurate beliefs) in the experimental group and an extinction rationale (i.e., remain in the situation until fear decreases naturally over time) in comparison groups confounds the effects of safety behaviors with the type of instructions provided. In the present study, the explicit instructions to either use or refrain from using safety behaviors with a consistent cognitive rationale allows for a direct comparison of the two conditions.

In previous studies, participants are typically asked to use "safety" items that are selected by the experimenter. Safety behaviors are largely idiosyncratic in nature, which creates a challenge for experimenters attempting to balance ecological validity and experimental control. In an effort to strike this balance and improve the generalizability of the results, this study allowed participants to select from a wide array of safety behaviors that they believed would be most helpful during the task. Participants were also encouraged to incorporate any anxiety management strategies that are typical of their response to a spider in their day-to-day life. Therefore, the safety behavior manipulation more accurately reflected the theoretical purpose of such behaviors; that is, selection of a strategy that is functionally related to the individual's idiosyncratic fears.

A 1-week follow-up session was also included to determine whether changes in behavior, cognitions, and subjective fear persist over time. Few studies that have found support for the use of safety behaviors have included a follow-up session to provide evidence that gains are maintained. Should safety behaviors facilitate (or, at the very least, not impede) pre- to posttest fear reduction, a short follow-up period may indicate whether this is a temporary result or a more enduring effect.

With regard to behavioral change, research to date focusing on pre- to post-treatment between-group differences is equivocal, with some studies indicating that safety behavior use interferes with behavior change (e.g., Mohlman & Zinbarg, 2000), and others indicating that it does not (e.g., Rachman et al., 1986). Few studies have considered the effects of safety behaviors on the rate of approach; however, preliminary data suggest that safety behaviors may increase the pace at which the feared stimulus is approached without interfering with belief change (Milosevic & Radomsky,

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