Journal of Anxiety Disorders 28 (2014) 836–844

Contents lists available at ScienceDirect

Journal of Anxiety Disorders

The role of safety behaviors in exposure-based treatment for panic disorder and agoraphobia: Associations to symptom severity, treatment course, and outcome

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ARTICLE INFO

Article history:
Received 26 February 2014
Received in revised form 2 September 2014
Accepted 25 September 2014
Available online 5 October 2014

Keywords:
Safety behaviors
Panic disorder
Agoraphobia
Behavioral assessment
Exposure

ABSTRACT

The potentially detrimental effects of safety behaviors during exposure therapy are still subject to debate. Empirical findings are inconsistent, and few studies have investigated effects of idiosyncratic safety behavior manifestations during exposure or in everyday life.

These limitations might be due to a lack of appropriate measures that address individual safety behaviors. We examined psychometric properties and predictive value of the Texas Safety Maneuver Scale (TSMS), a questionnaire specifically targeting safety behaviors in panic disorder and agoraphobia. Effects of safety behavior use, both during everyday life and during therapy, were examined using data from a multicenter RCT of $N = 268$ patients that aimed at evaluating efficacy and mechanisms of action of two variants of an exposure-based therapy. The TSMS total score demonstrated good internal consistency ($\alpha = 0.89$), and it showed significant correlations with selected measures of baseline anxiety and impairment. The proposed factor structure could not be replicated. Frequent safety behavior use at baseline was associated with actual safety behavior during exposure exercises. Pronounced in-situ safety behavior, but not baseline safety behavior was associated to detrimental treatment outcome. The results underline the relevance of a rigorous safety behavior assessment in therapy. The actual relationship between safety behavior use and treatment outcome is yet to determine.

1. Introduction

Behavioral theories of anxiety disorders posit that avoidance of phobic cues plays a central role in the maintenance of pathological anxiety. Early models, such as the two stages theory of anxiety by Mowrer (1939) assumed that situational avoidance and escape would lead to an immediate decrease in anxiety, and thus, negatively reinforce inadequate anxiety responses. However, this theory was criticized for its difficulties in explaining why some people remained anxious despite entering feared situations even for prolonged time periods.

With regard to agoraphobia, Rachman (1984) suggested that the anxiety experienced in situations depends on the perceived safety; thus, the presence of safety cues such as talismans, medication or the presence of a trusted companion would alleviate the anxiety response to feared cues but not completely prevent

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http://dx.doi.org/10.1016/j.janxdis.2014.09.010
0887-6185/

it. Salkovskis (1991) later refined these notions by introducing the concept of "safety-seeking behaviors" in order to explain why anxious responses in panic patients are maintained despite repeated experiences that the feared consequences of panic (e.g., fainting, or having a heart attack) do not occur. He suggested that safety behavior is associated with faulty appraisals of safety and control, that is, the person believes that her or his behavior is actually causal to prevent the catastrophe that otherwise would have occurred. Thus, the feared situation or event continues to provoke anxiety, as it is still evaluated as threatening, particularly when safety behavior is not available. The concept of safety behavior has later been applied to social phobia (Wells et al., 1995), obsessive–compulsive disorder (Salkovskis, 1999), and posttraumatic stress disorder (Ehlers & Clark, 2000). The originally proposed categories of safety behavior (situational avoidance, escape, and subtle behaviors carried out in order to prevent a feared catastrophe; see Salkovskis, Clark, & Gelder, 1996) were extended by further concepts, such as interoceptive or experiential avoidance, that include strategies targeted at avoiding the experience of anxiety or related body symptoms (e.g. Hayes, Wilson, Gifford, Follette, & Strosahl, 1996; Salters-Pedneault, Tull, & Roemer, 2004).

Although safety behaviors might be highly idiosyncratic, their function is not: In contrast to adaptive coping strategies, safety behaviors are targeted at preventing *unrealistic or overrated* feared consequences of anxiety. Thus, safety behaviors can be characterized as a maladaptive behavioral response to anxiety that is maintained by negative reinforcement (Helbig-Lang & Petermann, 2010).

Numerous studies examining analogue and clinical samples have provided evidence that safety behavior use indeed contributes to the maintenance of pathological anxiety (see Helbig-Lang & Petermann, 2010 for an overview). It has also been suggested that safety behaviors might interfere with exposure treatments, and, that identifying, reducing or abandoning safety behaviors during exposure therapy might result in better outcomes (Alpers, 2010; Barlow, Allen, & Choate, 2004; Salkovskis et al., 1996). Yet, more recent studies have put this general conclusion into question (e.g. Deacon, Sy, Lickel, & Nelson, 2010; Rachman, Shafran, Radomsky, & Zysk, 2011; Sy, Dixon, Lickel, Nelson, & Deacon, 2011). Their findings indicate that a judicious use of safety behaviors does not necessarily reduce the efficacy of exposure therapy. There are several suggestions how these contradictory results might be reconciled. Deacon et al. (2010), for example, discuss that the actual safety behavior utilization in experimental studies, that do not find detrimental effects of safety behaviors, might be low, and thus, less problematic. Further, participants in these studies are usually instructed to use certain types of safety behaviors, such as distraction or neutralization. There is some evidence that some types of safety behavior might be helpful in promoting exposure outcome whereas others might hinder treatment (Parrish, Radomsky, & Dugas, 2008). However, in clinical practice, patients often use combinations of different types of safety behaviors that match their catastrophic cognitions (Salkovskis et al., 1996; Salkovskis, Clark, Hackmann, Wells, & Gelder, 1999), and it might be difficult to disentangle maladaptive and adaptive strategies (Thwaites & Freeston, 2005). General conclusions on the effects of safety behavior during exposure therapy, thus, necessitate clinical investigations that take individual degrees of safety behavior utilization into account.

Until now, studies examining effects of individual safety behavior use on anxiety symptoms or treatment outcome are scarce. Evidence is restricted to few studies with rather small samples, that, however, consistently suggest that individual safety behavior use, both in daily life, and during exposure has deleterious effects. Two studies compared treatment conditions in which participants either were instructed to drop all individual safety behaviors during exposure or received no instructions on safety behavior use during exposure (Morgan & Raffle, 1999; Salkovskis, Hackmann, Wells, Gelder, & Clark, 2006). Both studies found superior effects of abandoning safety behavior during therapy. In another study addressing treatment effects in a sample of children with anxiety disorders, all behaviors carried out during exposure exercises were post-hoc categorized as either safety or coping behavior (Hedke, Kendall, & Tiwari, 2009). Interestingly, safety behavior but not coping behavior use was associated with detrimental outcomes, highlighting the importance of assessing both behavior and its function. To our knowledge, only one study examined effects of safety behavior use in everyday life. In this study on treatment effects for patients with generalized anxiety disorder (GAD), the extent of safety behavior use in daily life was largely unrelated to treatment outcome; however, residual safety behavior use after treatment was associated with a less favorable long-term outcome (Beesdo-Baum et al., 2012), indicating the importance of targeting safety behaviors during therapy.

Given the ongoing controversy over safety behavior effects, and the clinical relevance of this issue, surprisingly little attention has been paid to the reliable assessment of individual safety behaviors. Most instruments, such as the Mobility Inventory (MI, Chambless, Caputo, Jasin, Gracely, & Williams, 1985) only cover situational avoidance, but there is a paucity of standardized instruments targeting other, and more subtle safety strategies. One notable exception is the Texas Safety Maneuver Scale (TSMS; Kamphuis & Telch, 1998). The TSMS lists 50 different behaviors that are frequently used by panic patients in response to actual or anticipated anxiety. A first exploratory factor analysis suggested six subscales that tap into various topographical manifestations of avoidance: agoraphobic avoidance, stress avoidance, somatic avoidance, distraction techniques, relaxation techniques, and escape (Kamphuis & Telch, 1998). Despite being an useful tool for treatment planning and research, little is known about the psychometric properties of the TSMS. The original evaluation provided preliminary evidence for the internal consistency and the validity of the scale (Kamphuis & Telch, 1998), however, analyses were based on a relatively small sample of 108 patients that were asked to retrospectively evaluate their safety behavior use. All patients had completed a group treatment for panic disorder, that had took place several years prior to the TSMS assessment, raising concerns both about the accuracy of recall and about the participants' understanding of what might actually be regarded as safety behavior.

In the present paper, we examine safety behavior use and its effects on treatment outcome in a large sample of patients with panic disorder and agoraphobia (PD/AG), who were enrolled in a clinical trial on two variants of an exposure-based treatment (Gloster et al., 2009). Aims of the analyses were:

(1) We aimed to extend the knowledge on psychometric properties of the TSMS in terms of its factor structure, its internal consistency as well as its convergent validity. It was assumed that at baseline assessment, higher TSMS scores indicating frequent safety behavior use in daily life would be associated with (a) higher levels of self-reported PD/AG symptoms, and higher levels of perceived impairment. With regard to the discriminant validity of the TSMS it was assumed that (b) the TSMS would be more strongly associated with measures of anxiety than with measures of depression. Depression is often linked to a withdrawal from social situations that might resemble situational avoidance in agoraphobia. However, an instrument specifically targeting safety behaviors in panic disorder should able to differentiate between anxiety-related avoidance and behavioral symptoms of depression.
(2) We also examined the associations between safety behavior utilization in daily life as reported in the TSMS and observable safety behavior during a behavioral test prior therapy and