Chapter 18
Is There Room for Safety Behaviors in Exposure Therapy for Anxiety Disorders?

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18.1 Introduction

Exposure-based treatments are often regarded as one of the major success stories in the treatment of anxiety disorders (McNally, 2007). Encouraging patients to confront anxiety-provoking cues is a central element in most empirically supported treatments for anxiety disorders. Consequently, it only makes sense for clinical scientists to investigate procedural factors that influence the efficacy of exposure treatments. One procedural issue that has recently become the focus of considerable research and some controversy is whether to make safety behaviors available during exposure treatment (Rachman, Radomsky, & Shafran, 2008). The overarching aim of this chapter is to provide an up-to-date report on the status of safety behavior research in the context of exposure therapy and to provide clinicians specific recommendations for (a) The clinical assessment of safety behaviors; (b) strategies for helping patients withdraw anxiogenic safety behaviors; and (c) strategies for utilizing safety behaviors to enhance exposure treatments.

18.2 Nature of Safety Behaviors Observed in Anxiety Patients

What are safety behaviors? Human beings are hardwired to engage in protective actions when faced with perceived threats. Examples of such actions include wearing seat belts while driving in cars, wearing warm clothing when venturing outside on a winter's day in Chicago, and using condoms with a sexual partner. However, engaging in such protective actions when no real threat exists may actually fuel anxiety disorders and may even play a role in the maintenance of other forms of psychopathology such as insomnia (Harvey, 2002) and pain-related disorders (Tang et al., 2007).

Because this chapter focuses on the role of safety behaviors as they pertain to exposure therapy for anxiety disorders, we focus on a specific subset of safety behaviors—namely those that fulfill no actual safety function. In his seminal paper on safety behaviors in anxiety, Salkovskis (1991) defined safety behaviors as, "overt or covert avoidance of feared outcomes that is carried out within a specific situation." This definition has several limitations. First, it fails to distinguish between safety behaviors that are adaptive such as the wearing of seat belts and those that maintain or even exacerbate anxiety disorder symptoms such as the repeated checking of one's pulse when anxious. Second, it fails to capture a central feature of the safety behaviors observed in anxiety patients—namely the erroneous or exaggerated nature of the threats that the safety behaviors are presumably protecting the individual from.

In their excellent review of safety behaviors in anxiety disorders, Helbig-Lang and Petermann (2010) define safety behaviors as dysfunctional emotion regulation strategies. Borrowing from the early conceptualizations of anxiety-maintaining behaviors in OCD (Rachman and Hodgson, 1980), they subdivide these dysfunctional emotion regulation strategies as either serving a preventive function (preventing future anxiety increases) or a restorative function (impeeding anxiety in a feared situation). One limitation of defining safety behaviors as dysfunctional emotion regulation strategies is that it assumes that the motivation underlying safety behaviors is *always* to reduce or prevent anxiety. While this is often the case, many patients use safety behaviors to prevent, escape from, or lessen the severity of a threat other than anxiety. Examples include the claustrophobic who avoids elevators out of concern that they will be trapped, or the health anxiety patient who avoids caffeine out of concern it will bring on a fatal cardiac event.

In an attempt to address these limitations, we define anxiety-related safety behaviors as *unnecessary actions taken to prevent, escape from, or reduce the severity of a perceived threat*.

18.3 Research on Safety Behaviors

18.3.1 Nature and Phenomenology of Safety Behaviors Observed in Anxiety Patients

Research into the nature of anxiety-related safety behaviors has revealed several important findings deserving of mention. An important finding described by Salkovskis (1991) was that patients tend to engage in safety behaviors that are conceptually linked to their perceived threats. The astute clinician working with anxiety patients has probably observed this phenomenon play out many times. Examples include the cardiac anxiety patient who feels compelled to check his pulse, and avoid exercise, caffeine, and stressful encounters for fear of bringing on a cardiac event; the social phobic who contributes minimally to a group discussion for fear of sounding stupid; and the agoraphobic patient who feels compelled to carry rescue medication in their purse or pocket in the event of a panic attack. Table 18.1 (see below) presents common threats perceived by anxiety patients and the corresponding safety behaviors linked to those threats.

While there is no universally accepted taxonomy for safety behaviors, there have been attempts to use factor-analytic methods to categorize the multitude of anxiety-related safety behaviors. Because safety behaviors are linked to specific perceived threats, and most of the major anxiety disorders can be distinguished on the basis of patient's perceived core threat, it is not surprising that the studies aimed at subtyping

Table 18.1 Examples of safety behaviors and their related threats across anxiety disorders

Anxiety complaint	Perceived threat	Safety behavior(s)
Fear of public speaking	Trembling in front of audience	– Gripping both sides of the podium – Ingest beta blocker before talk
Panic disorder	Losing control of one's vehicle while driving	– Avoid driving – Carrying rescue medication in one's pocket or purse
Post-traumatic stress disorder	Being attacked while walking down the street	– Avoid going out at night – Carrying a weapon in one's pocket or purse
Agoraphobia	Having a panic attack while in the grocery store	– Avoid grocery stores – Have a companion accompany one to the store
Obsessive–compulsive disorder	Slitting husband's throat while he is sleeping	– Locking up all knives and scissors before bed – Avoid arguments with husband
Relationship worry	Rejection from partner	– Reassurance seeking – Checking whereabouts of partner
Acrophobia	Plummet to one's death	– Avoid high places – Tightly grip railing while standing on balcony
Sitophobia	Choke while eating	– Avoid swallowing pills – Pureeing food before eating it

safety behaviors have been conducted separately for several of the major anxiety disorders. Kamphuis and Telch (1998) factor analyzed safety behavior data from 105 panic disorder/agoraphobia patients recruited from the community. Based on their analyses of the 50 Items of the Texas Safety Maneuver Scale (TSMS; Kamphuis & Telch, 1998), five interpretable factors emerged. These five factors were named (a) classic agoraphobic avoidance—such as avoidance of crowded stores, and avoidance of public transportation; (b) relaxation techniques—such as meditation or yoga to relieve anxiety; (c) avoidance of stressful encounters—such as arguments with loved ones or stress at work; (d) avoidance of somatic perturbations—such as avoidance of caffeine or rigorous exercise; and (e) use of distraction techniques—such as listening to music, or staying busy in order to avoid anxiety/panic.

18.3.2 Role of Safety Behaviors in Anxiety Disorders

There is a growing consensus that safety behaviors play a pivotal role in the maintenance of anxiety disorders. For example, in Clark and Wells' (1995) cognitive theory of social anxiety disorder, safety behaviors are assumed to play a causal role in the maintenance of the disorder. Support for this assertion comes from experiments showing that socially anxious people are more likely to experience heightened anxiety, perform more poorly in social situations, and be perceived more poorly by others when they use safety behaviors relative to when they do not (McManus, Sacadura, & Clark, 2008). Use of safety behaviors may paradoxically bring about negative evaluation from others as in the case of the socially anxious person who converses minimally in the group due to fear of saying something stupid only to have others view him as boring or disinterested. Indeed, a recent study demonstrated that socially anxious individuals who were instructed to reduce safety behaviors elicited a more positive evaluation from a conversation partner than controls who were instructed not to reduce safety behaviors; and this effect was mediated by a greater increase in social approach behaviors among those in the safety behavior fading group (Taylor & Alden, 2011).

The anxiety exacerbating effects of safety behaviors are not limited to social anxiety. Deacon and Maack (2008) instructed undergraduates with both low and high levels of contamination fear to begin using contamination-related safety behaviors (e.g., carrying instant hand sanitizer at all times, using disinfecting wipes to clean surfaces at home, and washing hands after touching any object that may be contaminated). Assessment after a full week of performing safety behaviors revealed that both groups experienced comparable increases in contamination obsessions and washing compulsions, estimation of the threat of contaminated objects, and behavioral avoidance and anxiety experienced during contamination-related behavioral approach tests. These findings, although correlational in nature, are consistent with the hypothesis that increased safety behaviors are associated with increased anxiety.

In a recent experiment, Olatunji, Etzel, Tomarken, Ciesielski, and Deacon (2011) had undergraduates either monitor or monitor and perform a series of health-related safety behaviors (e.g., checking body temperature, carrying antibacterial hand sanitizer, checking lymph nodes by palpitation, avoiding touching public door handles, and monitoring pulse rate). After 3 weeks, those assigned to the safety behavior group displayed significantly higher health anxiety questionnaire scores, lower behavioral approach scores on a contamination-related behavioral approach test, and a heightened perceived risk of contracting a cold, the flu, or mononucleosis relative to those in the monitoring-only control group. These findings provide the first experimental demonstration that safety behaviors may play a causal role in health anxiety.

18.3.3 How Might Safety Behaviors Interfere with the Effects of Exposure Therapy?

The processes governing the effects of safety behaviors on the maintenance of pathological anxiety may overlap significantly with the processes governing how safety behaviors impact fear reduction during exposure therapy. First, safety behaviors increase self-focused attention, which has been linked to anxiety maintenance (Wells, 1990). Second, as suggested by Salkovskis (1991), engaging in safety behaviors in the face of phobic threats may prevent the disconfirmation of the perceived threat through a process in which the patient misattributes their safety to the use of the safety behavior thus leaving their perception of threat intact. For example, the flying phobic who repeatedly checks the weather prior to departure might misattribute her safe flight to her diligent weather scanning rather than the inherent safety of air travel. Alternative disconfirmation hypotheses have been put forth by Telch and colleagues who have suggested that safety behaviors may exert an anxiety-maintaining function by reducing one's available cognitive resources to process disconfirming information (Sloan & Telch, 2002). Since the utilization of safety behaviors requires the individual to allocate attention to the availability and execution of safety strategies, less attentional resources are available for processing threat-relevant information. It is also possible that safety-seeking behaviors undermine one's sense of mastery to cope with perceived threats when the safety aids are no longer available. For example, carrying rescue medication to cope with the fear of having a panic attack may inadvertently undermine patients' perceived self-efficacy to manage in situations when the medication is unavailable.

Up to now, our focus on potential pathways through which safety behaviors maintain anxiety disorders has been on cognitive (i.e., appraisal and attentional) processes. However, it is quite possible that safety-seeking behavior maintains pathological anxiety through basic alarm processes independent of higher-level cognitive processes. For instance, Telch and his colleagues (Sloan & Telch, 2002; Telch & Plasencia, 2010) have speculated that through evolution, certain protective actions (e.g., checking for escape routes) may have acquired the capacity to transmit implicit signals of threat thus keeping alarm processes active.

18.4 Research on Safety Behaviors and Exposure Therapy

In the last decade, significant experimental work has emerged on safety behaviors and their potential impact on anxiety disorder patients undergoing exposure therapy. The work described below can be broadly classified as addressing one of the following four central questions: (a) Does making safety behaviors available during exposure therapy reduce its effectiveness? (b) Are the potential negative effects of safety behaviors during exposure therapy a result of their mere availability or their actual use? (c) Does the systematic fading of safety behaviors during exposure therapy improve therapeutic outcome? (d) Under what conditions do safety behaviors interfere with exposure therapy?

18.4.1 Does Making Safety Behaviors Available During Exposure Therapy Reduce Its Effectiveness?

There have been 11 published studies directly investigating this question. In each of the studies listed in Table 18.2, participants were randomly allocated to in vivo exposure treatment with safety aids made available or the same exposure treatment without access to safety aids. Overall, these studies manipulated a wide variety of safety behaviors, which varied according to the presenting anxiety problem being addressed during exposure. For example, in studies of in vivo exposure treatment for agoraphobia (De Silva & Rachman, 1984; Rachman, Craske, Tallman, & Solyom, 1986), participants in the safety behavior group were encouraged to leave the feared situation whenever their anxiety became too high (i.e., escape as a safety behavior). In the case of exposure to enclosure in a small chamber for claustrophobia, safety behaviors included communicating with someone outside the chamber through a two-way radio, and opening a small window in the chamber to let in fresh air (Deacon, Sy, Lickel, & Nelson, 2010; Powers, Smits, & Telch, 2004; Sloan & Telch, 2002; Sy, Dixon, Lickel, Nelson, & Deacon, 2011). Safety behaviors used for a study of social anxiety included avoiding eye contact and pauses in speech during a conversation with a stranger (McManus et al., 2008). For exposure for fear of spiders or snakes, participants were allowed to perform safety behaviors such as confronting the feared animal while wearing gloves (Bandura, Jeffery, & Wright, 1974; Hood, Antony, Koerner, & Monson, 2010; Milosevic & Radomsky, 2008). Finally, in studies investigating exposure for contamination-related fears, participants in the safety behavior group were given hygienic wipes to use after exposure to a contaminate (Rachman, Shafran, Radomsky, & Zysk, 2011; Van den Hout, Engelhard, Toffolo, & van Uijen, 2011).

As seen in Table 18.2, making safety aids available during exposure led to significantly less fear reduction relative to exposure treatment without safety aids in four of the studies (Hood et al., 2010; McManus et al., 2008; Powers et al., 2004; Sloan & Telch, 2002); whereas seven studies showed no differences in fear reduction as a function of the availability of safety aids (Deacon et al., 2010: de Silva &

Table 18.2 Studies experimentally examining the effects of making one or more safety behaviors available during treatment

Study	Anxiety problem	Outcome
De Silva and Rachman (1984)	Agoraphobia	No interference[1]
Rachman et al. (1986)	Agoraphobia	No interference[1]
Sloan and Telch (2002)	Claustrophobia	Interfered with outcome
Powers et al. (2004)	Claustrophobia	Interfered with outcome
McManus et al. (2008)	Social phobia	Interfered with outcome
Milosevic and Radomsky (2008)	Snake phobia	No interference
Deacon et al. (2010)	Claustrophobia	No interference[2]
Hood et al. (2010)	Snake phobia	Interfered with outcome[3]
Rachman et al. (2011)	Contamination fear (OCD)	No interference[4]
Sy et al. (2011)	Claustrophobia	No interference[5]
Van den Hout et al. (2011)	Contamination fear (OCD)	No interference

[1]Low statistical power due to the small sample sizes per group may lack of group differences
[2]Safety behaviors were faded during the last two exposure trials
[3]Interference observed only at follow-up not at posttreatment
[4]Although there were no posttreatment differences in fear, disgust, or danger reduction between groups, exposure with safety behavior use produced greater reduction for feelings of contamination than exposure without safety behaviors
[5]Although there were no differences in fear reduction between groups, exposure with safety behavior use produced more improvement in self-efficacy and claustrophobic cognitions than exposure without safety behaviors

Rachman, 1984; Milosevic & Radomsky, 2008; Rachman et al., 1986; Rachman et al., 2011; Sy et al., 2011; Van den Hout et al., 2011).

Several factors may account for the failure to find exposure interference effects for safety behaviors in some studies. First, one study (Deacon et al., 2010) eliminated participants' use of safety behaviors during the last two trials thus confounding safety behavior availability with safety behavior fading. Second, in the early null-finding studies by Rachman (de Silva & Rachman, 1984; Rachman et al., 1986), small samples (less than 10 per group) may have accounted for the failure to find interference effects for the safety behavior groups. Finally, as noted by Hood et al. (2010), the failure to find exposure interference effects may be a function of the lack of congruence between the safety behaviors selected by the experimenters and those used naturally by anxiety patients.

18.4.2 Are the Potential Negative Effects of Safety Behaviors During Exposure Therapy a Result of Their Mere Availability or Their Actual Use?

We know that not all anxiety patients actually use the safety aids that are available to them. For example, many panic patients carry rescue medication with them but do not actually ingest it and many social phobics who rehearse excuses for leaving a social situation early do not actually enact them. Consequently, disentangling the effects of making safety aids available to patients versus the effects of having patients actually use them has important implications for clinical practice. An experiment to

Table 18.3 Experimental studies examining the effects of fading safety behaviors during exposure treatment

Study	Anxiety problem	Outcome
Wells et al. (1995)	Social phobia	Enhanced outcome
Morgan & Raffle (1999)	Social phobia	Enhanced outcome
Salkovskis, Clark, Hackmann, Wells, and Gelder (1999)	Agoraphobia	Enhanced outcome
Kim (2005)	Social phobia	Enhanced outcome
Salkovskis, Hackmann, Wells, Gelder, and Clark (2006)	Agoraphobia	Enhanced outcome
Okajima and Sakano (2008)	Social phobia	Enhanced outcome
Taylor and Alden (2010)	Social phobia	Enhanced outcome
Taylor and Alden (2011)	Social phobia	Enhanced outcome

address this issue was conducted in our laboratory (Powers et al., 2004). In one condition, threat-relevant safety aids were made available to claustrophobic participants with instructions to try and refrain from using the aids if at all possible. In a second condition, the same aids were made available but subjects were instructed to use at least one of the aids during each of the six exposure trials. In a third control condition, safety aids were not made available. This manipulation provided a direct examination of the effects of the perceived availability of safety aids without the confounding effects of participants' actual use of the safety aids. Results of the study replicated the earlier findings of Sloan and Telch (2002) in showing that making safety aids available during exposure treatment markedly reduced its efficacy (i.e., 94% significantly improved when safety aids were not made available versus 44% significantly improved when safety aids were made available). More importantly, the study also found no significant added disruptive effect in the group that actually utilized the safety aids relative to those that had them available but did not use them. The finding that safety aids do not need to be actually used in order to exert their detrimental effects is consistent with countless clinical observations of anxiety patients carrying rescue medication or other safety aids without actually using them. However, it should be noted that a recent replication study of Powers et al. was not able to reproduce these findings (Sy et al., 2011).

18.4.3 Does the Systematic Fading of Safety Behaviors During Exposure Therapy Improve Therapeutic Outcome?

This question has been addressed in eight separate experiments (see Table 18.3). Note that unlike in the previous group of experiments in which the focus was on the systematic introduction of safety aids (yes versus no), the manipulation in this group of experiments involves the systematic fading of safety behaviors during treatment (yes versus no). In this group of experiments, participants were randomly allocated to receive either exposure treatment with the fading of their safety behaviors or exposure treatment in which they were allowed to continue using their safety behaviors. Results across all nine studies were consistent in showing that fading safety behaviors lead to significantly better outcome than exposure without safety behavior fading (see Table 18.3).

Table 18.4 Differential Predictions of the five proposed hypotheses on how safety behaviors interfere with the effects of exposure treatments

Hypotheses	Prediction of between-group differences
Misattribution	SB-Block, SB-No Block < Exp - No SB
Threat transmission	SB-Block, SB-No Block < Exp - No SB
Context learning	SB-Block, SB-No Block < Exp - No SB
Self-efficacy	SB-Block, SB-No Block < Exp - No SB
Threat disconfirmation	SB-Block < SB-No Block = Exp - No SB

18.4.4 Research Investigating Mechanisms Through Which Safety Behaviors Interfere with the Effects of Exposure Therapy

As discussed earlier, there is much theoretical speculation as to how safety behaviors may interfere with the effects of exposure therapy. Both cognitive (Salkovskis, 1991; Sloan & Telch, 2002; Kim, 2005) and noncognitive (Sloan & Telch, 2002) mechanisms have been suggested. A common feature of several of the theories is that safety behaviors interfere with exposure therapy when the safety behaviors in question block or at least attenuate the central change process of threat disconfirmation, which is believed to be a central mechanism through which exposure therapy exerts its beneficial effects (Foa & Kozak, 1986).

A recent experiment in our laboratory investigated the role of threat disconfirmation in exposure therapy, using a more direct experimental manipulation. Telch and Plasencia (2010) tested whether safety behaviors interfere with exposure therapy by blocking the processing of corrective, threat-disconfirming information. They randomized 99 spider phobic subjects to one of four exposure conditions: (a) exposure therapy allowing subjects to use a safety aid that effectively blocked the movement of the spider (threat disconfirmation blocked); (b) exposure therapy allowing subjects to use a safety aid that did not interfere with the movement of the spider (threat disconfirmation not blocked); (c) exposure therapy without the use of a safety aid; and (d) measurement only control. Subjects in each of the three exposure conditions received six 3-min exposure trials conducted in one session.

The safety aid used in both safety aid groups was identical and consisted of a plastic transparent box secured to the end of a broomstick. During each exposure trial in the threat disconfirmation block condition, subjects stood within 12 in. of the spider while the experimenter positioned the safety aid over the spider so that it trapped the spider within the confines of the small box. The experimenter then handed the subject the safety aid and left the room for the full 3 min duration of the trial. This prevented any significant movement of the spider but allowed the subject to see the spider clearly at all times. Subjects in the threat disconfirmation no-block condition underwent an identical procedure with the exception that the experimenter positioned the safety aid between the subject and the spider, which allowed the spider to move freely in all directions except straight ahead. Subjects in the exposure—no aid condition was provided identical exposure treatment but without the use of the safety aid. Table 18.4 provides differential predictions of five proposed hypotheses for how safety behaviors may interfere with the effects of treatment.

Results of the experiment (see Fig. 18.1) were consistent with predictions from the threat-disconfirmation hypothesis by showing that exposure treatment was only

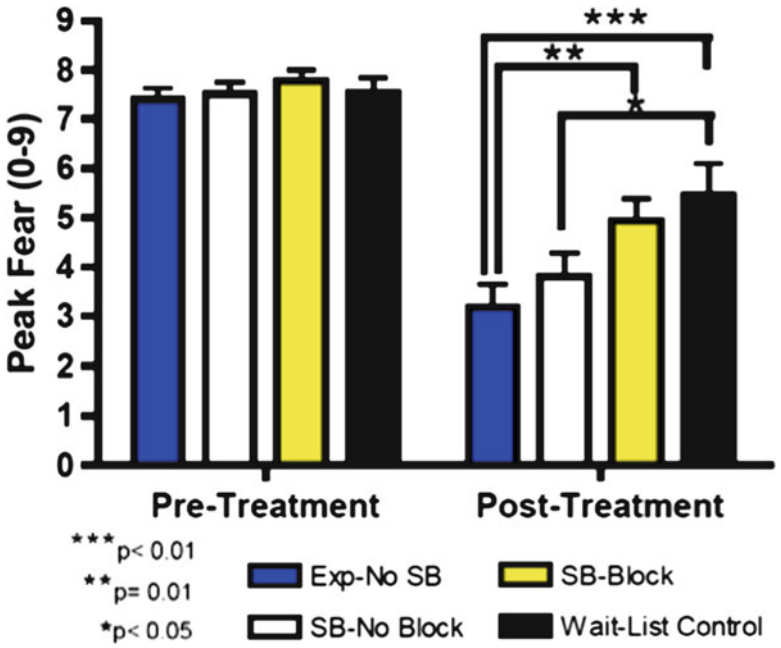

Fig. 18.1 Peak fear during the behavioral approach task at pre- and post-treatment by treatment condition

undermined in the safety aid condition in which the threat-relevant information was blocked. Note that subjects who underwent exposure treatment while using a safety aid that prevented the processing of threat-relevant information (i.e., movement of the spider) were not significantly different at posttreatment relative to subjects who received no treatment! In contrast, subjects who underwent exposure treatment in the SB-No Block condition showed significantly lower fear relative to wait-list controls and comparable levels of fear to those who received exposure treatment without safety aids. These findings are consistent with the hypothesis that safety aids undermine the efficacy of exposure treatment when the safety behavior blocks the processing of threat-disconfirming information. Moreover, the findings are at odds with other proposed mechanisms governing the deleterious effects of safety behaviors in treatment including misattribution, context learning, and threat transmission (see Table 18.4).

18.5 Clinical Issues Relevant to Safety Behaviors and Exposure Therapy

18.5.1 Assessment

Despite the significant interest in safety behaviors and exposure therapy, far less attention has been given to the assessment of safety behaviors. This is unfortunate since the successful fading of safety behaviors during exposure therapy hinges on

the clinician being able to identify the range of specific safety behaviors used by each patient. Honing one's skills for assessing safety behaviors is also important because we have found that patients are often unaware of at least some of their safety behaviors.

Prior to performing a formal assessment of patients' safety behaviors, we typically provide education about safety behaviors in the larger context of educating patients about the nature and treatment of anxiety. Safety behaviors are defined as unnecessary actions (either overt or covert) that are performed by the patient in order to avoid, escape from, or lessen the severity of a perceived threat. We have found that providing patients education about safety behaviors and their anxiety–maintaining effects is an important first step in the assessment process. Education takes the forms of didactic instruction and instructional handouts that focus on: (a) the nature and types of safety behaviors displayed; (b) how safety behaviors become strengthened; and (c) how safety behaviors may maintain or even worsen anxiety symptoms.

We often found that patients are more likely to grasp the concept of safety behaviors sooner by first providing examples of safety behaviors that are unrelated to those used by the patient. After the patient has grasped the safety behavior concept, we then turn our attention to helping the patient understand how safety behaviors are strengthened through a process of negative reinforcement (e.g., checking pulse becomes paired with the absence of a heart attack and thus anxiety relief). Next, we focus on helping the patient to see how safety behaviors may contribute to the maintenance of anxiety. Several possible explanations are offered (with examples) to help the patient become more aware of how safety behaviors may fuel anxiety and even interfere with the effects of treatment. One explanation emphasizes how safety behaviors may maintain anxiety by strengthening the patient's belief that they could not have coped with the feared situation without the use of the safety aid. Also, patients learn that engaging in safety behaviors may shift their attention toward the self and their behavior thus preventing or at least interfering with threat disconfirmation—the process of learning that the threat was a false alarm. A third explanation emphasizes how performing a protective action in the absence of any real threat may inadvertently "trick" the brain into keeping the alarm system in danger mode even though there is no actual threat.

We use four primary sources of data to construct the patient's safety behavior profile. These include: (a) data from interviews with patient and significant others; (b) data from psychometric scales; (c) data collected during direct in vivo observation of the patient; and (d) data collected by the patient using daily self-monitoring forms.

18.5.1.1 Interviewing Strategies

The use of interview probes with the patient is one important step for identifying anxiety-maintaining safety behaviors. We recommend starting with open–ended probes such as, "tell me about the things you feel compelled to do in order to feel more safe/reduce your anxiety in this feared situation," or "tell me about any things

you feel you need to do mentally (in your head) to feel more safe in this feared situation." In the event that the patient is unable to provide useful information, the clinician should switch over to more specific probes such as: Are there any things you have to carry with you to feel more safe in the situation such as medication, phone numbers, water, etc? Or, *Do you find yourself trying to distract yourself while you're in the feared situation? Do you find yourself avoiding looking people directly in the eyes when you talk to them? Do you repeatedly tell yourself that everything is going to be okay?*

To help confirm that the actions described by the patient are serving as maladaptive safety behaviors, it is useful to probe as to whether the patient forecasts greater anxiety if they were prevented from performing the safety behavior in question. Although it should be noted that patients differ markedly with respect to insight about their safety behaviors. For some, a safety behavior may become so automatic that the patient does not recognize that their actions constitute a safety behavior.

When possible, it is often useful to interview the patient's significant other to obtain data about possible safety behaviors performed outside the therapy session. The probes already described for use with the patient can also be used with their significant others.

18.5.1.2 Assessing Safety Behaviors Using Psychometric Instruments

The administration of established self-report questionnaires can be a useful and cost-effective method for obtaining data regarding patients' use of safety behaviors. Several instruments are currently available for assessing avoidance. Examples include the Mobility Inventory for use with panic disorder/agoraphobia patients (Chambless, Caputo, Jasin, Gracely, & Williams, 1985), the Liebowitz Social Anxiety Scale (Liebowitz, 1987) or the Social Phobia and Anxiety Inventory (Turner, Beidel, Dancu, & Stanley, 1989) for use with patients presenting with social anxiety, and the Yale–Brown Obsessive Compulsive Scale (Goodman et al., 1989) for use with patients presenting with OCD. Unfortunately, these instruments are limited in large part to the avoidance domain and do not assess other classes of safety behaviors (e.g., carrying of rescue medication, reassurance seeking, checking, etc.).

There are several self-report questionnaires currently available that assess the full range of safety behaviors for several major anxiety disorders. Our group at the University of Texas developed the TSMS (Kamphuis & Telch, 1998). This 50-item scale originally developed and validated for patients presenting with panic disorder with or without agoraphobia provides a comprehensive listing of possible safety behaviors typically exhibited in panic disorder with and without agoraphobia. Items were inductively generated based on the following a priori domains: (a) use of companions, (b) use of distraction, (c) use of checking and scanning, (d) avoidance of stress and emotions, (e) avoidance of activities, and (f) focus on escape. Each item is rated on a five-point scale ranging from "never" to "always." Psychometric data on the scale revealed high internal consistency for each of the five interpretable factors and preliminary evidence to support the construct validity of the scale, namely

higher scores on the TSMS were inversely correlated with patients' perceived self-efficacy to cope with panic episodes (Kamphuis & Telch, 1998).

Several self-report instruments are available for assessing safety behaviors typically observed in social anxiety disorder. The Safety Behaviors Questionnaire (SBQ; Taylor & Alden, 2010) is a list of 20 items taken from the Social Behaviour Questionnaire developed by Clark, Wells, Hackman, Butler, & Fennell, 1994. The patient rates each safety behavior on a 9-point scale ranging from not at all to all the time. Preliminary psychometric evaluation of the scale indicated acceptable levels of internal consistency; no information on test–retest reliability or discriminant validity were reported (Taylor & Alden, 2010). The Social Phobia safety Behaviors Scale (Pinto-Gouveia, Cunha, & do Céu Salvador, 2003) consists of 15 items each rated on a four-point scale ranging from never to usually. The scale also includes two items in which the patient has the opportunity to add other safety behaviors not included in the list of 15. Preliminary psychometric data indicates that the SPSBS possesses good internal consistency, acceptable test–retest reliability, and distinguishes general social anxiety disorder patients from other anxiety disorders and normal controls (Pinto-Gouveia et al., 2003).

Fear of contamination is a commonly reported threat in OCD. A 27-item self-report checklist for assessing safety behaviors among a sample of participants displaying contamination fear was developed by Deacon and Maack (2008). Sample items included carrying antibacterial sanitizer at all times, avoiding public restrooms, and disinfecting telephone receivers at home. No psychometric data were reported for the scale.

Although not specifically described as a safety behavior scale, the Cardiac Anxiety Questionnaire (CAQ; Eifert et al., 2000) is an 18-item scale for assessing heart-focused anxiety. All items are rated on a 5-point scale ranging from never to always. Close inspection of the scale reveals that many of the items (9 of 18) describe overt safety behaviors (e.g., I avoid physical exertion, I check my pulse) or covert safety behaviors (e.g., I pay attention to my heart). Psychometric data from the CAQ are quite promising and suggest that the scale has high internal consistency, assesses three primary factors (fear, avoidance, and threat-focused attention), and possesses good discriminant validity.

18.5.1.3 In Vivo Assessment of Safety Behaviors

The fact that many safety behaviors are observable makes it possible to assess safety behaviors using in vivo assessment methods. Direct assessment of safety behaviors as they occur has several advantages, most important of which are the increased fidelity associated with the use of direct behavioral measures, as well as the increased ecological validity associated with assessments that are obtained in the actual contexts that trigger the behavior in question. These advantages must be weighed against the increased costs and logistical challenges associated with in vivo assessments. Examples of in vivo assessments include behavioral challenges (sometimes referred to as behavioral approach tests). These can sometimes be conducted in the

clinic as in the example of having a panic patient perform a 2-min hyperventilation challenge while the therapist carefully looks for evidence of safety behaviors before, during, and immediately after the challenge. In vivo assessment of safety behaviors can and should be routinely assessed during exposure therapy. In addition to recording the presence of any observable safety behaviors performed during exposure treatment, the therapist should also query the patient as to what if any covert safety behaviors are being used. In our experience, in vivo assessment often reveals safety behaviors that are missed by self-report scales or clinical interview methods.

18.5.1.4 Assessing Safety Behaviors Using Daily Self-monitoring

One additional method for assessing safety behaviors involves the daily self-recording of safety behaviors during the course of treatment. This method has the advantage of allowing the self-monitoring form to be individually tailored to the patient's safety behavior profile. It also has the advantage of providing both the patient and therapist with ongoing feedback related to the patient's use of safety behaviors throughout the course of treatment. We typically will use data collected from the other three safety behavior assessment methods to design each patient's safety behavior self-monitoring form.

18.5.2 Clinical Strategies for Effectively Fading Safety Behaviors During Exposure Therapy

Based on the compelling evidence presented earlier in this chapter (see also Helbig-Lang & Petermann, 2010 for an excellent review of the current status of research on anxiety-related safety behaviors), we can safely say that fading the use of safety behaviors over the course of exposure-based treatments is an important augmentation strategy for enhancing the efficacy of both exposure treatment and cognitive therapy. Although these findings are relatively potent (large effect size) and very robust (perfect agreement across studies), they fail to provide the specific procedural prescriptions for fading anxiety-related safety behaviors. In this section, we offer specific procedural guidelines to assist clinicians in integrating safety behavior fading as an important component of exposure therapy for anxiety disorders.

18.5.2.1 Step 1: Conduct a Thorough Assessment of the Patient's Core Threats

Because safety behaviors are *threat-driven*, and conceptually linked to the specific core threats as perceived by the patient (Salkovskis, 1991;1996), it is critically

important that the therapist conduct a thorough assessment of the patients' core threats prior to proceeding with exposure-based treatment. Clinicians often assume incorrectly that patients with the same anxiety diagnosis share similar threat-appraisal profiles. This is just not the case! Although some useful hypotheses might be entertained as a result of knowing the patient's diagnosis, further assessment is needed to fully understand the idiosyncratic threat profile of each anxiety patient. For example, a social anxiety patient who fears blushing in front of his peers and supervisors during a work presentation is a far cry from the social anxiety patient who is concerned about appearing stupid in the same situation. There are now a host of cognitive appraisal scales that can be helpful in assisting the clinician in obtaining an accurate case conceptualization of patients' core threats. Examples include the Panic Appraisal Inventory for panic patients (Telch, Brouillard, Telch, Agras, & Taylor, 1989), the Appraisal of Social Concerns Scale for patients with social anxiety (Telch et al., 2004); the Post-Traumatic Cognitions Questionnaire for patients with PTSD (Foa, Ehlers, Clark, Tolin, & Orsillo, 1999); the Obsessional Beliefs Questionnaire (Woods, Tolin, & Abramowitz, 2004), and Thought–Action Fusion Scale (Rassin, Merckelbach, Muris, & Schmidt, 2001) for patients with OCD; and the Meta-worry Questionnaire (Wells, 2005) for patients presenting with generalized anxiety disorder.

18.5.2.2 Step 2: Provide a Compelling Rationale for the Importance of Fading Safety Behaviors

Most patients become quite apprehensive when the topic of fading safety behaviors is first broached. This is not surprising, since patients often perceived safety behaviors as being instrumental in preventing or managing their feared threats. Consequently, we recommend that the therapist revisit the educational module focusing on the role of safety behaviors in maintaining pathological anxiety and review some of the possible ways in which safety behaviors might slow down their progress. Next, the therapist reviews—at a level appropriate for the patient—the current scientific evidence showing that exposure therapy leads to greater improvement when the patient is encouraged to eliminate safety behaviors during treatment. At this point, patients often respond positively to therapists' probes such as, "*can you take a stab at telling me why treatment works better when one fades out their safety behaviors as part of the treatment?*" Most patients find it quite easy to grasp the idea of "*using a crutch*" and how that might undermine their sense of self-confidence. To further bolster the credibility of the safety behavior-fading procedure, we will often have the patient conduct a behavioral experiment in which they perform a fear-inducing activity such as a voluntary hyperventilation challenge while performing one or more safety behaviors e.g., clutching a chair. Then we have the patient alternate between exposure trials while performing one or more of their safety behaviors and exposure trials without performing their safety behaviors.

18.5.2.3 Step 3: Conduct a Thorough Assessment of the Patient's Safety Behavior Profile

Although obvious, it is hard to proceed effectively in the fading of safety behaviors without completing a through evaluation of the patient's profile of safety behaviors. Earlier in this chapter, we reviewed the four major assessment strategies for obtaining an accurate profile of the patient's safety behavior profile. Using these strategies in combination with a thorough assessment of the patient's core threat (see Step 1) will likely increase your success in helping your patients eliminate anxiety-maintaining safety behaviors.

18.5.2.4 Step 4: Construct a Safety Behavior Fading Hierarchy

Most clinicians working with anxiety disorders—particularly those using behavioral or cognitive behavioral techniques, utilize fear hierarchies as part of their treatment. Constructing a fear hierarchy for fading safety behaviors bears a striking resemblance to the fear hierarchies that are often constructed during exposure-based treatments. However, instead of grading the patient's feared situations, the clinician and patient work together to construct a hierarchy of the patient's current safety behaviors from data collected earlier during the safety behavior profile assessment. During this step, we have found it helpful to have the patient record each of their safety behaviors on separate index cards and then have them place the cards in order from "*least difficult to eliminate*" to "*most difficult to eliminate.*" For those patients who have difficulty with the concept of rating "fading difficulty," we ask them instead to rate separately how anxious they would become if they could not perform each safety behavior.

18.5.2.5 Step 5: Make Sure the Patient Understands that the Elimination of a Safety Aid May Produce a "Temporary" Increase in Their Anxiety When They First Confront Their Fear Without the Safety Behavior

Because it is common for patients to experience heightened anxiety when first attempting to jettison their safety behaviors, the therapist should prepare the patient for this common reaction. However, be sure to inform the patient that their initial increase in anxiety upon eliminating one of their safety aids will soon be followed by an increase in their confidence to handle fear-provoking situations and a significant reduction in their anxiety symptoms.

18.5.2.6 Step 6. The Selection of Safety Behavior Fading Targets Should Be Done Collaboratively

Where to start on the safety behavior hierarchy is guided by the therapist with significant input from the patient. Several factors should be considered in the selection of safety behavior targets. These include the patient's level of anxiety and distress tolerance, as well as the types of safety behaviors used by the patient. In cases where patients are using both overt and covert safety behaviors, we usually begin fading the overt safety behaviors before tackling the patient's mental (covert) ones.

18.5.2.7 Step 7. Practice Safety Behavior Fading in Session Prior to Assigning Safety Behavior Fading Homework

Having the patient practice safety behavior fading in session provides the therapist an opportunity to observe the patient and offer modeling and guided practice in the execution of the exposure trial without the use of the safety behavior. It also helps insure that the patient has not substituted some other aid or safety behavior for the one targeted for fading.

18.5.2.8 Step 8. Monitor the Patient's Anticipated and Actual Fear During Each Exposure Trial

During these in-session exposure trials, it is useful to collect data on the patient's pre-trial anticipated fear and peak fear experienced during the trial. These data help in the threat disconfirmation process by providing the patient evidence that their fear is actually declining despite eliminating the safety behavior. If feasible, monitoring the patient's heart rate during each exposure trial and providing them feedback that their physiologic fear reactions are extinguishing has also been shown to enhance the efficacy of exposure treatments (Telch, Valentiner, Ilai, Petruzzi, & Hehmsoth, 2000). In our experience, we have found this technique helpful across the broad spectrum of anxiety disorders.

18.5.2.9 Step 9. Assist the Patient in Reevaluating Their Core Threats During the Exposure Therapy Session

Our group (Kamphuis & Telch, 2000; Sloan & Telch, 2002) has shown that exposure therapy can be enhanced by using a technique we call guided threat focus and reappraisal. The technique consists of having the patient focus on their core threats during each exposure trial (e.g., I am going to lose control) and examining evidence pertaining to their core threats between trials (e.g., what evidence did

you gather that time about the threat(s) you were concerned about?). When done in the context of safety behavior fading, the threat focus and reappraisal technique centers on the patient's perceived threats connected to eliminating their safety behaviors (e.g., what are you worried might happen if you don't carry that inhaler with you?). The strategic goal in using this technique is to structure the exposure session so as to provide maximum threat-disconfirming information to the patient.

18.5.2.10 Step 10. Assign Specific Home Practice in Safety Behavior Fading

Finally, to capitalize on the learning that has taken place during in-session exposure therapy, the patient is strongly encouraged to practice the same exposure with safety behavior fading exercise at home. Potential obstacles for complying with the home practice are elicited from the patient and possible solutions for overcoming these obstacles are discussed. Patients should be provided a monitoring form to track their progress in carrying out their safety behavior fading home practice.

18.5.3 Intentional Use of Safety Behaviors to Enhance Exposure Treatment

Up to now, this chapter has focused primarily on the detrimental effects of safety behaviors and how to eliminate them. However, as reviewed earlier in this chapter as well as the chapter by Koerner & Fracalanza, the patient's use of safety behaviors does not always interfere with treatment. In fact, Rachman and colleagues (Rachman et al., 2008) have argued that safety behaviors can sometimes be helpful in the treatment of anxiety patients. They describe what they refer to as the "*judicious use*" of safety behaviors during treatment and suggest that when used judiciously, safety behaviors may offer several advantages including: (a) increasing the acceptability and tolerability of the treatment thus leading to fewer treatment refusers and fewer treatment dropouts; (b) increasing patients' sense of control during treatment; (c) increasing patients' cooperation with the treatment; (d) facilitating the pacing of treatment; (e) extending the duration of exposure treatment; and (f) assisting the patient to absorb threat-disconfirming information.

18.5.3.1 What Constitutes Judicious Use?

What constitutes judicious use of safety behaviors remains somewhat speculative, although Rachman et al. (2008) offer several guidelines. With respect to dose and timing of use, they suggest that safety behaviors should be used sparingly, and introduced early in the treatment in order to reduce dropouts and increase the patient's sense of control and confidence. Safety behaviors can also be introduced

later in therapy as a way to assist the patient in overcoming specific obstacles encountered during the course of treatment. Based on the consistent evidence reported earlier in this chapter, it is suggested that clinicians pay careful attention to the fading of safety behaviors over the course of treatment. The fading of safety behaviors not only enhances the patient's sense of mastery but also reduces the chance that patients will misattribute their success to the aid rather than their own efforts (Bandura et al., 1974). Finally, based on the recent findings of Telch and Plasencia (2010), clinicians should be careful not to allow the patient to use safety behaviors that might block or attenuate the processing of threat-disconfirming information during treatment. Instead, cognitive techniques such as guided threat focus and reappraisal (Kamphuis & Telch; 2000; Sloan & Telch, 2002) have been shown to facilitate fear reduction by enhancing the processing of threat-disconfirming information during exposure treatments.

We still have much to learn about safety behaviors and their effects on treatments for anxiety disorders. Future research will hopefully yield more effective strategies for the optimal use and fading of safety behaviors, as well as a deeper understanding of the underlying mechanisms governing the reduction of pathological fear.

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