Incorporating the Judicious Use of Safety Behavior into Exposure-Based Treatments for Anxiety

Disorders: A Study of Treatment Acceptability

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Abstract

This analogue study investigated treatment acceptability and preference as a function of safety behavior use (judicious vs. discouraged) and treatment rationale (cognitive vs. extinction). Thirty-two clinically anxious participants and 437 undergraduate students provided ratings of acceptability and adherence, as well as preference ranks for four written vignettes describing a course of CBT for fear or anxiety. Treatment descriptions promoting judicious safety behavior use received significantly higher acceptability and adherence ratings compared to those discouraging its use. Descriptions that presented a cognitively-based rationale, compared to an extinction-based rationale, were also rated as both significantly more acceptable and easier to adhere to. The highest preference rank was for treatment that included judicious safety behavior use, conveyed via a cognitive rationale. A similar pattern of results was observed in both participant groups. These findings suggest that the judicious incorporation of safety behavior into CBT has the potential to reduce treatment refusal and dropout. Results are discussed in terms of their implications for cognitive-behavioral and exposure-based treatments.

Introduction

Exposure therapy, whether delivered alone or in combination with cognitively-based techniques, has received substantial empirical support (Butler, Chapman, Forman, & Beck, 2006; Norton & Price, 2007; Olatunji, Cisler, & Deacon, 2010), and it is the psychosocial treatment of choice for anxious psychopathology (Chambless et al., 1998; Chambless & Ollendick, 2001). This treatment method aims to facilitate declines in the fear response and to promote corrective learning by requiring patients to engage in repeated and prolonged exposure to situations, sensations, and/or thoughts and images that elicit fear or anxiety (Barlow, 2002; Craske, 1999).

Despite the well-established efficacy of exposure-based treatments for anxiety disorders, not all patients benefit from exposure and a considerable number refuse treatment or drop out before treatment has been completed. Both a fear of confronting anxiety-provoking situations and an intolerance of distress have been identified as important factors in treatment acceptability (Emmelkamp & van den Hout, 1983; Maltby & Tolin, 2003, 2005), which has been defined as the degree to which an individual perceives treatment procedures for a specific clinical problem as appropriate, fair, reasonable, and unintrusive (Kadzin, 1980).

In a longitudinal investigation of the utilization of cognitive-behavioral therapy (CBT) by individuals being treated for obsessive-compulsive disorder (OCD), being too anxious or fearful to participate in CBT was endorsed as a reason for not initiating treatment or dropping out prematurely by 31% and 29% of participants, respectively (Mancebo, Eisen, Sibrava, Dyck, & Rasmussen, 2011). Fear of engaging in CBT was the *main* reason for not initiating treatment or dropping out for 20% and 21% of participants, respectively. Although data were not collected on specific aspects of CBT that were fear-provoking, this study highlights the possibility that fear associated with certain CBT techniques, such as exposure-and-response-prevention, can be an

important barrier to treatment initiation and completion. Rates of refusal and dropout for

exposure-based treatment range between 20% to 43% for OCD (Foa et al., 2005; Franklin & Foa,

1998; Stanley & Turner, 1995; Whittal, Thordarson, & McLean, 2005), 14% to 20% for post-

traumatic stress disorder (Hembree et al., 2003; Van Etten & Taylor, 1998), 7% to 31% for panic

disorder (Cox, Endler, Lee, & Swinson, 1992), 0% to 45% for specific phobias (Choy, Fyer, &

Lipsitz, 2007), and 0% to 27% for social phobia (Feske & Chambless, 1995).

Clinical researchers have investigated various methods of augmenting or modifying

exposure-based treatments to improve their acceptability (e.g., Deacon, Sy, Lickel, & Nelson,

2010; Feeny, Zoellner, & Kahana, 2009; Maltby & Tolin, 2005). One promising avenue has

focused on safety behavior—idiosyncratic overt or covert actions used by anxious individuals to

prevent feared catastrophe (Salkovskis, 1991). There is abundant empirical support for the

counter-therapeutic effects of safety behavior in exposure-based treatments (e.g., Powers, Smits,

& Telch, 2004; Salkovskis, Clark, Hackmann, Wells, & Gelder, 1999; Sloan & Telch, 2002;

Taylor & Alden, 2010). This data is consistent with the perspective that eliminating safety

behavior reduces the possibility that patients will misattribute the non-occurrence of catastrophic

outcomes during exposure to their reliance on such behavior (Salkovskis, 1991). However,

emerging research suggests that allowing patients to use safety behavior in the early stages of

exposure therapy might facilitate the therapy without reducing its effectiveness.

Rachman, Radomsky, and Shafran (2008) proposed that safety behavior does not

necessarily detract from the benefits of exposure, specifying that the *judicious* incorporation of

safety behavior (i.e., in the early stages of treatment with subsequent fading) into exposure-based

treatments has the potential instead to promote treatment gains. A number of recent studies have

demonstrated that the inclusion of safety behavior during exposure sessions results in both fear

reduction and cognitive change comparable to those seen after traditional exposures in which safety behavior is discouraged or eliminated (Deacon et al., 2010; Hood, Antony, Koerner, & Monson, 2010; Milosevic & Radomsky, 2008; Rachman, Shafran, Radomsky, & Zysk, 2011; Sy, Dixon, Lickel, Nelson, & Deacon, 2011; van den Hout, Engelhard, Toffolo, & van Uijen, 2011; for reviews of earlier work see Parrish, Radomsky, & Dugas, 2008, and Rachman et al., 2008). Rachman et al. (2008) hypothesized that key possible advantages of judicious safety behavior use are increased treatment acceptability and tolerability. They posited that allowing patients to rely on safety strategies during the early and most demanding stages of treatment will increase their sense of control, enhance their confidence, and elicit their cooperation. Accordingly, they hypothesized that therapy in which safety behavior is presented in this manner will be significantly more acceptable to patients, with fewer refusers and dropouts.

    Few studies have evaluated the impact of judicious safety behavior use on treatment acceptability. In the most direct test of Rachman et al.'s (2008) hypothesis, Deacon et al. (2010) examined the effect of safety aids on treatment efficacy and acceptability in a sample of undergraduate students with high claustrophobic fear. Participants were randomized to conditions that either provided or did not provide access to safety aids (e.g., opening a small door for fresh air) during the first four of six brief exposure trials in a "claustrophobia chamber". Treatment acceptability, aversiveness, and the desire to stop treatment were assessed after each trial. Robust and comparable improvements in claustrophobic fear and cognitions were observed for both groups, and there were no between-group differences in terms of treatment perceptions. This study demonstrated that safety aids can be incorporated into exposure-based treatment without compromising its efficacy; however, its test of the hypothesized benefits of judicious safety behavior use for increasing the acceptability and tolerability of early exposure trials was

limited. Given a non-treatment-seeking sample and the short duration of the exposure trials (a maximum of 5 minutes each), problems with adherence and attrition were unlikely to have occurred in the context of this protocol.

In a study examining the effects of snake fearful participants' use of protective safety gear during a 45-minute exposure session with a live snake, Milosevic and Radomsky (2008) found that participants who used safety gear, compared to those who did not, benefited from a greater increase in their approach to the snake during the first 15 minutes of the session. Both groups attained comparable post-session outcomes in terms of fear reduction, approach behavior, and cognitive change. Although treatment acceptability was not directly measured, these findings suggest that safety gear enabled participants to tolerate being in closer proximity to the fear stimulus in the early part of treatment. In a replication and extension of this work, Hood et al. (2010) examined the effects of safety behavior use on subjective, behavioral, and cognitive indices of fear in a sample of spider fearful participants during a two-stage 35-minute paradigm involving exposure to a live spider. Participants assigned to a safety behavior use condition benefited from gains on these measures post-treatment and at a one-week follow up, which were comparable to the gains of those who were asked to refrain from using safety behavior. Hood et al. observed that participants who were encouraged to use safety behavior endorsed lower initial subjective distress during their first exposure to the spider, which suggests, as in the work of Milosevic and Radomsky (2008), that safety behavior increased the tolerability of the early stages of exposure without impairing overall treatment outcome. Additional research is needed to establish to what extent use of safety behavior in initial stages of exposure treatment reduces high levels of distress and whether this impacts treatment refusal and/or dropout.

Recent work from Milosevic and Radomsky (2012) evaluated treatment acceptability as a function of spider fearful participants' safety gear use during a 20-minute session with a live spider in which they tested the validity of their negative spider-related beliefs. Following the session, participants were asked how acceptable they would find a full course of treatment that incorporated elements such as the exposure-based task they had just completed. Whereas there were no group differences in treatment endorsement, a nonsignificant trend ($p < .10$) for a difference in anticipated discomfort was observed, with participants who had not used safety gear indicating greater anticipated discomfort than those in the safety gear condition. This preliminary finding highlights the potential for safety behavior to reduce possible discomfort or apprehension about initiating exposure treatment. However, as in previous work, follow-up investigations under more representative clinical conditions are necessary to establish the role of judicious safety behavior in treatment acceptability.

Given the nascent literature on the effects of judicious safety behavior on the acceptability of exposure-based treatments, the present study was designed to further understand the role of safety behavior in treatment acceptability. Specifically, we evaluated undergraduate students' and clinically anxious participants' perceptions of a standard exposure treatment protocol (i.e., one that encourages elimination of safety behavior) and an exposure protocol incorporating the judicious use of safety behavior. An analogue design using written vignettes allowed for the description of treatments that are representative of current clinical practice.

A considerable portion of previous research on treatment acceptability and preference relies on student or non-clinical community samples (e.g., Bragesjö, Clinton, & Sandell, 2004; Ertl & McNamara, 2000; Heaven & Furnham, 1994; Mohlman, 2011; Tarrier, Liversidge, & Gregg, 2006). Of course, the ideal method for investigating treatment acceptability is to sample

from treatment-seeking and/or clinical populations, although this approach would be time

consuming and expensive. Accordingly, it was not possible in the current study to obtain access

to a large sample of such participants. Thus, responses from student participants served as a

proxy for general perceptions of treatment acceptability, whereas those from a smaller sample of

clinical participants were intended to reflect the perceptions of possible treatment consumers.

Although the primary research question centered on safety behavior, treatment rationale was also

varied across descriptions to eliminate a confound common to earlier studies in this domain,

whereby conditions in which safety behavior was reduced included a cognitive rationale and

those in which it was retained included an extinction rationale (e.g., McManus, Sacadura, &

Clark, 2008; Salkovskis et al., 1999; Sloan & Telch, 2002, Wells et al., 1995). As there is some

evidence that reducing safety behavior under a cognitive rationale versus an extinction rationale

produces better treatment outcomes (Kim, 2005) and that cognitive therapy is ranked more

favorably than cognitive therapy with exposure (Tarrier et al., 2006)[1], it was essential to account

for treatment rationale in the current study. This was accomplished with a 2 (judicious vs.

discouraged safety behavior) x 2 (cognitive vs. extinction rationale) within-participants design.

We hypothesized that treatment descriptions that promote the judicious use of safety behavior

under a cognitive rationale would be deemed most acceptable, followed, in turn, by judicious

safety behavior use under an extinction rationale, discouraged safety behavior use under a

cognitive rationale, and discouraged safety behavior use under an extinction rationale.

Method

Participants

Student sample. Undergraduate participants were Concordia University students, who

were recruited through classroom announcements and posters placed around the campus. For

their participation, participants received either extra credit in a psychology course or an entry

into a draw for cash prizes. A total of 467 students completed the study. As we were interested in

recruiting a sample naïve to CBT and exposure therapy, several questions pertaining to past and

current psychological treatment were included among the measures administered in the study.

Individuals who indicated that they had previously received or are currently receiving CBT or

exposure therapy ($n = 30$) were excluded from analyses. Excluded participants did not differ

from the included group in terms of sex, level of education, ethnicity, treatment seeking status,

and scores on the Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996). They

were, however, significantly older and more likely to report that they had a current psychiatric

disorder, and they had greater scores on the Symptom Checklist-90-R (SCL-90-R; Derogatis

1977, 1994) and on the Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988).

The final sample included 437 student participants who had never received CBT. Their

mean age was 22.46 ($SD = 4.30$, range 18-59) years. The majority (82.20%) were women, and

they reported a mean of 2.55 ($SD = 1.71$) years of university education. Most identified their

ethnic background as European (74.37%), with the rest identifying as East Asian (5.95%),

Middle Eastern (5.95%), African Canadian/American (4.12%), South Asian (3.43%), multi-

ethnic (2.97%), Latin (2.30%) and other (.92%). Their scores on the SCL-90-R (Derogatis, 1977,

1994), BAI (Beck et al., 1988), and BDI-II (Beck et al., 1996) were representative of a non-

clinical sample (see Table 1 for means). Few participants (1.80%) reported that they were

currently receiving or seeking treatment for a psychiatric disorder (3.40%; current treatment did

not include CBT or exposure). With regard to anxiety disorders, 8.20% of participants reported a

past diagnosis and 2.10% reported a current diagnosis. Of those with a current anxiety disorder

diagnosis, 22.22% ($n = 2$) reported that they were seeking treatment for the disorder.

Clinical sample. Clinical participants were recruited via notices posted at Concordia University and in the surrounding community and through newspaper and internet classified ads seeking individuals who are currently experiencing difficulties with anxiety. Interested individuals completed a telephone screen, during which they were asked standardized questions about symptoms of anxiety and psychosis based on criteria from the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; American Psychiatric Association, 2000). They were also asked about their treatment history. Those who endorsed symptoms an anxiety disorder and who denied both symptoms of psychosis and previous or current treatment involving CBT or exposure therapy were invited to the laboratory for a clinical diagnostic interview (see below). Out of 41 individuals who were interviewed, 40 met criteria for an anxiety disorder and completed the study. Surprisingly, preliminary analyses of data from a treatment history questionnaire indicated that despite their responses during the telephone screen, eight participants reported that they had indeed received CBT or exposure therapy for anxiety. To ensure a treatment-naïve sample, we excluded these participants from subsequent analyses. Excluded participants did not differ significantly from the included group in terms of age, level of education, ethnic background, treatment-seeking status, and scores on the SCL-90-R (Derogatis, 1977, 1994), BAI (Beck et al., 1988), and BDI-II (Beck et al., 1996). However, they were more likely to be female than participants in the final sample.

All subsequent analyses were conducted with 32 participants who had never received CBT. These participants ranged in age from 18 to 64 ($M = 33.69$, $SD = 12.77$) years and 62.50% were women. They reported a mean of 3.22 ($SD = 3.28$) years of university education. The majority identified their ethnic background as being of European descent (62.50%), with the rest identifying as multi-ethnic (15.63%), East Asian (9.38%), as well as South Asian, Latin, Middle

Eastern, and other (3.13% each). Their scores on the SCL-90-R (Derogatis 1977, 1994), BAI

(Beck, Epstein, Brown, & Steer, 1988), and BDI-II (Beck, Steer, & Brown, 1996) were

representative of a clinical sample (see Table 1 for means).

All participants in this sample had a principal diagnosis of an anxiety disorder, with

Social Anxiety Disorder and Obsessive-Compulsive Disorder being the most common principal

diagnoses (28.57% each), followed by Specific Phobia (17.14%), Panic Disorder with or without

Agoraphobia (14.28%), and Generalized Anxiety Disorder (11.43%). To ensure diagnostic

reliability, a subset (22%) of audio recordings of the diagnostic interviews was listened to by an

independent rater, who generated diagnoses based on each interview. Inter-rater reliability across

both principal and additional diagnoses was excellent ($k = .94$). Disagreement between raters

regarding two diagnoses was resolved through a review of the recordings and discussion. The

mean numbers of anxiety disorder diagnoses and overall diagnoses per participant were 1.61 (*SD*

$= .67$) and 1.90 (*SD* $= .91$), respectively. A considerable minority of participants (40.60%)

indicated that they are currently seeking treatment for their principal disorder, and 12.50%

reported that they are currently receiving treatment (not CBT or exposure) for their disorder(s).

Measures

Psychodiagnostic assessment. Participants' diagnoses were obtained with the

administration of the Anxiety Disorders Interview Schedule for DSM-IV (ADIS-IV; DiNardo,

Brown, & Barlow, 1994). The ADIS-IV is a semi-structured standardized clinical interview

schedule that assesses current anxiety, mood, substance use, and somatoform disorders consistent

with DSM-IV criteria. The ADIS-IV is widely used in both clinical and research settings. It has

demonstrated less than adequate to excellent inter-rater reliability ($r = .68$ to $.99$), depending on

the point of assessment (Tsao, Lewin, & Craske, 1998), and it has been shown to have good test-

retest reliability (DiNardo, Moras, Barlow, Rapee, & Brown, 1993). It was administered to non-student participants to establish their diagnostic status and symptom severity.

Measures of treatment acceptability and preference.

Endorsement and Discomfort Scales. This 10-item self-report measure was developed by Tarrier et al. (2006) for an analogue study on the acceptability of and preference for various treatments for PTSD. The scales require respondents to indicate their level of agreement, along a 9-point Likert-type scale, with statements about a treatment's acceptability, suitability, tolerability, likelihood of creating positive benefit, credibility, efficacy, appropriateness, reasonableness, justifiability, and discomfort. Tarrier et al. found that the first nine dimensions loaded onto a factor that they conceptualized as treatment endorsement. The remaining item was labeled as treatment discomfort. In the current study, scores on the endorsement and discomfort scales were evaluated separately and both were used as an indicator of the acceptability of each of four treatment descriptions. The endorsement scale demonstrated excellent internal consistency across the four administrations to both the student (mean α = .96) and clinical (mean α = .98) samples. Mean correlations between endorsement and discomfort scores in the student and clinical samples were r = -.19 and r = -.55, respectively, across four administrations. The correlations were significant, all $ps < .01$, across three administrations in the student sample and four administrations in the clinical sample. In the student sample, endorsement and discomfort ratings of a treatment description of judicious safety behavior use under a cognitive rationale were not significantly correlated.

Treatment Acceptability and Adherence Scale. A self-report scale comprised of 10 questions that assess acceptability (e.g., "This treatment would provide effective ways to help me cope with my fear/anxiety"), adherence (e.g., "If I participated in this treatment, I would be able

to adhere to its requirements"), drop-out (e.g., "If I began this treatment, I would likely drop

out"), and distress (e.g., "It would be distressing to me to participate in this treatment") was

developed specifically for this study to evaluate additional elements of treatment acceptability

and adherence (Milosevic & Radomsky, 2009). Items on this measure were based on previous

research on credibility, expectancy, and distress in clinical outcome studies (Devilly, 2004;

Devilly & Borcovec, 2000). The Treatment Acceptability and Adherence Scale demonstrated

good internal consistency in both student (mean α = .84) and clinical (mean α = .88) samples

across four administrations. Total scores on this measure were found to be significantly

positively correlated with endorsement scores on the Endorsement and Discomfort Scales

(Tarrier et al., 2006) for both students (mean r = .73) and clinically anxious participants (mean r

= .84), all ps < .001 across four administrations. They were also significantly negatively

correlated with discomfort scores on the Endorsement and Discomfort Scales in both student

(mean r = -.55) and clinical (mean r = -.67) samples, all ps < .001 across four administrations.

The full scale score of the Treatment Acceptability and Adherence Scale was used in the current

study as an indicator of both acceptability and anticipated adherence to treatment.

Treatment Preference Form. This form was developed for the current study to assess

participants' preferences for the treatments described in the vignettes. Participants were asked to

rank the four treatment options in order of preference for the one that they would most be

interested in receiving for an anxiety problem.[2]

History of mental illness and treatment. A Treatment Background Questionnaire was

developed for the current study to assess participants' psychiatric history, as well as their history

of psychological and psychiatric interventions. Items assessed lifetime diagnosis of an anxiety

disorder and type of treatment received for the disorder, as well as current diagnosis of any

psychiatric disorder and type of treatment received for the disorder. Participants were

additionally asked if they were seeking treatment for current problems.

Measures of anxiety, mood, and distress symptoms. Three symptom measures were

administered to facilitate the description and comparison of clinical severity in the student and

clinical samples.

Beck Anxiety Inventory (BAI) and Beck Depression Inventory-II (BDI-II). The BAI

(Beck et al., 1988) and BDI-II (Beck et al., 1996) are standardized and commonly used 21-item

self-report measures assessing state anxiety and depressive symptoms, respectively. Both

measures have demonstrated excellent internal consistency, as well as convergent and

discriminant validity in outpatient samples (Beck et al., 1988; Beck et al., 1996; Steer & Clark,

1997).

Symptom Checklist-90-R (SCL-90-R). The SCL90-R (Derogatis 1977, 1994) is a 90-item

self-report instrument that assesses the presence of a broad range of current psychological

problems and the intensity of their symptoms. It includes nine symptom dimensions and three

global indices, including a global index of psychological distress. Coefficient alphas for the

symptom dimensions range from .77 to .90 (Derogatis, Rickels, & Rock, 1976). Due to

inconsistent findings regarding the divergent validity of its subscales (Vassend & Skrondal,

1999), the SCL-90-R might best be used as measure of general distress, which was the purpose

of its inclusion in the present study.

Treatment Descriptions

A series of vignettes was developed for the current study, consisting of a description of

the purpose of the study, a general description of treatments incorporating exposure exercises,

and detailed descriptions of four treatment variants (see Appendix for all descriptions). The

purpose of the study emphasized that the researchers are examining an intervention for a broad range of anxiety disorders, and it asked participants to engage with the protocol by imagining how they might respond if they were potential candidates for this treatment (i.e., if they had an anxiety problem that needed treating). Clinically anxious participants also received verbal instructions to keep their principal anxiety disorder in mind while proceeding through the study.

The general description of exposure treatment instructed participants to imagine that they have been referred to receive this treatment for an enduring problem with fear or anxiety that has been causing them distress and that has interfered with their daily activities. An overview of the treatment methods and principles was provided, and participants were informed that they would have a choice among several possible variations of more specific therapy procedures (which were described in individual treatment vignettes).

The four treatment vignettes varied in their description of safety behavior (judicious use vs. discouraged use) and rationale (extinction vs. cognitive), with the descriptions combining to form the following distinct variations: 1.) judicious use of safety behavior with an extinction rationale, 2.) discouraged use of safety behavior with an extinction rationale, 3.) judicious use of safety behavior with a cognitive rationale, and 4.) discouraged use of safety behavior with a cognitive rationale. The order of the vignettes was counterbalanced across participants using a Latin square design.

The judicious use of safety behavior was presented as a set of strategies selected collaboratively by the patient and therapist that might make the patient feel safer or less anxious if s/he encounters an obstacle in the early stages of exposure therapy. Participants were also informed that once they have advanced to later stages of treatment, they would work with the therapist to phase out these strategies. The description of discouraged safety behavior use

emphasized that the therapist would discourage patients from using strategies that they normally

rely on to feel safer or less anxious, as it has been proposed that the use of such strategies during

exposure therapy might interfere with long-term fear reduction. The extinction treatment

rationale emphasized the need to remain in anxiety-provoking situations long enough for one's

anxiety to begin to decrease, whereas the cognitive rationale focused on the acquisition of

information necessary to change negative and irrational beliefs (see Appendix for more details).

Procedures

Student participants completed the study online after contacting the principal investigator

via email or telephone to obtain the web address for the study portal. Once they logged into the

portal, they were required to complete the study in a single session, which was approximately

one hour long. Clinical participants who met eligibility criteria via the telephone screen were

invited to attend an individual test session in the laboratory. There, they were administered the

ADIS-IV (DiNardo et al., 1994), and if they were determined to have a principal diagnosis of an

anxiety disorder, they were invited to continue on to the second part of the study, which involved

completing the same online forms as the student participants on a laboratory computer.

During the online session, participants first read the purpose of the study, followed by a

general descripton of exposure-based treatments. All four treatment vignettes were then presented

to all participants in one of four possible orders. Each vignette was followed by the administration

of the Endorsement and Discomfort Scale (Tarrier et al., 2006) and the Treatment Acceptability

and Adherence Scale (Milosevic & Radomsky, 2009). After reading the vignettes and completing

the corresponding measures, participants indicated their treatment preference ranks in the

Treatment Preference Form. They then completed a battery of measures, including a

demographics survey, the Treatment Background Form, BAI, BDI-II, and SCL-90-R.

Results

Effects of Treatment Seeking Status

As it could be argued that responses regarding treatment acceptability and preference might differ between treatment seekers and non-seekers, we examined whether treatment-seeking status had an impact on treatment perceptions and preference. A series of one-way analyses of variance (ANOVAs) were conducted for the Treatment Endorsement and Discomfort Scales and the Treatment Acceptability and Adherence Scale across the four vignettes for the clinical sample. We did not examine differences in the student sample, as only two of 437 participants indicated that they were currently seeking treatment for an anxiety disorder. There were no significant differences in ratings on these measures (all Fs < 3.02, *n.s.*). A Wilcoxon rank sum test was conducted to evaluate differences between treatment seekers and non-seekers in terms of treatment preference ranks for clinically anxious participants. No significant differences were observed for the ranks of any of the four treatments (all zs < -.62, *n.s.*).

Treatment Acceptability and Adherence

Treatment acceptability was evaluated with 2 X 2 within-participant (safety behavior vs. rationale) repeated measures ANOVAs, which were conducted on the Treatment Endorsement and Discomfort Scales and the Treatment Acceptability and Adherence Scale. In the student sample, main effects were observed for safety behavior for all three measures: endorsement, $F(1, 436) = 181.30$, $p < .001$, partial $\eta^2 = .29$, discomfort, $F(1, 436) = 158.18$, $p < .001$, partial $\eta^2 = .27$, and acceptability and adherence, $F(1, 436) = 239.48$, $p < .001$, partial $\eta^2 = .36$. Compared to treatment descriptions of discouraged safety behavior use, descriptions of judicious safety behavior use received significantly greater endorsement, acceptability, and adherence ratings, as well as significantly lower ratings of anticipated discomfort. Main effects were additionally

observed for treatment rationale for the three measures: endorsement, $F(1, 436) = 32.81$, $p <$ .001, partial $\eta^2 = .07$, discomfort, $F(1, 436) = 142.33$, $p < .001$, partial $\eta^2 = .25$, and acceptability and adherence, $F(1, 436) = 104.05$, $p < .001$, partial $\eta^2 = .19$. Treatment descriptions that presented a cognitive rationale were significantly more strongly endorsed than those that presented an extinction rationale, and they received significantly greater acceptability and adherence ratings and lower ratings of anticipated discomfort (see Table 2 for means). No significant interactions were observed, all Fs < 2.74, *n.s.*

Parallel to the findings from student participants, results from the clinical sample revealed significant main effects of safety behavior for all three measures, including endorsement, $F(1, 31) = 12.48$, $p < .01$, partial $\eta^2 = .29$, discomfort, $F(1, 31) = 10.41$, $p < .01$, partial $\eta^2 = .25$, and acceptability and adherence, $F(1, 31) = 16.53$, $p < .001$, partial $\eta^2 = .35$. Treatments promoting judicious use of safety behavior received significantly greater ratings of endorsement, acceptability, and adherence and significantly lower ratings of anticipated discomfort than those discouraging its use. In terms of treatment rationale, a trend was observed for acceptability and adherence, $F(1, 31) = 2.98$, $p = .10$, partial $\eta^2 = .09$, with treatments that presented a cognitive rationale being rated as more acceptable and easy to adhere to than those that presented an extinction rationale. No main effects of treatment rationale were observed for endorsement and discomfort, Fs < 1.49, *n.s.* However, an examination of the means (see Table 2) suggests a pattern similar to that of the student sample, with treatments based on a cognitive rationale receiving higher mean scores of endorsement and lower mean discomfort scores than those based on an extinction rationale. As in the student sample, no significant safety behavior by rationale interactions were observed, all Fs $< .30$, *n.s.*

Treatment Preference Ranks

Friedman's nonparametric test was conducted to assess possible differences in participants' preference ranks of the four treatment descriptions. The results demonstrated that there was a significant difference in the way that the treatments were ranked, $\chi^2(3, N = 437) = 428.16, p < .001$. This finding was followed up with Wilcoxon tests to examine differences between each of six possible pairs of treatment descriptions. All pairs of treatment ranks were shown to differ significantly from one another (a Bonferroni correction was applied with the significance threshold set at .008). The most highly ranked treatment description endorsed judicious safety behavior use and presented a cognitive rationale. The treatment description with the lowest preference rank discouraged the use of safety behavior and presented an extinction rationale (see Figure 1).

Analyses of clinical participants' treatment ranks produced similar results. Friedman's nonparametric test revealed a significant difference in the way that the treatment descriptions were ranked, $\chi^2(3, N = 32) = 17.98, p < .001$, and follow-up analyses indicated that the treatment description that endorsed judicious safety behavior use and presented a cognitive rationale was ranked significantly more highly than the one that discouraged the use of safety behavior and presented an extinction rationale ($p < .008$). Furthermore, in the context of the extinction rationale, participants provided a higher rank for the treatment that endorsed judicious use of safety behavior than the one that discouraged it ($p < .008$).[3]

Discussion

This analogue study tested the hypothesis that the judicious incorporation of safety behavior into exposure-based treatments for anxiety disorders would result in greater treatment acceptability. Participants rated four vignettes describing exposure therapy that varied as a function of safety behavior use and treatment rationale. In support of our hypotheses, treatment

descriptions promoting the judicious use of safety behavior received higher overall ratings of

acceptability (based on measures of endorsement, discomfort, and acceptability) and adherence

compared to those discouraging the use of safety behavior. A cognitive rationale was endorsed as

being more acceptable and easier to adhere to than an extinction rationale based on the same

ratings. Furthermore, treatment involving judicious safety behavior use that also presented a

cognitive rationale received the highest mean preference rank. A non-clinical sample of student

participants and a sample of participants with a diagnosed anxiety disorder, both who were asked

to imagine that they were seeking treatment for difficulties with anxiety, provided comparable

acceptability ratings and preference ranks.

These preliminary findings are consistent with Rachman and colleagues' (2008) position

that judicious safety behavior use has the potential to facilitate exposure-based treatments by

making the early stages of therapy more acceptable and tolerable. Our results suggest that during

early exposure sessions, use of safety behavior might decrease discomfort and increase

adherence. Recent findings from work examining within- and between-session fear activation

and habituation highlight the importance of anxiety reduction in the initial exposure session.

Observing these processes in trials of transdiagnostic group CBT for anxiety disorders, Norton,

Hayes-Skelton, and Klenck (2011) found that participants who experienced increases or less

positive decreases in subjective anxiety during the first exposure session were significantly more

likely to drop out. The authors suggest that such failure to habituate might result in patients'

perceptions that treatment is unsuccessful and their anxiety unchanging, leading to their

discontinuation of treatment. They recommend that "in the first exposure session specific care

should be taken to ensure that the client experiences a reduction in their anxiety" (p. 660). One

method of achieving this goal might be the judicious use of safety behavior. For instance, the

work of Hood et al. (2010) demonstrated that safety behavior use during a 5-minute exposure task decreased subjective distress without impairing subsequent treatment outcomes.

The current study also demonstrated that exposure-based treatments providing a cognitive treatment rationale were viewed more favorably than those that provide an extinction rationale, which is consistent with previous work (Tarrier et al., 2006). Importantly, we observed differences in participants' perceptions of safety behavior use under differing rationales. As a number of studies evaluating the effects of safety behavior during exposure-based treatments have compared conditions of retained safety behavior under an extinction rationale with conditions of discouraged safety behavior under a cognitive rationale (e.g., McManus et al., 2008; Salkovskis et al., 1999; Sloan & Telch, 2002, Wells et al., 1995), it is possible that treatment outcomes favoring discouraged safety behavior use under a cognitive rationale were attributable, in part, to the presentation of different rationales. Although a cognitive rationale for the elimination of safety behavior from exposure therapy is consistent with cognitive-behavioral models of anxiety disorders (Salkovskis, 1991), it is worth considering the judicious use of safety behavior as a therapeutic tool that might facilitate cognitive reappraisal. Indeed, we have observed that pairing encouraged use of safety gear with instructions for cognitive reappraisal during an exposure-based session for spider fear facilitates cognitive change and fear reduction (Milosevic & Radomsky, 2012).

One strength of this study is the inclusion of clinically anxious participants for whom the possibility of receiving exposure-based treatment is most likely. A considerable minority of this sample was comprised of treatment seekers, although we did not observe differences in acceptability ratings and preference ranks as a function of treatment-seeking status. Thus, it

appears that responses on these measures are generally representative of individuals with anxiety disorders irrespective of their interest in obtaining treatment.

As most of our participants were drawn from an undergraduate student population, we acknowledge that a common critique of collecting clinically-relevant data from non-clinical populations is the possible poor generalizability of participants' responses to clinical samples. Our findings, however, do not suggest poor generalizability with regard to treatment perceptions. Non-clinical participants produced a similar pattern of responses compared to the clinically anxious participants in terms of acceptability and adherence ratings, as well as preference ranks, for the four treatments. The two samples differed, however, in the strength of their ratings for treatments incorporating judicious safety behavior and in preference ranks for the treatment involving discouraged safety behavior under an extinction rationale. Individuals with anxiety disorders tended to provide a less positive view of these treatments than student participants, although the size of this difference was very small. This finding is unsurprising, as treatment that involves exposure to a feared stimulus is likely to be perceived as more threatening by individuals who have higher levels of fear or anxiety. Furthermore, as many of the non-clinical participants were psychology students, it is possible that they developed a positive view of exposure-based treatments after learning about their efficacy in their courses; clinical participants, by contrast, might not have had comparable access to this information.

Whereas these results tell us what participants think about written descriptions of judicious safety behavior use in exposure-based treatments, we do not know whether their responses would generalize to actual treatment experiences. Thus, a critical future extension of the current work is the application of behavioral indices to assess participants' treatment perceptions. These may include interest in acquiring further information about a given treatment

(e.g., taking a pamphlet), the initiation of treatment, adherence to treatment procedures,

attendance, and rates of drop-out. Equally important considerations include the roles of treatment

acceptability, adherence, and preference in treatment outcome. Recent meta-analyses suggests

that patients who are matched to their preferred treatment benefit from better outcomes and are

less likely to drop out (Swift & Callahan, 2009; Swift, Callahan, & Vollmer, 2011). As a broad

range treatments and mental disorders were included in these studies, more focused investigation

into the relationship between treatment acceptability and outcome is warranted for novel variants

of CBT for anxiety disorders.

It is likely that patients' treatment perceptions and related behavior in a therapeutic

context are moderated by additional variables, such as therapeutic rapport and early therapy

gains. It is also possible that rapport might partially mediate the relationship between exposure-

based work and adherence or dropout. This is relevant to the current study, as a therapist who

discourages safety behavior in the early stages of treatment might be perceived as being less kind

or supportive compared to one who promotes it, thus impacting ratings of acceptability. We

ensured that our description of discouraged safety behavior included a clear rationale for its

exclusion (i.e., it has been shown to interfere with long-term fear reduction) in an effort to limit

assumptions that this is done arbitrarily or from a lack of kindness; however, our design did not

allow us to control for the effects of perceived therapeutic rapport. Future research is necessary

to understand how additional factors in therapy interact with instructions surrounding safety

behavior utilization during exposure.

Our development of the treatment descriptions involved considerable effort to strike a

balance between the internal validity of the protocol and the generalizability of the descriptions

to clinical practice. While style and content were matched across vignettes, it is nevertheless

possible that subtle, unintentional differences between them influenced participants' ratings of

the treatments. For example, the descriptions of judicious use of safety behavior emphasize its

benefits in treatment, whereas descriptions of discouraged use of safety behavior frame its

elimination in negative (i.e., it can interfere with fear reduction) rather than positive (i.e., its

elimination facilitates successful fear reduction) terms. This difference may, in part, account for

the more favorable ratings of the former. Similarly, the cognitive rationale may have been

perceived more positively because it does not include a negative statement that corresponds to

the emphasis in the extinction rationale to remain in the situation even when anxiety escalates.

One might argue, however, that this difference describes one of the key distinctions between the

two modalities and that is representative of current clinical practice. Importantly, there are no

available guidelines for how to introduce the judicious use of safety behavior into CBT for

anxiety disorders, as the cognitively-based reconceptualization of safety behavior is relatively

recent and research in this area is yet in its infancy. The current study is a preliminary attempt to

understand how potential patients perceive this treatment variation. However, the manner in

which the benefits and drawbacks of safety behavior are communicated to patients is open to

future investigation.

        Although there are clear limitations to analogue research, the format of this study allowed

us to provide participants with an overview of a course of treatment, whereas experimental

studies of treatment acceptability have been limited by brief and/or one-time exposures to a

feared stimulus. By contrast to previous research on safety behavior, the current study focused

primarily on treatment acceptability, adherence, and preference. Accordingly, an additional

strength of this work is the inclusion of more comprehensive measures of these constructs. We

nevertheless struggled to find appropriate measures and resorted, in part, to developing our own.

Future work will benefit from the development and/or administration of treatment perceptions

measures with both well-established and respectable psychometric properties.

      This study contributes to an emerging literature on the possible benefits of judicious

safety behavior use in the context of exposure-based treatments for anxiety disorders and to a

broader literature focused on exploring methods to improve the acceptability of this treatment

technique. Our findings, in combination with evidence for the facilitative effects of judicious

safety behavior use, offer promise for reducing the unacceptably high rates of refusal and

dropout from exposure-based treatments.

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Acknowledgments

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Footnotes

[1] Other analogue studies of treatment preference, however, have demonstrated higher preference ranks for exposure therapy than cognitive-behavior therapy (e.g., Becker, Darius, & Schaumberg, 2007).

[2] The Treatment Preference Form permitted the same preference rank to be assigned to more than one treatment. Most participants in each sample, however, provided four distinct ranks (i.e., first, second, third, and fourth) for the described treatments (98% in student sample; 91% in clinical sample).

[3] Although this study was not developed for the purpose of comparison between the two samples, we conducted additional analyses to determine the generalizability of treatment perceptions from a non-clinical population to clinically anxious individuals. A series of one-way ANOVAs was conducted for each of three dependent measures across the four vignettes, with clinical status as a between-group factor. Compared to student participants, clinically anxious participants provided significantly lower adherence ratings, $F(1, 467) = 4.77$, $p < .05$, $\eta^2 = .01$, and higher ratings of anticipated discomfort , $F(1, 467) = 4.68$, $p < .05$, $\eta^2 = .01$, for treatment involving judicious safety behavior under a cognitive rationale. A Wilcoxon Rank sum test was conducted to evaluate group differences in treatment preference ranks. There was a trend for student participants to rank the treatment of discouraged safety behavior under an extinction rationale more highly than clinical participants for, $z = -1.77$, $p = .08$. Thus, although participants from both samples largely had similar views of the treatment descriptions, participants with an anxiety disorder provided more conservative responses.

Table 1

Participant Characteristics

	Participants	
Variable	Students ($N = 437$)	Clinically Anxious ($N = 32$)
Female *n* (%)	359 (82.20)	20 (62.50)
Age *M* (*SD*)	22.46 (4.30)	33.69 (12.77)
Years in university *M (SD)*	2.55 (1.71)	3.22 (3.28)
SCL-90-R: GSI *M (SD)*	.49 (.50)	1.43 (.89)
BAI *M* (*SD*)	8.27 (8.75)	22.91 (15.53)
BDI-II *M* (*SD*)	8.67 (8.45)	20.38 (13.08)

Note. SCL-90-R: GSI = Symptom Checklist-90-Revised: General Severity Index; BAI = Beck Anxiety Inventory; BDI-II = Beck Depression Inventory-II.

Table 2

Mean Ratings of Treatment Endorsement, Discomfort, Acceptability, and Adherence by Nonclinical and Clinically Anxious

Participants

	Students ($N = 437$)			Clinically Anxious Participants ($N = 32$)		
	Endorsement Scale	Discomfort Scale	Acceptability & Adherence Scale	Endorsement Scale	Discomfort Scale	Acceptability & Adherence Scale
Treatment Description	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)
SB-COG	61.61 (13.84)	4.28 (2.39)	62.74 (10.35)	59.44 (19.37)	5.25 (2.72)	58.59 (11.87)
SB-EXT	57.96 (16.41)	5.59 (2.53)	57.97 (12.28)	57.38 (15.20)	5.63 (2.61)	55.38 (11.62)
NO-SB-COG	51.48 (16.96)	5.66 (2.56)	54.68 (11.74)	50.50 (21.88)	6.44 (2.63)	52.47 (13.71)
NO-SB-EXT	47.56 (18.89)	6.68 (2.36)	49.30 (12.72)	47.53 (22.37)	7.00 (2.40)	48.72 (14.32)

Note. Ratings of endorsement and discomfort were based on the Endorsement and Discomfort Scales (Tarrier et al., 2006) and were

analyzed separately. The rating of acceptability and adherence was based on the full scale score on the Acceptability and Adherence
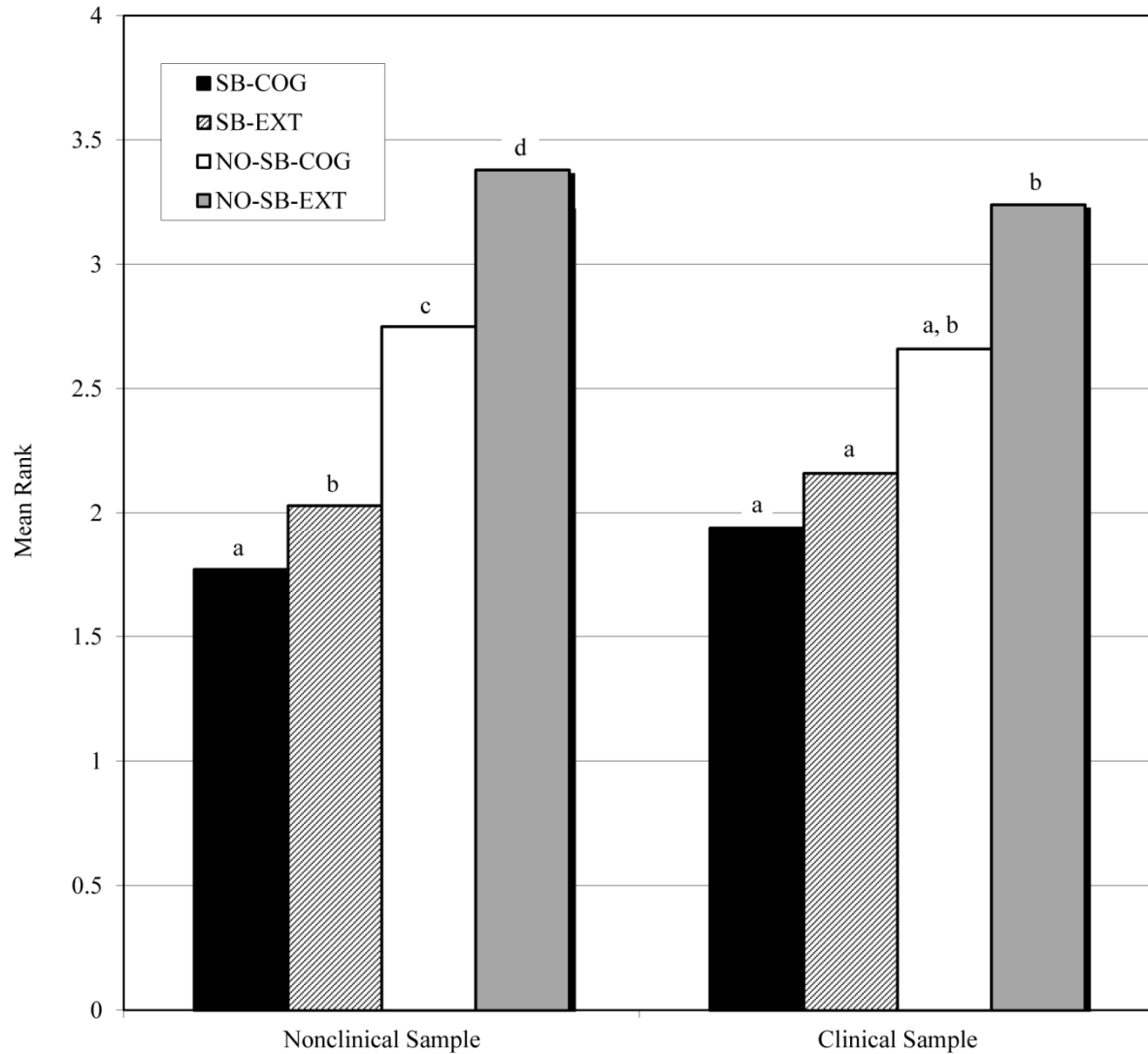
Scale (Milosevic & Radomsky, 2009).

Figure 1. Mean preference rank for four treatment descriptions. Lower numbers for mean rank represent greater treatment preference. Within each participant group, unshared letters indicate differing means, $p < .008$. SB-COG = Judicious Safety Behavior/Cognitive Rationale; SB-EXT = Judicious Safety Behavior/Extinction Rationale; NO-SB-COG = Discouraged Safety Behavior/Cognitive Rationale; NO-SB-EXT = Discouraged Safety Behavior/Extinction Rationale.

Appendix

Description of the Purpose of the Study

We are currently investigating a psychological intervention that will be applicable to a broad range of anxiety disorders. An important part of its development involves better understanding what individuals think of this treatment and how likely they might be to receive it for their fear or anxiety.

Although you may or may not currently suffer from an anxiety disorder, we would like you to imagine how you might respond if you were a potential candidate for this treatment (i.e., if you had an anxiety problem that needed treating).

The following pages contain a detailed description of the therapy and its options, each followed by questionnaires about your responses to it.

We would like your honest opinion, and there is no right or wrong answer.

Please read each description carefully, as there may be subtle differences between the treatment options.

General Description of Exposure Treatment

Imagine that you have decided to seek professional help for an enduring problem with fear or anxiety (e.g., public speaking, injections, being in crowded places, panic attacks, etc.), which has been causing you distress and has interfered with your daily activities. You have been coping with it by avoiding the feared object/situation as much as possible.

You receive a referral to an anxiety disorders clinic, and during your first appointment, you are informed that treatment involves approximately 16 weekly 50-minute sessions with a psychologist, and that one of its key components is gradual exposure to your feared object/situation. You learn also that this type of treatment has a very good success rate if you adhere to it and complete all of the sessions and exercises.

During the exposure treatment, you will be required to repeatedly and systematically confront the object/situation that has been making you anxious. Together with the psychologist, you will develop a hierarchy of scenarios that represent progressively more difficult encounters with your feared object/situation. Thus, you will begin by confronting the least threatening scenario on your hierarchy (e.g., in the case of dog phobia, looking at a cartoon drawing of a dog) and work your way through intermediate steps to confront the most anxiety provoking scenario (e.g., petting a dog).

In order to customize the treatment to your specific problem and preferences, the psychologist describes to you several possible variations of the available therapy procedures, which are presented on the following pages.

Please read each treatment description carefully as there may be subtle differences between them, and keep in mind that one of these options may be the one you choose to partake in on a weekly basis for several months.

Treatment Vignettes

Judicious Safety Behavior Use/Extinction Rationale

Although it will be challenging to confront situations that make you anxious, you will find that if you remain in such situations long enough, your anxiety will eventually decrease. Fear naturally declines the longer you remain in a threatening situation, so facing your fear will always lead to a decline in anxiety even though it might be uncomfortable to do so. You will thus be required to stay in each situation on your fear hierarchy for a pre-determined amount of time, even if your anxiety begins to escalate.

To assist you with facing your fear, if you reach an obstacle in the early part of exposure treatment, you and the therapist will collaboratively decide to use strategies/tools that might make you feel safer or less anxious. The selection of specific strategies/tools will depend on your particular anxiety problem, but they may include, for example, leaving the exposure situation if your anxiety becomes unbearable and returning to it as soon as it has declined, or you might bring to session a comforting or protective object of your choosing. The use of such strategies/tools during the early stages of treatment has the potential to promote fear reduction and to increase your sense of control. However, once you have advanced to later stages of the treatment, you will work with the therapist on phasing them out, so that you can complete the exposure exercises without any assistance.

To summarize, in this intervention you will be required to face your fear repeatedly for set periods of time with the assistance of strategies/tools that might make you feel less anxious.

Discouraged Safety Behavior Use/Extinction Rationale

Although it will be challenging to confront situations that make you anxious, you will find that if you remain in such situations long enough, your anxiety will eventually decrease. Fear naturally declines the longer you remain in a threatening situation, so facing your fear will always lead to a decline in anxiety even though it might be uncomfortable to do so. You will thus be required to stay in each situation on your fear hierarchy for a pre-determined amount of time, even if your anxiety begins to escalate.

To assist you with facing your fear, even if you reach an obstacle in the early part of exposure treatment, the therapist will very strongly discourage you from using strategies/tools that that you normally rely on to feel safer or less anxious. These strategies/tools will depend on your particular anxiety problem, but they may include, for example, leaving a situation if your anxiety becomes unbearable or carrying with you a comforting or protective object. It has been proposed that the use of such strategies/tools during exposure therapy might interfere with long-term fear reduction. Therefore, each session will always take the same format; the therapist will ensure that all exposure exercises are conducted without any assistance from what you usually use to feel safer or less anxious.

To summarize, in this intervention you will be required to face your fear repeatedly for set periods of time without the assistance of strategies/tools that might make you feel less anxious.

Judicious Safety Behavior Use/Cognitive Rationale

Although it will be challenging to confront situations that make you anxious, exposure to such situations will help you learn useful information. You will realize the unlikelihood that something terrible will happen, and that if it did happen, that you are able to cope much better than you might have predicted. You would also learn that you can in fact manage your fear in a threatening situation. You will thus be required to focus on obtaining information to change your negative and probably irrational beliefs.

To assist you with facing your fear, if you reach an obstacle in the early part of exposure treatment, you and the therapist will collaboratively decide to use strategies/tools that might make you feel safer or less anxious. The selection of specific strategies/tools will depend on your particular anxiety problem, but they may include, for example, leaving the exposure situation if your anxiety becomes unbearable and returning to it as soon as it has declined, or you might bring to session a comforting or protective object of your choosing. The use of such strategies/tools during the early stages of treatment has the potential to promote fear reduction and to increase your sense of control. However, once you have advanced to later stages of the treatment, you will work with the therapist on phasing them out, so that you can complete the exposure exercises without any assistance.

To summarize, in this intervention you will be required to obtain useful information to challenge irrational beliefs, often by facing your fear, with the assistance of strategies/tools that might make you feel less anxious.

Discouraged Safety Behavior Use/Cognitive Rationale

Although it will be challenging to confront situations that make you anxious, exposure to such situations will help you learn useful information. You will realize the unlikelihood that something terrible will happen, and that if it did happen, that you are able to cope much better than you might have predicted. You would also learn that you can in fact manage your fear in a threatening situation. You will thus be required to focus on obtaining information to change your negative and probably irrational beliefs.

To assist you with facing your fear, even if you reach an obstacle in the early part of exposure treatment, the therapist will very strongly discourage you from using strategies/tools that that you normally rely on to feel safer or less anxious. These strategies/tools will depend on your particular anxiety problem, but they may include, for example, leaving a situation if your anxiety becomes unbearable or carrying with you a comforting or protective object. It has been proposed that the use of such strategies/tools during exposure therapy might interfere with long-term fear reduction. Therefore, each session will always take the same format; the therapist will ensure that all exposure exercises are conducted without any assistance from what you usually use to feel safer or less anxious.

To summarize, in this intervention you will be required to obtain useful information to challenge irrational beliefs, often by facing your fear, without the assistance of strategies/tools that might make you feel less anxious.

Note. When vignettes were presented to participants, they did not include the safety

behavior/rationale titles and were instead identified as Treatment Option 1, 2, 3, or 4.