

SAFETY BEHAVIOURS AND SOCIAL ANXIETY DISORDER

by

MELISSA LEILI PLASENCIA

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ABSTRACT

Two studies examine the validity of a modified version of the *Social Behaviour Questionnaire (SBQ*; Clark, et al. 1995), an unpublished measure of safety behaviours used by people with social anxiety. Study 1 investigated the underlying structure and psychometric properties of the SBQ in a sample of 269 undergraduate students. Results indicate the SBQ subdivides into two categories of safety behaviours: avoidance and self-monitoring. Study 2 replicated these results in a sample of 62 socially anxious individuals from the community. Differential effects of these categories of behaviours on the interpersonal relationship were examined in the community sample using a controlled laboratory social interaction task. Standard multiple regression procedures indicate that avoidant behaviours are negatively associated with likability of participants, whereas self-monitoring behaviours were not significantly associated with likability.

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INTRODUCTION

Safety-seeking behaviours (or safety behaviours) have been conceptualized in the anxiety disorder literature as actions intended to manage or avert a perceived threat (Salkovskis, 1991). Use of safety behaviours is frequently observed in those with anxiety disorders. For example, people with Social Anxiety Disorder (SAD) may speak very little in an attempt prevent saying something “stupid” that could be interpreted negatively by others. (Alden & Bieling, 1998). Other typical examples of safety behaviour include carrying safety aids such as water or medicine in Panic Disorder in case of a panic attack, or compulsive hand-washing in Obsessive-Compulsive Disorder to prevent contamination. While a behaviour used in order to increase safety may be adaptive if the fear is based on a realistic threat, such behaviour is unnecessary if the feared situation does not pose actual danger--as is often the case in anxiety disorders (Salkovskis, Clark, & Gelder, 1996). Recent research has shown these behaviours may even have negative repercussions for the anxiety disorder sufferer.

Current cognitive models identify the use of safety behaviours as an important factor in maintaining misperceptions of threat in anxiety disorders, ultimately contributing to the maintenance of the disorder itself (Rapee & Heimberg, 1997; Salkovskis, Clark, Hackmann, Wells, & Gelder, 1999). Use of these behaviours is thought to maintain skewed perceptions by interfering with the gathering of evidence that the situation is not really dangerous, thus preventing disconfirmation of fears (Wells, et al., 1995). While using safety behaviours may make the anxious person feel safer and less anxious in the short-term, using the behaviour may maintain fear of the situation in the long-term. In some cases, these behaviours may even increase the possibility of feared outcomes being realized or contribute to other negative outcomes (Wells, et al.). On the other hand, there is some evidence that safety behaviours may be used therapeutically in the treatment of anxiety disorders (Rachman, Rodomsky, &

Shafran, 2008). Given the seemingly inconsistent effects of safety behaviour use, how can clinicians distinguish when safety behaviours may be used beneficially? To begin to answer this question, let us first explore the observed effects of safety behaviours.

Immediate Effects of Safety Behaviour Use

Several studies have found that safety cues and behaviours performed to attain these cues, i.e., safety behaviours, can aid in reducing initial anxiety. For example, the presence of a safe person decreases panic patients' subjective anxiety during CO₂ provocation (Carter, Hollon, Carson, & Shelton, 1995). Similarly, patients were less likely to experience panic in response to biological challenges when provided with safety information or safety cues (Rapee, Telfer, & Barlow, 1991; Telch, Silverman, & Schmidt, 1996). In another example, after touching a contaminant, subsequent hand-washing was seen to result in an immediate decrease in fear in patients with Obsessive-Compulsive Disorder (Hodgson & Rachman, 1972), and a parallel result has been found for hypochondriasis/health anxiety as well (Abramowitz & Moore, 2007). Together, these findings provide substantial evidence for the immediate fear reducing effects of safety behaviours. However, while these behaviours do provide initial relief, this decrease in fear reinforces the use of the behaviour and can have negative consequences (Rachman, et al., 2008).

Fear Maintaining Effects of Safety Behaviour Use

There is growing evidence that safety behaviour use can have deleterious effects. Two studies have looked at the direct effects of safety behaviour availability in anxiety disordered individuals (Sloan & Telch, 2002). Claustrophobic participants for whom safety behaviours (e.g., opening a window, unlocking the door) were made available during self-guided exposure showed significantly less fear reduction compared to participants who underwent the same treatment without the availability of safety behaviours. Powers, Smits, and Telch (2004) experimentally disentangled the effects of the perception of availability of

safety-behaviours versus their actual use during treatment of claustrophobic participants and found evidence that it is the perception of the availability of safety aids, not their actual use, which interfered with fear reduction. Both studies indicated that the (perceived) availability of safety behaviours actually perpetuated fear.

Another line of evidence supporting the maladaptive effects of safety behaviours comes from treatment analogue studies that examined the effects of safety behaviour reduction. This work demonstrated that fading safety behaviours during exposure therapy leads to greater fear reduction than exposure alone. For example, Wells et al. (1995) provided 8 SAD patients with one session of exposure with safety behaviour fading and one session of exposure alone in a counterbalanced design. The researchers found greater change in negative beliefs in the combined condition than with exposure alone. In a study of people with driving or height phobias, Williams, Dooseman, and Kleifield (1984) showed that a “guided mastery” treatment model that combined exposure and safety behaviour reduction led to greater anxiety reduction than exposure alone. Salkovskis, et al. (1999) compared panic disorder patients who received instructions to decrease safety behaviours during a 15-min. exposure session to patients who did not receive these instructions and found significantly greater anxiety reduction in the safety behaviour reduction condition. In a more recent example, Kim (2005) found that exposure combined with safety behaviour reduction produced greater anxiety reduction for people with SAD than exposure alone. In sum, safety behaviours may contribute to anxiety maintenance in anxiety disordered individuals.

Therapeutic Safety Behaviour Use

Alternatively, Rachman, et al. (2008) has advocated that the “judicious” use of safety behaviour can be used in treatments for anxiety disorders to assist in completion of exposures to feared situations (often a key component of anxiety treatment). The idea that safety behaviours could be used therapeutically originated from Rachman’s (1983, 1984)

conjectures regarding safety cues. Rachman (1983) proposed that the pairing of safety cues with feared stimuli could be used therapeutically in humans to enhance motivation for regular exposure sessions, facilitating reduction of fear. For example, in Rachman's outline of his safety signal perspective for agoraphobia (Rachman, 1984), patients being treated for agoraphobia could be encouraged to travel towards their safety signals (e.g., home or trusted person). While he acknowledged that this might strengthen reliance on the safety signal in the short term, Rachman (1983) believed that the benefits of being able to establish new safety signals might outweigh any negative effects. Allowing subjects to reduce their immediate feelings of fear might be beneficial in improving compliance with exposure therapy, and so assist reduction of fear over time.

Some evidence supports the therapeutic use of safety behaviours (see Rachman, et al. 2008). For example, one study investigated the effects of using "response aids" in the treatment of snake phobia (Bandura, Jeffery, and Wright 1974). Bandura, et al. provided response aids during modelling treatment of 36 people with snake phobia. The treatment encouraged participants to mimic the approach behaviour modelled by a therapist while response aids (e.g. mouth of snake held shut) were provided and gradually faded out. Modelling treatment combined with response aids at varying levels (minimal, medium, maximal) was compared to modelling without response aids, with the result that those participants given response aids showed greater fear reduction than those who were not given response aids. Rachman, et al. suggests this signifies that the use of safety behaviour does not necessarily prevent threat disconfirmation, and that safety behaviour use may be integrated with exposure therapy.

Exacerbating Effects of Safety Behaviours

While some evidence supports the notion that safety behaviours may sometimes be used for therapeutic purposes, another line of research suggests that safety behaviours not

only can interfere with fear reduction and maintain anxiety, but can actually *increase* anxiety symptoms and/or the probability that feared outcomes will occur (Salkovskis, 1991; Wells, et al., 1995). For example, some people with social anxiety are afraid they will tremble (anxiety symptom) when they are in an anxiety-provoking social situation, and that this trembling will be noticed by others. In response, the person may grip an object tightly in order to control trembling and inadvertently cause increased trembling, thereby also increasing the likelihood that someone will notice. The role of safety behaviours in producing negative outcomes has not been well studied, although some preliminary investigation has been conducted for negative outcomes in SAD.

Safety Behaviours and Negative Outcomes in Social Anxiety Disorder

People with SAD fear negative responses from others. Ironically, some research indicates that they can behave in a manner that elicits such outcomes (Rapee & Heimberg, 1997). Behaviours such as low social skill, awkwardness, nonassertiveness, low self-disclosure, and anxious mannerisms have been noted in the socially anxious, and seem to exert a disruptive force in their interpersonal relationships (e.g., Creed & Funder, 1998; Fydrich, Chambless, Perry, Buergener, & Beazley, 1998). These behaviours were traditionally attributed to social skill deficits (e.g., Segrin & Flora, 2000). However, because people with SAD do not always display dysfunctional social behaviour, contemporary models conceptualize such behaviours as safety strategies. In support of this idea, maladaptive behaviours are most common in situations that involve ambiguity or the possibility of evaluation, situations that are likely to increase the person's perceived need for safety and hence their use of safety behaviours (Alden & Bieling, 1998; Depaulo, Epstein, & LeMay, 1990).

The literature suggests that people with social anxiety elicit negative responses from others, and may be perceived as overly sensitive and moody, and less warm and less likeable

than others (e.g., Alden & Wallace, 1995; Creed & Funder, 1998; Gough & Thorne, 1986; Jones & Briggs, 1984). Studies have also demonstrated that socially anxious participants are liked less by their conversational partners than are nonanxious people (e.g., Alden & Bieling, 1998; Meleshko & Alden, 1993; Papsdorf & Alden, 1998). In particular, failing to reciprocate self-disclosure appears to result in being less liked by conversational partners (Alden & Bieling, 1998). A possible explanation for this is that speaking very little or refraining from sharing personal information (both possible safety behaviours) may give a false impression of unfriendliness and thereby lead others to be less friendly in turn. Together, these studies indicate that the safety behaviours used by the socially anxious can cause others to perceive them more negatively, yielding the very thing these people fear: negative evaluation and negative social outcomes.

Delineating the Effects of Safety Behaviours

If safety behaviours can sometimes be beneficial in treatment and at other times maintain or even exacerbate fears, as suggested by the studies reviewed above, it would be important to discover the source of these differences in outcome, specifically, to distinguish *which* behaviours impact feared outcomes and *how*. There may exist a range of safety behaviours, some with differing effects. While elimination of certain behaviours may be critical for treatment success, other behaviours may be useful in treatment procedures or even adaptive in some situations. It has been noted that the distinction between safety behaviour and adaptive coping behaviour can be difficult to determine and has not been clearly defined (Thwaites & Freeston, 2005). If the main reason people with anxiety disorders engage in safety behaviours is to protect themselves from negative outcomes, it may be possible that some behaviours are actually successful in preventing or decreasing negative outcomes. Studies to date have measured the use of only a few safety behaviours or have involved indiscriminate removal of safety behaviours, which clearly includes removal of all deleterious

ones. As encouraging patients to give up behaviours that may be beneficial or innocuous has complicated ethical implications, discrimination becomes crucial. Research is needed to examine the entire range of safety behaviours. To begin this endeavour, we will examine possible types of safety behaviour with a focus on SAD.

Types of Safety Behaviours in SAD

An initial attempt at categorization of safety behaviours by Salkovskis, et al. (1996) divided safety-seeking behaviour in panic disorder into three main types: (1) “avoidance” of situations that are anticipated to be threatening, (2) “escape” from situations once a threat is perceived and anxiety arises, and (3) “subtle avoidance” behaviours meant to prevent or minimize the threat while remaining within the anxiety-provoking situation (e.g. sitting down to prevent a heart attack in panic disorder). Some writers have proposed that this tripartite distinction also applies to SAD (Thwaites & Freeston, 2005), however, research has yet to confirm that speculation. Examination of existing measures of safety behaviours (discussed more below) and clinical descriptions suggest that while people with SAD use avoidant-escapist safety behaviours, they engage in other types of safety behaviours as well. Some examples include over-preparation (e.g., rehearsing what they are going to say both before and during social interactions; relying on prepared scripts), self-monitoring (rigidly observing and censoring their behaviour and speech), and feigned expressions of interest and approval (inauthentic displays of nodding, smiling). These latter types of safety behaviour (i.e., over-preparation, self-monitoring, and feigned approval) are similar to the adaptive prosocial behaviours used by most people to facilitate social interactions. In the case of the SAD, however, those actions are strategically adopted because the individual believes they are necessary to avoid rejection, rather than because the person is genuinely engaged in the interaction.

One unresolved question is whether such “prosocial” safety behaviours exert the same harmful effects as escapist-avoidant safety behaviours. For example, one might expect that prosocial safety behaviours would be less likely to produce negative outcomes than safety behaviours that involve avoidance. Frequent prosocial behaviours could even lead to more positive outcomes when interacting with others, which would be positively reinforcing. Alternatively, excessive use of prosocial safety behaviours could result in negative interpersonal outcomes if others perceive the user to be odd, not genuine, or if this behaviour increases self-consciousness and reduces the person’s attention to their partner. Research is necessary to evaluate these observations and to determine how prosocial safety behaviours affect the interpersonal experience. Identifying the specific behavioural patterns that provoke adverse social responses would help inform treatments for social anxiety, and, if fundamental differences exist in types of safety behaviours, elucidating these differences may help us understand how safety behaviours function to maintain or reduce anxiety.

Safety Behaviour Measurement

In order to identify the safety behaviours used in feared situations and understand their impact on situational outcomes, accurate assessment tools are required. However, even with the growing recognition of the influence of safety behaviours on SAD, there exist only two self-report measures of the safety behaviours associated with this condition: 1) the Social Phobia Safety Behaviours Scale (SPSBS; Pinto-Gouveia, Cunha, & do Céu Salvadorthe, 2003), and 2) the *Social Behaviour Questionnaire* (SBQ; Clark, et al., 1995). The SBQ, in particular, is beginning to be widely used in SAD research, however, psychometric information about the measure is lacking. This information is necessary to establish whether the SBQ is a reliable and valid measure and therefore warrants research and clinical use. In addition, although the SBQ comprises a number of different types of safety behaviours, the items are typically combined in a single summary score which may obscure meaningful

differences between different types of safety behaviours. All in all, the psychometric properties of the SBQ remain to be established, and that is the first goal of proposed research.

Overview of Current Research¹

I conducted two studies to address these issues. Study 1 investigated the psychometric properties and structure of the SBQ in a student sample, with a particular focus on identifying whether the SBQ reflects different types of safety behaviours. Study 2 was conducted to replicate the results of Study 1 in a clinical sample of people with SAD and, in addition, used a controlled laboratory study to examine the effects of different types of safety behaviours on social outcomes.

STUDY 1

The goal of study 1 was to examine the psychometric properties of the SBQ. Here, I assessed the factor structure, convergent and discriminant validity, internal consistency, and test-re-test reliability of the SBQ in a large student sample. My predictions were as follows:

- 1) There would be at least 2 categories of safety behaviours. One would comprise what I have termed prosocial safety behaviours (e.g., over-preparation, self-monitoring, and feigned sociability), whereas the other would comprise avoidant-escape behaviours.
- 2) In support of convergent and discriminant validity, the SBQ total and subscale scores would show stronger correlations with the social anxiety measures (SIAS, SPS) than with the measures of worry (PSWQ) and depression (BDI-II), higher correlations with the social phobia scale of the Fear Questionnaire than with the agoraphobia and blood/injury phobia scales, and higher correlations with the Non-assertive and Socially Avoidant scales than with the Domineering and Intrusive scales of the Inventory of Interpersonal Problems (IIP-32), a measure of dysfunctional interpersonal behaviour.
- 3) In further support of discriminant validity, the SBQ would discriminate between people with SAD and the general population.
- 4) The SBQ subscales would display good internal consistency and test-re-test reliability.

Method

Participants

Participants were recruited from a large subject pool of students enrolled in introductory psychology classes at the University of British Columbia during the 2007-2008 academic year. The sole entry criterion was willingness to participate. Students received extra course credit for participation.

A total of 299 participants were recruited for the experiment. Thirty participants were excluded for failing to meet English proficiency requirements, leaving a total of 269 participants (70% female). Participant ranged in age from 18 to 47 years with a mean age of

20.58 (SD = 3.09). The ethnic background of the sample was predominantly Asian (51%) or Caucasian/European Canadian (35%).

Procedure

Participants received a packet of questionnaires to be completed at their discretion and returned to the laboratory. A cover letter provided with the questionnaires served as a consent form. This letter summarized the general purpose and procedure of the study, and explained that completion of the questionnaires signified participants' agreement to allow their data to be used in the research study. Thirty-eight participants also completed a second battery of questionnaires approximately 2 weeks later (re-test sample demographics: 84% female; mean age = 20.53, SD = 3.38; 61% Asian, 29% Caucasian/European Canadian).

To ensure anonymity, participants were instructed not place their name on the questionnaires. Following the completion of the study, participants were provided with an educational summary explaining the purpose of the research and the anticipated findings. As a check on their understanding and perception of safety behaviours, I informally surveyed some participants. Questions addressed participants' understanding of the definition of safety behaviours, whether the participants use safety behaviours deliberately and/or automatically, why they use the behaviours, and whether they find the behaviours helpful or harmful.

Measures

Social Behaviour Questionnaire (Revised). The SBQ is a measure of specific strategies used in social situations to prevent negative outcomes. The original scale is an unpublished measure developed by D.M. Clark and colleagues and includes 25 items. We revised the measure for our purposes by slightly rewording or combining some items and replacing 3 items, resulting in a total of 23 items in the revised version. These changes were based on clinical interviews and previous laboratory experience in order to make the measure better suited to the social interaction task used in Study 2. Participants rated how often they

utilized these specific strategies on a nine-point scale (0 = never, 8 = always). As accurate understanding of the definition of safety behaviour is necessary to ensure that participants are truly rating *safety* behaviours, I extended the instructions of the SBQ in order to make the definition clearer. Specifically, the instructions stated the items referred to behaviours used *deliberately* with the motive of preventing feared outcomes (see Appendix A for revised instructions).

Social Phobia Scale and Social Interaction Anxiety Scale. The SPS and SIAS (Mattick & Clarke, 1998) are self-report measures designed to assess social anxiety. The SPS assesses fears of scrutiny in specific situations, whereas the SIAS assesses fears of social interactions in general. Participants complete a total of 40 items, rating each on five-point scales (0 = not at all characteristic or true of me, 4 = extremely characteristic or true of me). These scales have demonstrated high levels of internal validity, with Cronbach's alphas of .93 for the SIAS and .89 for the SPS, and high test-retest reliabilities over four (.92 and .91 for the SIAS and SPS, respectively) and 12 weeks (.92 and .93 for the SIAS and SPS, respectively). There is also empirical evidence to support the validity of both scales (Mattick & Clarke, 1998).

Beck Depression Inventory II. The BDI-II (Beck, Steer, & Brown, 1996) is a self report measure assessing the severity of depression during the past two weeks. It includes 21 items, rated on a four-point scale of 0 to 3, which are summed to produce a total depression score ranging from 0 to 63. The BDI-II has been reported to show good internal consistency, test-retest reliability, and concurrent validity (Beck et al., 1996).

Penn State Worry Questionnaire. The PSWQ (Meyer, Miller, Metzger, & Borkovec, 1990) is a 16-item measure assessing the general trait of worry. It includes concerns associated with generalized anxiety disorder, containing 11 positively worded items (e.g., "My worries overwhelm me") and 5 negatively worded items (e.g., "If I do not have enough

time to do everything, I do not worry about it"). All items are rated on a five-point scale from 1 (not at all typical) to 5 (very typical). Scores can range from 16 to 80. Investigators have reported high internal consistency, test-retest reliability, and convergent and criterion-related validity (e.g. Brown, Antony, & Barlow, 1992). The PSWQ has a reported overall alpha of .95 and test-retest reliability of .93 (Meyer et al., 1990).

Fear Questionnaire. The FQ (Marks & Mathews, 1979) includes three 5-item subscales (for agoraphobia, social phobia, and blood/injury phobia) measuring phobic avoidance. Items are rated on a nine-point scale (0 = would not avoid it, 8 = would always avoid it). Scores for each subscale range from 0 to 40, and are summed to yield a total phobia score (possible range of 0 to 120). Also included is a nine-point global rating of disturbance caused by phobic symptoms. The FQ has demonstrated good psychometric qualities (e.g. Oei, Moylan, & Evans, 1991).

Inventory of Interpersonal Problems (short version). The IIP-32 (Horowitz, Alden, Wiggins, & Pincus, 2000) is a shorter version of the IIP-64. The measure is a self-report instrument containing eight scales in a circumplex structure that assess different categories of interpersonal problems. The two underlying dimensions are problem versions of affiliation, referring to communion and nurturance, and dominance, referring to agency and control. Items are rated on five-point scales ranging from 0 (not at all) to 4 (extremely). Reliability and validity of the IIP-64 has been repeatedly demonstrated (e.g. Horowitz et al., 2000). Psychometric research on the IIP-32, however, is limited (Horowitz et al., 2000). Test-retest reliability of the IIP-32 has proved to be acceptable (Horowitz et al., 2000; Vittengl et al., 2003). Criterion validity studies have indicated that IIP-32 scores are related to symptoms of subjective distress, and that correlations with measures of interpersonal and social functioning are moderate to strong. The alphas for the complete scales are high for both

clinical (.85) and student populations (.86). Correlations between the IIP-32 subscales appear to follow a circumplex organization (Vanheule, Desmet, & Rosseel, 2006).

Safety Behaviour Survey. This survey consisted of seven questions administered in an interview format. Questions covered the definition of safety behaviours, clarity of instructions, whether participants used the safety behaviours they endorsed deliberately and/or automatically, why they used them, and whether they found the behaviours helpful or harmful (See Appendix B).

Overview of Analyses

A common factor analysis was conducted to investigate the underlying structure of the SBQ and to reduce the number of items in the data set. Internal consistency was examined through the computation of Cronbach's alpha. Test-retest reliability for a 2-week period was studied in 38 participants. To assess concurrent validity, correlational analyses were performed between the SBQ and measures of social anxiety, depression, worry, agoraphobia, blood/injury phobia, and interpersonal difficulties. Finally, safety behaviour use was compared between participants classified as having clinically significant SAD symptoms or not (based on SIAS and SPS scores) to determine the ability of the SBQ to discriminate between these groups.

Results

Preliminary Analyses

The data was first assessed for suitability for factor analysis (analyses conducted using SPSS version 15). Inspection of the correlation matrix revealed the presence of many coefficients of .3 and above. The Kaiser-Meyer-Olkin value was .836 and Bartlett's Test of Sphericity reached statistical significance, supporting sampling adequacy and the factorability of the correlation matrix. Multicollinearity and potential singularity of the correlation matrix were evaluated by examining the correlations between variables. None of the correlations

exceeded .90, suggesting no problematically high levels of multicollinearity or singularity in the dataset.

The data were next assessed for linearity, normality, the presence of outliers, and the possibility of gender disparity. A cursory scanning of the bivariate scatterplot matrix failed to reveal obvious departures from linearity or substantial heteroscedasticity. Normality was assessed through examination of skewness and kurtosis,² and frequency histograms and normal probability plots were examined for variables that were potentially non-normal. While a number of variables were initially flagged for notable deviation from normality (11 for skewness, 10 for kurtosis), only 4 variables demonstrated more extreme levels of non-normality (e.g., “hide or cover your face,” *skewness* = 10.04). Because of the substantial deviations from normality in some variables, it was determined that unweighted least squares would be the most appropriate method of factor analysis, as it is robust when data are not normally distributed.

Observed values that were more than 3.5 standard deviations away from an item mean were flagged as univariate outliers. Four univariate outliers were detected (2 variables each contained 2 outliers). However, these values, which were outliers above the mean, were only one unit higher than the next highest scores in the sample for those variables, and so were left in the dataset. No further univariate outliers were identified.

Following outlier detection, independent samples t-tests were conducted to compare mean item scores for males and females. This was done to determine whether the data were appropriate to pool at the raw level. Differences in scores based on gender were significant in 2 of the 23 items ($t(167) = 3.133, p < .01$; $t(178) = 2.944, p < .01$). However, the magnitudes of the differences in the means for these items were fairly small (mean difference = .755, 95% CI: [.279, 1.231], $\eta^2 = .04$; mean difference = .794, 95% CI: [.262, 1.327], $\eta^2 = .03$). As the majority of items did not show significant mean differences for males and females, and

because effect sizes for the two significant differences were small, it appeared acceptable to pool the data.

Factor Structure

To investigate the dimensions underlying the SBQ, the 23 items of the SBQ were factor analysed in 269 participants using unweighted least squares (ULS) with direct oblimin rotation. Direct oblimin rotation was used because of the likelihood that factors would be correlated. Listwise deletion was used to remove 8 cases with missing values. Analyses were conducted using SPSS version 15. The initial ULS solution revealed the presence of 5 factors with eigenvalues exceeding 1, accounting for 55.9% of the total variance. Based on Kaiser's criterion and Catell's (1966) scree test, it was decided to examine the 5 factor solution. Three of the five factors were found to be either singletons or doubletons. Therefore, the factor analysis was repeated extracting two factors. Items that did not load on the 2 factors were discarded (7 items total). One item was discarded because it loaded on both factors. Another item was not thematically related to other items on its factor and was also discarded. In the rotated 2 factor solution of the remaining fourteen items, the 1st factor accounted for 33.6% of the total variance and reflected a theme of avoidance. The 2nd factor explained 8.4% of the variance and comprised items reflecting over-rehearsal and self-monitoring. The correlation between factors was .51. See Table 1 for factor loadings and communalities.

Subscales for the SBQ were derived from the factor analysis of the 14 items. The 9 items that loaded on the avoidance factor were summed to produce the *Avoidance* subscale, and the 5 items that loaded on the self-monitoring factor were summed to produce the *Self-Monitoring* subscale. A selection of items from each subscale is presented in Appendix A.

Internal consistency

According to Clark and colleagues, the SBQ has good internal consistency, with a reported Cronbach alpha coefficient of .88 for a modified version of the scale (McManus,

Sacadura, & Clark, 2008). In the current study, the 14 item version of the SBQ also displayed good internal consistency. The Cronbach alpha coefficient was .87 for the full 14 item scale, .85 for the 9 items of the Avoidance subscale (mean inter-item correlation = .39, ranging from .18 to .62), and .78 for the 5 item Self-Monitoring subscale (mean inter-item correlation = .42, ranging from .28 to .59). Means, standard deviations, and alphas for the SBQ and its subscales are presented in Table 2.

Test-retest Reliability

Thirty-eight participants completed the SBQ on a second occasion, approximately 2 weeks later. The test-retest correlations for the SBQ Avoidance and Self-monitoring subscales and the full scale were .86, .66, and .84, respectively. The moderate to high test-retest correlations indicate that the subscales are relatively stable over time.

Convergent Validity

Pearson's correlation coefficients were calculated to determine the strength of the association between the Avoidant and Self-Monitoring subscales of the SBQ, and scores on measures of social anxiety (SIAS, SPS, FQ-Soc), depression (BDI-II), worry (PSWQ), agoraphobia (FQ-Ag), and blood/injury phobia (FQ-B/I). The results can be seen in Table 3.

In support of convergent validity, the SBQ full scale showed a strong positive association with the measures of social anxiety. On a subscale level, the Avoidance and Self-Monitoring subscales were also positively associated with social anxiety, with Avoidance displaying strong correlations and Self-monitoring displaying moderate correlations overall.

The SBQ subscales showed low to moderate positive correlations with depression, with Self-monitoring displaying a lower correlation to depression than Avoidance. Both subscales showed moderate positive associations with worry. The subscales displayed fairly weak positive correlations with agoraphobia, with Avoidance showing a slightly stronger

correlation. Avoidance and Self-Monitoring showed similarly weak positive correlations with blood/injury phobia.

Some partial correlations were also computed. The correlation between SBQ subscales and social anxiety remained significant when depression and worry were partialled out, with Avoidance correlating .57 and .40 with the SIAS and SPS, respectively, and Self-monitoring correlating .25 and .30 (all $p < .001$). Correlations between SBQ subscales and depression became nonsignificant after controlling for social anxiety (partialling out SIAS and SPS). When partial correlations were computed between SBQ subscales and worry, controlling for social anxiety, only the correlation of worry and Self-Monitoring remained significant ($pr = .22, p < .001$).

Table 4 presents the correlations between the subscales of the SBQ and the eight scales of the IIP-32, a measure of interpersonal difficulties. Overall, the pattern of correlations between the SBQ and IIP-32 converged and diverged in a theoretically meaningful way. Both subscales showed higher correlations with the Socially Avoidant and Nonassertive scales of the IIP-32 than with the Domineering and Intrusive scales. Interestingly, the SBQ Avoidance subscale also showed a moderate positive correlation with the IIP-32 Cold scale, whereas the Self-Monitoring subscale showed a much weaker correlation with the Cold scale.

Discriminant validity

A “caseness” approach was used to classify participants as having or not having SAD symptoms of clinical severity. Persons scoring one standard deviation above the mean of Heimberg et al.’s (1992) community sample on the SIAS (score of 34 or greater) or SPS (score of 24 or greater) were identified as having clinically significant symptoms (following the procedure used by Brown, et al., 1997). Independent-samples t-tests were conducted to compare mean scores on the SBQ subscales between participants with or without clinical

symptom severity. There was a significant difference in Avoidance and Self-Monitoring scores based on caseness, $t(260) = 8.74$, $p < .001$, $\eta^2 = .23$, and $t(264) = 5.95$, $p < .001$, $\eta^2 = .12$, for the SIAS and SPS respectively. Means and standard deviations are presented in Table 5.

Participant Understanding of Safety Behaviours

Based on a survey of 28 participants, the undergraduate students were able to adequately understand the definition of safety behaviours. When asked to give a description of safety behaviours in their own words, participants were generally able to give a good description of the term. As rated by a graduate student interviewer on a scale of 0 to 4 (0 = poor, 2 = satisfactory, 4 = excellent), the quality of definition given by participants was at about 3 ($M = 2.95$, $SD = .97$).

Discussion

The aim of the Study 1 was to examine the structure and psychometric properties of the SBQ, a measure developed to assess the safety behaviours that people with SAD use in social situations they fear. Consistent with predictions, the factor analyses of the 23-item SBQ yielded two major factors: one factor represented avoidant-escape safety behaviours and the other reflected prosocial safety behaviours (specifically, over-rehearsal and self-monitoring). The 14 items of the SBQ that loaded above .40 on the two factors yielded two pure factors, with 9 and 5 items respectively on Avoidance and Self-Monitoring. Each factor showed a moderate to high degree of internal consistency and test-retest reliability. The current results provide the first evidence that the SBQ reflects two types of safety behaviors.

As expected, the SBQ total and subscale scores showed stronger correlations with the social anxiety measures (SIAS, SPS) than with the measures of worry (PSWQ) and depression (BDI-II). The SBQ also displayed higher correlations with the social phobia scale of the Fear Questionnaire than with the agoraphobia and blood/injury phobia scales. In

addition, the SBQ displayed high correlations with the Non-assertive and Socially Avoidant scales of the Inventory of Interpersonal Problems (IIP), a measure of dysfunctional interpersonal behaviour, and lower correlations with the Domineering and Intrusive scales of the IIP.

The strength of the associations varied somewhat between the subscales. A moderate relationship was found between the SBQ Self-Monitoring subscale and the PSWQ. This is not that surprising, considering that Generalized Anxiety Disorder often has a social worry component. In addition, the SBQ Avoidance subscale showed a moderate correlation with the IIP-32 Cold scale, whereas the Self-Monitoring correlation with Coldness was much weaker. I believe these differences provide further support for the two safety behaviour dimensions and give evidence for the construct validity of the SBQ. In support of discriminant validity, the SBQ was able to discriminate between participants displaying SAD symptoms of clinical severity and those who did not.

Some aspects of the procedure used in the current study require discussion. First, one might ask why I included the entire range of students, rather than creating contrasted groups of high/low social anxiety. I had three reasons for doing so. Current models of Social Anxiety Disorder postulate that social evaluative fears exist on a continuum (e.g. Rapee & Heimberg). Social anxiety is anxiety that arises from concern over interpersonal evaluation, and is prevalent even in normal populations (e.g., Zimbardo, 1977; Schlenker & Leary, 1982). Most researchers accept social anxiety as a dimensional construct, and it is often measured as such. For example, in developing the social anxiety scales, the Interaction and Audience Anxiousness Scales, Leary (1983) used data from general student samples to reduce the number of items in the scales and to examine the reliability and validity of the scales, which were shown to be psychometrically sound.

Second, there are similarities between safety behaviours and the construct of coping. Safety behaviours can be viewed as a form of unnecessary avoidant coping that is often maladaptive. In the coping literature, approach and avoidance are recognized as coping styles common in humans and other species (e.g. Ferguson & Cox, 1997; Hughes, Budd, & Greenaway, 1999; Schwarzer & Schwarzer, 1996), and neurophysiological studies suggest these processes may be innate (e.g., Harmon-Jones & Allen, 1997; Sutton & Davidson, 1997). Not surprisingly, measures of coping are often developed and structurally analyzed using general student samples (e.g. Stanton, Kirk, Cameron, & Danoff-Burg, 2000; Endler & Parker, 1990). As avoidance coping may be a fundamental human coping style, it seems prudent to examine safety behaviours, which include avoidant behaviours, in the full population. Artificially creating two contrasted groups may leave out a large middle segment of the population--those who may use safety behaviours occasionally, but not as frequently as those with higher social anxiety.

Finally, statistical procedures conducted on dimensional constructs are more sensitive if the analyses are conducted dimensionally (versus on contrasted groups). This appears to be the norm in other anxiety research examining dimensional constructs (e.g., Shafran, Thordarson, & Rachman, 1996). As there is some evidence that safety behaviours may be dimensional, the entire range of the student population appeared to offer statistical advantages above and beyond using a truncated sample of students with high levels of anxiety.

A second matter for discussion concerns the use of a nonclinical sample of participants drawn from an unscreened pool of undergraduate psychology students. University samples have long been a popular choice for research due to their accessibility as a resource and relative diversity, and these were the reasons for my selection as well. It is generally acknowledged that this type of sample may be limited in terms of generalizability

to clinical populations, which may be a concern for the present study. However, a student sample is generally considered adequate for research in a preliminary investigational stage such as the current study. To substantiate current preliminary findings, further validation in a clinical sample is needed. Study 2 extends this investigation to a clinical population.

STUDY 2

The goals of this study were to: 1) replicate the results from Study 1, recognizing the psychometric limitations of a smaller sample, and 2) look at the effects of the two categories of safety behaviours on interpersonal outcomes, specifically, how safety behaviour use affects conversation partners' liking of SAD participants.

My hypotheses were as follows. 1) The results from Study 1 would be confirmed, i.e., the SBQ would be shown to be a valid measure that reflects two categories of safety behaviours. 2) Avoidant safety behaviours would be more strongly linked to negative social outcomes than Self-Monitoring behaviours.

Method

Participants

Participants were 62 persons (34 men, 28 women) seeking treatment for Generalized Social Anxiety Disorder (GSAD). This experiment functioned as part of a larger assessment process for an investigational treatment program for GSAD. Participants were recruited from the general population through letters to general practitioners and health care organizations. Individuals expressing interest in the program were contacted by telephone and provided with information about the treatment program and assessment procedures, including the current experimental protocol. All prospective participants completed a telephone screening interview to assess study appropriateness before being scheduled for a full assessment. For inclusion, participants had to report social anxiety of clinical severity as their primary problem, be between the ages of 19 to 65 years old, and be fluent in English. Participants were excluded if they reported current severe depression, substance abuse/dependence during the past year, Bipolar Disorder, or any psychotic disorder.

The Anxiety Disorders Interview Schedule for DSM-IV (ADIS-IV; Brown, Di Nardo, & Barlow, 1994) was used to confirm diagnostic status. The ADIS-IV is a structured

interview protocol that has demonstrated high inter-rater reliability and good concurrent validity (Brown et al., 1994). Diagnostic interviews were conducted by two graduate students in clinical psychology who had training and experience administering the ADIS-IV. Intake interviews were tape-recorded and reviewed by a second clinician for reliability. Inclusion criteria were as follows: (1) a primary diagnosis of GSAD, (2) 19-65 years old, (3) fluent in English, (4) no concurrent diagnosis of severe Major Depression, Bipolar Disorder, substance abuse/dependence, Psychotic Disorder, or severe personality pathology (with the exception of Avoidant Personality Disorder), (5) not currently a UBC psychology department student/employee, and (6) no cognitive impairment.

Personnel

Experimenters. Experimenters were the same two graduate students who administered the ADIS-IV. The experimenters were trained to perform the following responsibilities: provide information about informed consent, deliver instructions to participants following a scripted protocol, administer questionnaires, rate confederate behaviour, and conduct the debriefing of the participant at the end of the experiment.

Confederates. Two undergraduate students (1 male, 1 female) acted as confederates. The role of the confederates was to converse with participants in a reserved, but not unfriendly manner using a set of scripted verbal and nonverbal behaviours. Confederates were provided with a list of conversation topics, and were trained to consistently portray a reserved, but not unfriendly demeanour through use of scripted verbal and nonverbal behaviours. The use of a scripted confederate performance was necessary in order to expose participants to the same social interaction situation and avoid the differential treatment of participants that could result from the “pull” of the participant’s behaviour on the confederate (e.g. Creed & Funder, 1998). The scripted behaviours were designed to mimic a slightly reserved manner. This slight reservation also allowed room for participants to display their

safety behaviours, which might not have been used by the participant if the situation felt completely “safe”. Confederates were trained to interact so their behaviour appeared natural, rather than staged and were trained to behave consistently in all interactions. This interaction model has been used successfully in prior research (Taylor & Alden, 2005, 2006).

Confederate responsibilities also included rating participant behaviour and their own interpersonal reactions to their partner. Both confederates were blind to study hypotheses.

Observers. Two additional undergraduate students acted as independent observers to assess inter-rater agreement. The observers were trained to rate participant and confederate behaviour using the same measures as the experimenter and the confederate, and remained blind to study hypotheses.

Procedure

The experimenter explained to participants that they would be asked to engage in a short conversation with an assistant of the opposite sex and then rate their impressions of the interaction, the purpose being to get a sense of their typical thoughts and behaviours in social situations. After being fully informed of study procedures, the participant provided written informed consent. The participant then completed the descriptive measures of social anxiety and depression (described below).

The confederate entered and was introduced by the experimenter. The participant and confederate were told to spend time getting to know each other, talking about subjects typically discussed in a first-time social encounter, but were asked to avoid discussion of the current assessment. The confederate was instructed to begin the conversation, and the pair was told to converse until the experimenter returned.

The interaction consisted of a 5 min. open-ended “getting acquainted conversation.” This task was selected because such conversations are essential first steps in the development

of friendships and are often problematic for people who are socially anxious (Stravynski & Shahar, 1983).

The experimenter left the room during the interaction, and monitored the interaction from behind a one-way mirror. Observing the conversation from behind the mirror, the experimenter rated the confederate's behaviour while an independent observer rated both participant and confederate behaviour. After five minutes, the experimenter returned and the confederate left the room. Participants then completed a series of scales rating their own behaviour and their reactions to the assistant (described below). After departing the room, the confederate rated participant behaviour and personal reactions to the participant.

To identify safety behaviours used in the conversation, the experimenter reviewed with participants their feared outcomes regarding the conversation and used this information to help the participant generate a list of any behavioural strategies they used to prevent or minimize the likelihood of those feared outcomes. Participants then completed the Social Behaviours Questionnaire, rating the extent to which they used individual safety behaviours in the conversation *to feel safer or prevent their feared outcomes from happening*. The completed SBQ ratings were reviewed with the participant to confirm primary safety behaviours.

Measures

Descriptive measures of social anxiety and depressive symptoms. The Social Phobia Scale and the Social Interaction Anxiety Scale (SPS, SIAS; Mattick & Clarke, 1998) were used to assess severity of social anxiety symptoms so that differences could be controlled for in the analysis. The Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996) was used to assess depressive symptoms during the past two weeks so that comorbidity could be controlled for in the analysis. See Study 1 for more information on these measures.

Social outcomes. The Desire for Future Interaction Scale (DFI; Coyne, 1976) was used to assess confederate and participant reactions to their conversation partner. On the DFI, respondents rated the extent they would be willing to engage in a variety of social activities with their partner using seven-point scales (1 = Not at all, 7 = Very much). The eight items of the DFI have been shown to reliably load on a single factor (e.g., Segrin, 1993). The DFI scores are considered to indicate liking or rejection of the target individual. As there were some age differences between our confederates and participants (our confederates were between ages 19 to 25 years, whereas participants ranged from 19 to 65 years of age), DFI items were modified so as to limit age confounds in ratings. Specifically, raters indicated a desire for future interaction with their partner or *a person like* their partner.

Safety behaviours. Following the conversation, participants completed the Social Behaviour Questionnaire (SBQ; see Study 1 for details), with the exception of 3 items. These 3 items were not administered to the clinical sample because they did not apply to the laboratory social interaction (e.g. “stay on the edge of groups”). Ratings were based on the extent to which participants used each safety behaviour during the interaction.

Participant behaviour rating check. Participant behaviour during the conversation was rated by the participant, confederate, and observer on two dimensions: (1) Anxiety-Related Behaviour (6 items; *show signs of anxiety, speak fluently/clearly, tremble or shake, create uncomfortable pauses, fidget, appear tense or rigid*), and (2) Prosocial Behaviour (5 items; *talk openly about yourself, convey interest in your partner, appear actively engaged in the conversation, appear friendly, were talkative*). Items were designed by Taylor (2007) to tap dimensions which are thought to often underlie the behaviour of socially anxious individuals (e.g., Papsdorf & Alden, 1998; Taylor & Alden, 2005). Items were rated on a seven-point scale (1 = Not at all, 7 = Very much). The two sets of items have demonstrated adequate internal consistency (Cronbach’s α range for Anxiety-Related Behaviour = .67 – .90; Cronbach’s α range for Prosocial Behaviour = .73 – .91; Taylor, 2007).

Confederate check. Experimenters rated confederate behaviour from behind a one-way mirror using the Partner Warmth scale (Taylor, 2007) designed to measure Partner Warmth (friendly, talkative, disinterested, distant, self-disclosive). Items were rated on a seven-point scale (1 = Not at all, 7 = Very much) and were summed to create an overall index of confederate warmth and friendliness. Good internal consistency has been reported for this scale (Cronbach's α range = .72 – .84; Taylor, 2007).

Overview of Analyses

I first examined the SBQ data to compare to the results from Study 1. Inter-rater agreement for participant behaviour was examined to check for distortions in participants' perceptions of their own behaviour. Consistency of confederate behaviour was examined. Finally, standard multiple regression procedures were conducted to assess the association between the safety behaviour subscales and the DFI.

Results

Common factor analysis was used to compare the factor structure of the SBQ in the clinical sample to the factor structure determined in Study 1 using a student sample. Three items included in the 14 item SBQ were not administered to the clinical sample because they did not apply to the laboratory social interaction (e.g. "stay on the edge of groups"). Therefore, eleven items were included in the current analyses.

Preliminary Analyses for Factor Analysis

Before performing the factor analysis, the data was assessed for suitability for factor analysis (analyses conducted using SPSS version 15). The size of the clinical sample presented some concerns for factor analysis, as the ratio of subjects to items is at the minimum that has been suggested by some researchers (see Tabachnick & Fidell, 2007). However, inspection of the correlation matrix revealed the presence of many coefficients of .3 and above. In addition, the Kaiser-Meyer-Olkin value was .73 and Bartlett's Test of

Sphericity reached statistical significance, indicating acceptable factorability of the correlation matrix. Multicollinearity and potential singularity of the correlation matrix were evaluated by examining the correlations between variables. None of the correlations exceeded .90, suggesting no problematically high levels of multicollinearity or singularity in the dataset.

The data were next assessed for linearity, normality, and the presence of outliers. A cursory scanning of the bivariate scatterplot matrix failed to reveal obvious departures from linearity or substantial heteroscedasticity. Normality was assessed through examination of skewness and kurtosis, and frequency histograms and normal probability plots were examined for variables that were potentially non-normal. Two variables were flagged for notable skewness, which suggested the use of ULS would be most appropriate. No outliers were detected.

Factor Structure

The 11 SBQ items were factor analysed for the 62 clinical participants using unweighted least squares with direct oblimin rotation, extracting 2 factors. Listwise deletion removed 2 cases with missing values. The rotated 2 factor solution appeared to replicate the factor structure from Study 1. The 1st factor, which accounted for 26.4% of the total variance, contained items related to self-monitoring, and the 2nd factor, which accounted for 6.8% of the variance, contained items related to avoidance. All items loaded .40 or above on the appropriate factor except for one item which double-loaded on both factors and one item which did not load on either factor. When these items were discarded, this left a total of 9 items which were again factor analyzed for the 62 subjects using unweighted least squares analysis with direct oblimin rotation, extracting 2 factors. In the 9 item rotated 2 factor solution, the 1st factor, self-monitoring, accounted for 37.1% of the total variance and produced 5 items that loaded .50 and above. The 2nd factor, avoidance, accounted for 13.2%

of the variance and produced 4 items loading .56 and above. The intercorrelation between factors 1 and 2 was -.45. The 4 items that loaded on the avoidance factor were summed to produce the Avoidance subscale, and the 5 items that loaded on the self-monitoring factor were summed to produce the Self-Monitoring subscale. See Appendix A for sample items from each subscale.

Internal Consistency

The 9 item SBQ displayed good internal consistency in the clinical sample. The Cronbach alpha coefficient was .83 for the full 9 item scale, .81 for the 4 items of the Avoidance subscale (mean inter-item correlation = .53, ranging from .41 to .67), and .79 for the 5 item Self-Monitoring subscale (mean inter-item correlation = .44, ranging from .24 to .63). Means, standard deviations, and alphas for the 9 item SBQ and its subscales are presented in Table 7.

Confederate Consistency

Examination of the mean and standard deviation for experimenter ratings of confederate warmth and openness suggested that confederates were very consistent in their behaviour ($M = 26.50$, $SD = 1.49$). Scores ranged from 22 to 30, falling within an acceptable range for this measure for a portrayal of a slightly reserved but not unfriendly demeanour.

Perception of Social Behaviour

Inter-rater agreement for participant behaviour was examined to check for severe distortions in participants' perceptions of their own behaviour. The mean for participant self-rating of prosocial behaviour was 21.85 ($SD = 5.09$), while the mean for confederate ratings of prosocial behaviour was 24.08 ($SD = 4.99$). The mean discrepancy between participant and confederate rated prosocial behaviour was -2.32 ($SD = 5.23$), meaning that participants in general somewhat underestimated their own prosocial behaviour relative to an objective observer. One subject significantly under-rated her prosocial behaviour relative to the

confederate ratings, underrating her prosocial behaviour (including degree of talkativeness and expression of interest, which are also observable signs of the use of certain safety behaviours) by 20 points, which is 3.38 SDs away from the norm of the sample. Due to extreme inaccuracy in self behaviour ratings, this subject was eliminated from further analyses.

Regression

A multiple regression analysis was conducted in which the Avoidance and Self-monitoring safety behaviour subscales were used to predict the DFI. Listwise deletion was used to remove 2 cases with missing values. No further cases were removed, as Examination of Mahalanobis distances and Cook's distances associated with each score revealed no major outliers. Examinations of the normal probability plot of the regression standardized residual and the scatterplot of the standardized residuals suggest no major violations of the assumptions of normality, linearity, homoscedasticity, or independence of residuals.

Participant use of avoidance safety behaviours and self-monitoring safety behaviours together explained 9.3% of the variance present in confederate desire for future interaction with participants, Adjusted $R^2 = .093$, $F(2, 56) = 3.97$, $p = .024$. Avoidance behaviour, controlling for self-monitoring behaviour, was significantly associated with DFI, $\beta = -.38$, $t(58) = -2.77$, $p = .008$. In contrast, self-monitoring behaviour, controlling for avoidance behaviour, was not significantly associated with DFI, $\beta = .09$, $t(58) = .65$, $p = .52$. Beta values, standard errors, and standardized betas are presented in Table 8.

Discussion

The first goal of this study was to replicate the results from Study 1. The results of the present study were consistent with the findings of Study 1 and support the psychometric validity and reliability of the SBQ in a clinical sample of individuals with a primary diagnosis

of social anxiety disorder. The two-factor structure of the SBQ was upheld, with each factor showing a moderate to high degree of internal consistency.

The second goal of the present study was to examine the effect of types of safety behaviours on interpersonal outcomes, specifically, how safety behaviour use affects conversation partners' liking of SAD participants. As predicted, the avoidant behaviours were negatively associated with likability. Interestingly, the self-monitoring behaviours did not have a significant association with likability after controlling for avoidant behaviours.

The results of this study are consistent with previous research associating the use of self-protective behaviour with negative perceptions and rejection by others (Alden & Bieling, 1998; Meleshko & Alden, 1993). Furthermore, these results support the supposition that safety behaviours may sometimes be responsible for eliciting negative social responses (e.g., Alden & Taylor, 2004; Clark, 2001). This decrease in likability associated with avoidant behaviours could be particularly detrimental for those with SAD in that it could potentially prevent these individuals from achieving positive social experiences and instead simply reinforce their fears.

This research also supports this existence of different types of behaviours with distinct effects. Discovering differences in safety behaviours and their outcomes may have important implications for treatment, e.g., it could inform clinicians which safety behaviours would be most crucial to fade out and which might be innocuous or beneficial. The SBQ would be a helpful tool in this regard, in both clinical and research settings, by providing an assessment of safety behaviours usage.

Readers are cautioned that the results of this study are based on a single laboratory getting acquainted task. In addition, the interaction task used scripted confederate verbal and nonverbal behaviour. Although this procedure increased the consistency of the interpersonal stimulus provided to participants, it also may limit generalizability of results. Further research

examining safety behaviour use in more natural settings and in situations other than first-time social encounters would be helpful in determining generalizability of results.

GENERAL DISCUSSION

The purpose of this thesis research was to examine types of safety behaviours and their impact on interpersonal outcomes. Study 1 was conducted in a sample of undergraduate psychology students to evaluate the validity of the SBQ and to identify dimensions of safety behaviours. Study 2 was designed to replicate the results of Study 1 in a clinical sample. A further aim of Study 2 was to establish whether types of safety behaviours used could predict likability of participants. This final discussion section will review the findings from these studies and discuss potential limitations of the studies and possibilities for future research.

Main Findings

The results of this thesis support the findings that individuals with SAD make extensive use of behaviours to manage or avoid their perceived threats. The findings further indicate that the SBQ measures at least 2 distinct classes of strategies people with social anxiety use to cope with these perceived threats, and these strategies can be meaningfully classified in the following categories: avoidance and self-monitoring. The present results indicate that the SBQ is psychometrically valid and reliable among a sample of students and a clinical sample of persons with a primary diagnosis of SAD. In addition, there is preliminary evidence for the construct validity of the SBQ. Finally, based on laboratory social interactions with participants in the clinical sample, avoidant behaviours appear to be negatively associated with likability, whereas self-monitoring behaviours have no apparent association with likability.

Limitations/Directions for Future Research

A number of limitations should be acknowledged concerning the current research. For research purposes, self report is often the most convenient method of measurement of safety behaviour; however, this method poses some potential difficulties: Are people aware of the behaviours they use? Are they able to report these behaviours accurately? Can they

identify the motives behind their actions? The utility of a self-report measure of safety behaviour is dependent on the assumption that people are able to adequately identify and describe their own behaviours and motivations. Measurement of safety behaviours is further complicated by the fact that many people use these behaviours habitually and may not recall the initial purpose. While there is a general consensus in the research as to the definition of safety behaviours, clearly a number of important conceptual and definitional issues remain, such as the boundary between safety behaviours and adaptive coping strategies (see Thwaites & Freeston, 2005).

In spite of these issues, previous research suggests that clinical populations are able to understand the concept of safety behaviours and identify many of their safety behaviours (e.g., Kim, 2005; Salkovskis et al., 1999; Wells et al., 1995). Consistent with these studies, participants in the present study appeared to understand the concept of safety behaviours and appeared able to identify their own behaviours. As accurate understanding of the definition of safety behaviour may be one key factor to help ensure that participants are rating their specific use of *safety* behaviours, the instructions of the SBQ were extended in the present study in order to make this distinction clearer. However, future work is needed to address questions regarding the definitional boundaries of safety behaviours.

One limitation of the current study is the use of retrospective identification of safety behaviours, which could lead to a biased or inaccurate account of behaviours used. In addition, the derivation of subscales was based on a sample composed of undergraduate psychology students, which may limit generalizability of results. Another potential limitation may be the brevity of the SBQ, as a number of safety behaviours are not included in the scale. However, safety behaviours used by people with SAD are often idiosyncratic, and inclusion of all the possible safety behaviours in a single scale would result in an extremely unwieldy, if not infinite, scale. Discovery of any categories of safety behaviours might be helpful in this

regard by creating shorter lists that might be useful in identifying problem areas to focus on in treatment.

I would also like to draw the reader's attention to the fact that this is a revised scale, and 3 items from the original SBQ have not been evaluated as they were replaced with 3 items more suited to our experiment. Future research should investigate and compare the original measure with our results, as well as investigate other items and potential categories of safety behaviours not included in the current measure.

Conclusion

In summary, the results of the present research are supportive of other research on SAD, which suggest that safety behaviours may evoke negative responses from others. This work expands on the literature, however, in that it serves as the first research to evaluate types of safety behaviours in social anxiety and differential effects during a complex social interaction. Furthermore, this research highlights the importance of investigating the diversity of safety behaviours, their potential costs and benefits, and what their role should be in the treatment of SAD.

Table 1

Factor Pattern Matrix for the Two Factor Solution, Communalities, and Percent of Total Variance Accounted for by Each Factor.

Item	Factor 1:	Factor 2:	Communalities
	Avoidance	Self-Monitoring	
12	0.82	-0.03	0.64
11	0.74	-0.06	0.51
8	0.65	0.08	0.48
9	0.63	0.08	0.45
13	0.62	-0.02	0.38
10	0.61	0.02	0.38
7	0.55	0.01	0.31
3	0.53	0.01	0.28
14	0.44	-0.01	0.19
2	-0.15	0.86	0.63
1	-0.06	0.73	0.49
4	0.14	0.51	0.35
6	0.17	0.50	0.37
5	0.27	0.47	0.42
Percent of Variance	33.63	8.45	

Note. Factor loadings greater than 0.40 appear in boldface.

Table 2

Means, Standard Deviations, and Cronbach's Alpha Values of the 14 item SBQ and its Subscales.

Scale	<i>N</i>	Mean	SD	Cronbach's Alpha
Avoidance	264	24.19	13.07	0.85
Self-Monitoring	268	21.40	8.01	0.78
Total	269	45.62	18.30	0.87

Table 3

Intercorrelation Matrix of SBQ Subscales with Measures of Social Anxiety, Worry, Depression, Agoraphobia, and Blood/Injury Phobia.

Domain	Avoidance	Self-Monitoring	Total
Social Anxiety			
SIAS	.65**	.37**	.62**
SPS	.52**	.39**	.54**
FQ-Soc	.56**	.28**	.52**
Depression			
BDI-II	.37**	.25**	.36**
Worry			
PSWQ	.30**	.36**	.38**
Agoraphobia			
FQ-Ag	.30**	.14*	.27**
Blood/Injury Phobia			
FQ-B/I	.23**	.15*	.24**

Note. SIAS = Social Interaction Anxiety Scale; SPS = Social Phobia Scale; FQ-Soc = Fear Questionnaire Social Phobia Subscale; BDI-II = Beck Depression Inventory II; PSWQ = Penn State Worry Questionnaire; FQ-Ag = Fear Questionnaire Agoraphobia Subscale; FQ-B/I = Fear Questionnaire Blood/Injury Phobia Subscale.

* $p < .05$; ** $p < .01$.

Table 4*Correlations Between the 14 item SBQ Subscales and the IIP-32 Subscales.*

IIP-32 Subscale	Avoidance	Self-Monitoring	Total
1. Domineering	.25**	.14*	.23**
2. Vindictive	.36**	.18**	.33**
3. Cold	.42**	.13*	.35**
4. Socially avoidant	.56**	.20**	.49**
5. Nonassertive	.36**	.26**	.37**
6. Exploitable	.34**	.24**	.35**
7. Overly nurturant	.14*	.17**	.17**
8. Intrusive	.06	.07	.08

Note. * $p < .05$; ** $p < .01$.

Table 5

Means and Standard Deviations of the 14 item SBQ and its Subscales in Participants with and without SAD Symptoms of Clinical Severity.

	<i>N</i>	Mean	SD
Avoidance			
with severe SA	74	34.12	11.19
without severe SA	188	20.26	11.68
Self-Monitoring			
with severe SA	78	25.60	6.90
without severe SA	188	19.57	7.77
Total			
with severe SA	78	59.44	15.40
without severe SA	189	39.80	16.26

Table 6

Factor Pattern Matrix for the Two Factor Solution, Communalities, and Percent of Total Variance Accounted for by Each Factor for the Clinical Sample.

Item	Factor 1:	Factor 2:	Communalities
	Self-Monitoring	Avoidance	
5	0.80	0.06	0.60
2	0.79	0.06	0.58
4	0.69	0.04	0.45
1	0.55	-0.10	0.37
6	0.50	-0.14	0.34
7	-0.09	-0.89	0.72
9	-0.05	-0.73	0.50
3	0.08	-0.68	0.52
8	0.21	-0.56	0.46
Percent of			
Variance	37.05	13.16	

Note. Factor loadings greater than 0.40 appear in boldface.

Table 7

Means, Standard Deviations, and Cronbach's Alpha Values for the 9 Item SBQ and its Subscales in the Clinical Sample.

Scale	<i>N</i>	Mean	SD	Cronbach's Alpha
Avoidance	60	13.00	7.78	0.81
Self-Monitoring	62	21.19	9.04	0.79
Total	60	34.43	14.24	0.83

Table 8

Betas, Standard Errors, and Standardized Betas for the Regression Predicting DFI from Avoidance and Self-Monitoring.

	B	S.E. B	β
(Constant)	35.93	3.59	
Avoidance	-.53	.19	-.38**
Self-Monitoring	.11	.16	.09

Note. $R^2 = .12$. ** $p < .01$.

FOOTNOTES

¹ Research presented in this thesis will be submitted for publication.

² For each variable, skewness and kurtosis ratios were calculated by dividing the skew and kurtosis by their respective standard errors. Ratios were evaluated with reference to the normal distribution, and those above 2.59 (corresponding to $\alpha = .01$) were flagged for further examination.

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APPENDICES

Appendix A

Instructions and Sample Items from the SBQ

Most people experience social anxiety in at least some social situations. This anxiety arises because they worry that they will do the wrong thing and that others will respond negatively to them. When people think they might be embarrassed or humiliated, they feel unsafe and often do things to try to increase their sense of safety and to prevent their feared outcome from happening. For example, some people deliberately do things to avoid drawing attention to themselves, such as not talking. Others try to be witty or funny so that others won't disapprove of them. We are interested in the actions that people **DELIBERATELY** use to increase their sense of safety or to try to prevent negative social outcomes.

Take a moment to think about social situations in which you experience anxiety. Using the rating scale below, please indicate how often you deliberately do each of the following things to make yourself feel safer or to try to prevent your feared outcome(s) from happening.

Avoidance Subscale

1. Hide or cover your face
2. Deliberately avoid eye contact
3. Try not to attract attention to yourself

Self-Monitoring Subscale

1. Make an effort to get your words right
2. Check that you are coming across well
3. Rehearse sentences in your mind

Appendix B

Safety Behaviour Survey

The questions on this survey will be focused only on the first questionnaire in your packet, the SBQ. Please take a moment to reread the instructions for this questionnaire.

1. Can you tell me, in your own words, what it was we were asking you to rate? You can refer back to the questionnaire if you need to. (This scale is measuring the use of safety-seeking behaviours. How would you define safety-seeking behaviours, based on the instructions given? Is there a purpose behind them?)

Components listed:

- ☐ actions ☐ in social situations ☐ when anxious/uncomfortable
☐ deliberate ☐ to keep safe/prevent negative outcomes

Poor description		Satisfactory		Excellent description
0	1	2	3	4

2. How clear were the instructions?

Not at all clear		Moderately clear		Very clear
0	1	2	3	4

3. (As I mentioned before) This scale is measuring the use of safety-seeking behaviours. Do you use safety-seeking behaviours deliberately or automatically? (Do you ever use them deliberately/automatically?)

____ deliberate ____ automatic ____ both ____ not sure ____ N/A (end survey)

4. What percentage of the time do you use them deliberately vs. automatically?

% deliberate = _____ % automatic = _____

5. People sometimes use safety-seeking behaviours for a purpose, to help them in some way or protect them from something. Why do you use safety-seeking behaviours? (What might happen if you didn't use safety-seeking behaviours?)

____ To keep myself safe/prevent negative outcomes

____ To cope with anxiety

____ Not sure

____ Other: _____

6. Do you find safety-seeking behaviours helpful in keeping you safe? How often?

Never		Sometimes		Very Often
0	1	2	3	4

7. Do safety-seeking behaviours ever backfire on you and result in negative outcomes? How often?

Never		Sometimes		Very Often
0	1	2	3	4

Appendix C

UBC Research Ethics Board Certificate of Approval (Study 1)



The University of British Columbia
Office of Research Services
Behavioural Research Ethics Board
Suite 102, 6190 Agronomy Road,
Vancouver, B.C. V6T 1Z3

CERTIFICATE OF APPROVAL - MINIMAL RISK

PRINCIPAL INVESTIGATOR: Lynn E. Alden	INSTITUTION / DEPARTMENT: UBC/Arts/Psychology, Department of	UBC BREB NUMBER: H07-00580
INSTITUTION(S) WHERE RESEARCH WILL BE CARRIED OUT:		
<small>Institution</small>	<small>Site</small>	
UBC		Point Grey Site
Other locations where the research will be conducted: Not applicable		
CO-INVESTIGATOR(S): Melissa Plasencia		
SPONSORING AGENCIES: Social Sciences and Humanities Research Council of Canada (SSHRC) - "Safety Behaviours and Cognitive Biases in Generalized Social Phobia"		
PROJECT TITLE: Psychometric Investigation of Anxiety Measures		

CERTIFICATE EXPIRY DATE: July 16, 2008

DOCUMENTS INCLUDED IN THIS APPROVAL:	DATE APPROVED: July 16, 2007
<small>Document Name</small>	<small>Version</small> <small>Date</small>
Advertisements:	
Advertisement for Subject Pool Website	N/A March 12, 2007
Questionnaire, Questionnaire Cover Letter, Tests:	
Cover Letter	N/A May 29, 2007
Questionnaires	N/A May 29, 2007
Other:	
Not applicable	
The application for ethical review and the document(s) listed above have been reviewed and the procedures were found to be acceptable on ethical grounds for research involving human subjects.	
<p>Approval is issued on behalf of the Behavioural Research Ethics Board and signed electronically by one of the following:</p> <hr style="width: 50%; margin: 10px auto;"/> <p>Dr. Peter Suedfeld, Chair Dr. Jim Rupert, Associate Chair Dr. Arminee Kazanjian, Associate Chair Dr. M. Judith Lynam, Associate Chair Dr. Laurie Ford, Associate Chair</p>	

Appendix D

UBC Research Ethics Board Certificate of Approval (Study 2)



The University of British Columbia
Office of Research Services and Administration
Behavioural Research Ethics Board

Certificate of Approval

PRINCIPAL INVESTIGATOR Alden, L.E.		DEPARTMENT Psychology	NUMBER B04-0068 Modification of This is a modified version of file #101-0079
INSTITUTION(S) WHERE RESEARCH WILL BE CARRIED OUT UBC Campus			
CO-INVESTIGATORS:			
SPONSORING AGENCIES Social Sciences & Humanities Research Council			
TITLE Social Phobia and Assimilation of Positive Information			
APPROVAL RENEWED DATE FEB 24 2006	TERM (YEARS) 1	AMENDMENT Feb. 20, 2006, Research method / Consent form / Questionnaires	AMENDMENT APPROVED FEB 24 2006
<p>CERTIFICATION</p> <p>The request for continuing review and amendment of the above-named project has been reviewed and the procedures were found to be acceptable on ethical grounds for research involving human subjects.</p> <p><i>Approved on behalf of the Behavioural Research Ethics Board</i> by one of the following: Dr. Peter Suedfeld, Chair, Dr. Susan Rowley, Associate Chair Dr. Jim Rupert, Associate Chair Dr. Arminee Kazanjian, Associate Chair</p> <p>This Certificate of Approval is valid for the above term provided there is no change in the experimental procedures</p>			