

***“I Need My Blanket When I’m Scared.” The Nature and Use of Safety Behaviours
in Children and Adolescents***

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Table of Contents

List of Tables	5
List of Figures	7
Abstract	8
Statement of Candidature.....	10
Acknowledgements.....	12
General Introduction.	14
1. Anxiety Disorders	14
2. Safety Behaviours – An Introduction.....	16
3. The Impact of Safety Behaviour on Exposure Therapy	19
4. Safety Behaviour Research in Youth	23
5.. Assessment of Safety Behaviours.	26
6. Summary and Aims of the Thesis.	30
References.....	32
1. Introduction.....	44
1.1. The Importance of Safety Behaviours in Exposure Therapy.	45
1.2. Safety Behaviour Research in Youth	48
2. Method.....	50
2.1. Participants	50
2.2. Measures.....	50
2.3. Procedure.....	51
5. Results.....	52
3.1. Sample Characteristics	52
3.2. Categories of Safety Behaviours	53
3.3. Beliefs Regarding the Role of Safety Behaviours.....	56
3.4. Beliefs Regarding Consequences of Lack of Safety Behaviour	59
3.5. Association Between Safety Behaviour and Coping Beliefs	61
4. Discussion.....	61
4.1. Limitations	63
4.2. Implications for Future Research	64
References.....	66
STUDY 2	73
Abstract.....	74
1. Introduction.....	75

1.1. The Importance of Safety Behaviours in Exposure Therapy.	75
1.2. Safety Behaviour Research in Youth	78
2. Method	80
2.1. Initial Item Generation	80
2.2. Participants	81
3. Results.....	85
3.1. Whole Sample Analyses.....	86
3.2. Clinical Sample Analyses.....	94
3.3. Control Sample Analyses.	96
4. Discussion	96
4.1. Strengths and Limitations.....	97
4.2. Clinical Implications	98
General Discussion	109
1. Summary of Findings	109
2. Strengths, Limitations, and Future Directions	113
3. Implications.....	114
4. Conclusion.....	116
References.....	117
Appendix A: Semi-Structured Interview Scripts	121

List of Tables

General Introduction.

Table 1: *Examples of Safety Behaviours Across Anxiety Domains*

Study One.

Table 1: *Safety Behaviour Categories and Verbatim Examples*

Table 2: *Frequency of Reported Safety Behaviours by Gender, Participant Status, and Age Group (N=188)*

Table 3: *Verbatim Examples of Responses to Questions Two, Three, and Four*

Table 4: *Descriptive Statistics and Chi-Square Analyses for Beliefs about the Role of Safety Behaviours, by Gender, Participant Status, and Age Group (N=188)*

Table 5: *Descriptive Statistics and Chi-Square Analyses for Beliefs About Whether Safety Behaviours Change Outcomes, by Gender, Participant Status, and Age Group (N=188)*

Table 6: *Descriptive Statistics and Chi-Square Analyses for Coping Beliefs, by Gender, Participant Status, and Age Group (N=188)*

Table 7: *Mean SCAS and SCAS Subscale Scores Between Participants Who Believed They Would Cope With and Without Their Safety Behaviour*

Study Two.

Table 1: *Demographic and Diagnostic Characteristics of the Clinical Sample (n=196)*

Table 2: *Factor Loadings for the 27-Item SBICA in the EFA Sample (n=182)*

Table 3: *Mean SBICA and Subscales Scores of Clinical and Non-Clinical Participants, Controlling for Age and Gender*

Table 4: *Correlations Between the SBICA and its Subscales and Other Administered Measures (N=365)*

Table 5: *Correlations Between Total SBICA and Subscale Scores and Additional Measures of Psychopathology in the Clinical Sample Prior to Treatment (n = 196)*

List of Figures

Study One.

Figure 1: Mean SCAS Separation subscale score by safety behaviour category.

Figure 2: Mean SCAS Social subscale score by safety behaviour category.

Study Two.

Figure 1: Confirmatory factor analysis path diagram of the three-factor model of the 27-item SBICA.

Abstract

Safety behaviours have been found to undermine successful exposure in the treatment of anxiety disorders for both adults and children. Although reliable measures of safety behaviour exist in the adult literature, no such measure has been developed specifically for child and adolescent populations. This thesis aimed to address this gap in the literature through two studies. Study One collected qualitative data from children and adolescents to explore their understanding, conceptualisation, and ability to report on safety behaviour use. This provided the foundation for Study Two, which focused on the development and psychometric evaluation of the *Safety Behaviour Inventory for Children and Adolescents* (SBICA), a measure of safety behaviours in youth. Three factors were identified from the SBICA, which reflected checking behaviours, behaviours related to image management, and behaviours related to physical protection. The SBICA and its subscales demonstrated strong internal consistency, test-retest reliability, construct validity, and the ability to discriminate between clinical and non-clinical participants. The SBICA was also responsive to the effects of treatment. Given its good psychometric properties, the SBICA will prove valuable for both research and clinical purposes.

Statement of Candidature

I certify that the research described in this thesis has not already been submitted for any other degree.

I certify that this submission is my own work and that to the best of my knowledge all sources used and any help received in the preparation of this dissertation have been acknowledged. The contributions of each of the authors listed for the two studies contained in this thesis are detailed by study below.

Study 1 and 2: Cindy Chapman was responsible for formulation of research questions, application for Ethics Committee approval, data preparation, statistical analysis and preparation of both studies. Professor Ronald Rapee supervised the design, statistical analysis and writing of both studies. The Centre of Emotional Health provided the dataset for clinical participants used in this thesis.

Signature _____

Cindy Chapman

Date 09/12/2017

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General Introduction.

1. Anxiety Disorders

Given the current and growing state of awareness in the clinical and public world, it is hard to believe that anxiety disorders were once commonly believed to be benign. With a rising interest over the past two decades, they are now recognised as the most common and earliest of forms of psychopathology in childhood and adolescence. With prevalence estimates ranging from 8-20%, these disorders typically onset in early childhood and can follow a chronic course into late adolescence and adulthood (for a review, see Costello, Egger, & Angold, 2004). Anxiety disorders have profound impact throughout an individual's life course, causing low academic achievement, employment difficulties, greater reliance on welfare and medical services, family dysfunction, and reduced quality of life (Bittner et al., 2007; Essau, Conradt, & Petermann, 2000; Ezpeleta, Keeler, Erkanli, Costello, & Angold, 2001; Ialongo, Edelsohn, Werthamerlarsson, Crockett, & Kellam, 1994). Furthermore, these disorders rarely occur in isolation, with 40-60% of anxious children meeting criteria for more than one anxiety disorder, and are highly comorbid with other psychiatric disorders, especially depression (Kashani & Orvaschel, 1990; Lewinsohn, Zinbarg, Seeley, Lewinsohn, & Sack, 1997; Rapee, Schniering, & Hudson, 2009).

In light of these concerns, it is crucial to investigate the underlying mechanisms and factors that maintain anxiety in order to develop effective treatment programs. At present, the best researched class of, and the gold-standard for evidence-based psychosocial treatments for anxiety disorders in both youth and adults is cognitive-behavioural therapy (CBT). Developed on the foundation of cognitive-behavioural theories, CBT aims to teach anxious individuals cognitive and behavioural skills needed to function more adaptively in their lives (Deacon & Abramowitz, 2004; Hofmann & Smits, 2008).

Specific manualised programs have been developed for different anxiety disorders and while all share the core CBT components (e.g., psychoeducation, cognitive restructuring, exposure), each program is tailored to a clients' specific feared outcomes. With the benefits of easy dissemination and accessibility, transdiagnostic programs that are applicable to a range of anxiety disorders using a single treatment approach have also been increasingly used. In particular, these generic programs have been widely used in treating anxious youth, with examples including Cool Kids Child and Adolescent Anxiety Program (Lyneham, Abbott, Wignall, & Rapee, 2003), Coping Cat, and the C.A.T. program (Kendall & Hedtke, 2006; Kendall, Muniya, Hudson, & Webb, 2002).

1.2. The Importance of Exposure

The most common therapeutic techniques utilised in CBT involve cognitive restructuring to target irrational thoughts and beliefs, and exposure therapy which involves the systematic exposure to feared stimuli (Abramowitz, Deacon, & Whiteside, 2012). As stated by Kashdan and Herbert (2001) on the fundamental role of facing fears through exposure therapy, "Exposure is a cornerstone of all behavioural and cognitive-behavioural interventions for anxiety disorders (p.49). From a cognitive perspective, exposure techniques provide opportunities to test dysfunctional beliefs, and in turn generate more realistic ways of thinking and understanding. It allows clients to treat their anxiety-provoking beliefs as testable hypotheses rather than true facts, and equips them with tools to explore and generate more helpful and realistic ways of viewing situations.

Theories about the underlying mechanisms responsible for the effects of exposure therapy have evolved greatly over the years, and exposure is now framed within a modern learning theory perspective (Craske, Treanor, Conway, Zbozinek, & Vervliet, 2014). Current research emphasises the role of extinction – a process now understood to reflect the development of new relational learning (Bouton, 1993). Indeed, clinically anxious individuals

generally show impaired extinction learning and memory (Craske, Liao, Brown, & Vervliet, 2012). Thus, exposure involves behavioural strategies designed to optimise fear extinction. Given that threat expectancies lie at the core of anxious pathology (Rief et al., 2015), exposure works to violate these expectancies via repeated confrontation to the feared situation. In doing so, the non-occurrence of feared outcomes is recognised and consolidated, enabling new learning that particular situations or stimuli are safe, which in turn reduces the individual's capacity to elicit fear (Craske et al., 2014; Hermans, Craske, Mineka, & Lovibond, 2006).

2. Safety Behaviours – An Introduction

One crucial factor that has been found to hinder effective exposure and treatment is avoidance during exposure tasks, which often occurs through the use of safety behaviours, also called “safety-seeking behaviours, “subtle avoidance behaviour” and “cognitive avoidance” in previous research (Clark & Wells, 1995; Dugas, Gagnon, Ladouceur, & Freeston, 1998; Hedtke, Kendall, & Tiwari, 2009; Rapee & Heimberg, 1997; Salkovskis, 1991). The research into safety behaviours in the adult literature has been an integral piece of the puzzle as to why individuals may continue to experience anxiety despite ‘successful’ and repeated exposure to feared events in which they experience no negative outcomes (Kim, 2005; Salkovskis, Clark, Hackmann, Wells, & Gelder, 1999). However, the construct of safety behaviours is not limited to anxiety and it has been documented in other domains such as chronic pain, health psychology, depression, and sleep disorders (Harvey, 2002; Moulds, Kandris, Williams, & Lang, 2008; Olatunji, Etzel, Tomarken, Ciesielski, & Deacon, 2011; Sharp, 2001; Tang et al., 2007).

Safety behaviours are cognitive or behavioural strategies that are employed to reduce the experience of anxious feelings and/or the risk of feared outcomes occurring, without

having to completely avoid the situation (Salkovskis, 1991). (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996; Salters-Pedneault, Tull, & Roemer, 2004)

Further to this definition, safety behaviours have been described as dysfunctional emotion regulation strategies (Barlow, Allen, & Choate, 2016). They include both active and overt behaviours (e.g., frequently washing hands), as well as covert restriction of behaviours (e.g., avoiding eye contact). The particular use of safety behaviours is linked to the specific and anticipated perceived threat of an individual, and such use is prevalent across all anxiety-related disorders (Salkovskis, 1991). A notable consideration in defining safety behaviours has been distinguishing them from a similar group of behaviours known as ‘adaptive coping strategies’. Whereas safety behaviours seek to “prevent or minimise a feared catastrophe” (Clark, 1999), adaptive coping strategies are also used for the purpose of anxiety reduction, but not for “imagined” catastrophes, and thus they do not maintain or worsen anxiety by preventing disconfirmation of unhelpful beliefs (Thwaites & Freeston, 2005).

Table 1 presents examples of safety behaviours and their related threats across various anxiety domains, based on previous descriptions by Telch and Lancaster (2012), and Helbig-Lang and Petermann (2010).

Table 1.

Examples of Safety Behaviours Across Anxiety Domains

Anxiety Domain	Examples
Social anxiety disorder	<ul style="list-style-type: none"> - Avoiding eye contact - Monitoring speech - Mental rehearsal
Panic disorder/Agoraphobia	<ul style="list-style-type: none"> - Carrying medication - Focusing on bodily cues/sensations - Checking for exits - Always having someone accompany them out

Obsessive-Compulsive Disorder	<ul style="list-style-type: none"> - Repeated checking - Neutralising (e.g., praying, counting) - Thought suppression
Generalised Anxiety Disorder	<ul style="list-style-type: none"> - Making extensive lists - Reassurance seeking - Over-preparing for school/work tasks
Health Anxiety	<ul style="list-style-type: none"> - Reassurance seeking - Excessive medical visits (e.g., “doctor shopping”)

2.1. Underlying mechanisms. While the use of safety behaviours may bring immediate relief to an anxious individual, cognitive models suggest that prolonged use is problematic in three respects. First, they maintain anxiety by interfering with unrealistic threat disconfirmation despite facing feared situations. That is, the individual will often attribute the non-occurrence of a feared event to the safety behaviours in which they engaged, thereby preventing them from gaining information to contradict their threat belief (Clark & Wells, 1995; Salkovskis, 1991). Second, safety behaviours may actually exacerbate the anxiety symptoms they were intended to alleviate (Deacon & Maack, 2008). For example, deliberate efforts to suppress unwanted thoughts may in fact increase the frequency of these suppressed thoughts, thus intensifying the feared negative responses to them. Third, as an individual’s attentional resources are allocated to self-monitoring and executing safety behaviours, not only are fewer attentional resources available for processing new information about the feared situations, a paradoxical effect occurs in which these behaviours contaminate the feared situations (Powers, Smits, & Telch, 2004; Sloan & Telch, 2002). For example, a socially anxious individual may go to great lengths to avoid eye contact for fear of negative evaluation. Ironically, avoiding eye contact increases the likelihood of the individual’s fear occurring as they may seem distant and uninterested, thus inviting negative responses from others. The cyclical nature of avoiding eye contact in this situation means that the individual

is less likely to receive positive feedback from others and be ignored, thus strengthening their belief that they will receive negative responses in such situations.

3. The Impact of Safety Behaviour on Exposure Therapy

A body of research involving both laboratory studies and clinical trials with adults has shown support for the deleterious role of safety behaviours in maintaining anxiety (Furukawa et al., 2009; Kim, 2005; McManus, Sacadura, & Clark, 2008; Moscovitch et al., 2013; Plasencia, Alden, & Taylor, 2011; Rowa et al., 2015; Taylor & Alden, 2010). Laboratory studies focusing on socially anxious individuals have shown that safety behaviour use elicits poorer objective performance ratings and negative reactions from others, and leads to greater post-event negative affect (Moscovitch et al., 2013; Plasencia et al., 2011; Rowa et al., 2015). On the other hand, eliminating the use of safety behaviours in tasks leads to better performance ratings by observers and group members, greater symptom reduction, and more accurate self-appraisals (Furukawa et al., 2009; Kim, 2005; McManus et al., 2008; Taylor & Alden, 2010).

Wells and colleagues (1995) were the first to examine the deleterious role of safety behaviours in a treatment context focusing on social anxiety disorder, and the beneficial effects of dropping safety behaviours in exposure therapy have been replicated numerous times over the past 20 years (Craske, Street, & Barlow, 1989; Morgan & Raffle, 1999; Salkovskis et al., 1999; Salkovskis, Hackmann, Wells, Gelder, & Clark, 2007; Sloan & Telch, 2002; Telch, Sloan, & Smits, 2000; Williams, Dooseman, & Kleifield, 1984). These study designs have commonly manipulated the use and availability of safety behaviours during exposure therapy, and findings generally demonstrate that eliminating the use of these behaviours leads to greater symptom reduction and overall treatment outcome, in addition to enhanced feelings of self-efficacy and greater cognitive change. For example, in a study focusing on CBT for social anxiety disorder, half the participants received normal treatment,

while the other half received psychoeducation about safety behaviours and instructions to drop them during exposure tasks. Whilst both conditions lead to reductions in social anxiety at post-treatment, greater reductions were experienced by the latter group (Morgan & Raffle, 1999).

While the majority of studies on safety behaviours have focused on social anxiety disorder, research into safety among other anxiety subtypes has grown in recent years, providing new insight on the role of safety behaviours in exposure therapy for anxiety disorders in the broader context. For example, individuals with panic disorder and agoraphobia who refrained from using safety behaviours in just one session of exposure reported a greater reduction in catastrophic beliefs about their panic symptoms, compared to those who were instructed to use them (Salkovskis et al., 2007). Similarly, individuals with claustrophobia who are allowed to use safety behaviours during exposure tasks (e.g., standing near exits while in confined rooms) reported greater fear and anxious symptoms at post-treatment and follow-up, compared to those who were instructed to reappraise their perceived threat (Sloan & Telch, 2002). Interestingly, it has also been found that just having the option to engage in safety behaviour use, even if they are not necessarily used, is enough to interfere with anxiety reduction in those with specific phobias (Powers et al., 2004).

While the above research supports the anti-therapeutic effect of safety behaviours in the context of exposure-based treatments, there is emerging evidence that use of safety behaviours does not necessarily hinder therapy gains, and can sometimes facilitate the effects or use of exposure. In a review of the safety behaviour literature, Rachman, Radomsky and Shafran (2008) proposed that the “judicious” use of safety behaviours has the potential to facilitate fear reduction and cognitive change. The authors described judicious use as “the careful use of safety behaviour, with an emphasis on the early stages of treatment” (p. 160). Safety behaviour use is initially allowed, and then gradually faded out during the course of

exposure therapy. By allowing individuals to use safety behaviours in early treatment sessions, it may allow them to feel a greater sense of control and security over therapy which in turn may allow them to more readily “absorb corrective information about the threat” (p. 170). The authors stressed that such judicious use of safety behaviours in exposure therapy should not preclude disconfirmatory experiences (i.e., disconfirmation of maladaptive beliefs) or fear reduction. Given that exposure therapy can be quite distressing and daunting for clients, this modification may help with treatment acceptability and cooperation, as well as reducing attrition rates.

Studies that have demonstrated these facilitative effects of safety behaviours on exposure have primarily focused on populations with specific phobia and OCD. In an experimental study involving individuals with a specific fear of spiders, participants engaged in an *in vivo* exposure task (approaching a spider; Hood, Antony, Koerner, & Monson, 2010). Participants that were allowed to use safety behaviours, such as wearing goggles and gloves, were found to approach the spider more quickly than their non-engaging counterparts, although the end distance was equivalent for both groups. Further studies involving single-session exposures with snake fear (Milosevic & Radomsky, 2008) and claustrophobic fear (Deacon, Sy, Lickel, & Nelson, 2010) have similarly found that engaging in limited or planned safety behaviour use does not hinder anxiety reduction.

Although arguments have been raised regarding the facilitative effects of safety behaviour use being limited to phobic fears, similar findings from research focusing on OCD have recently come to light. In particular, as individuals with OCD have great difficulty tolerating exposure therapy, allowing them to engage in safety behaviours may especially improve retention rates and cooperation for this population. In their recent study of contamination fear, safety behaviour use during an exposure task (such as wearing gloves) increased participants’ acceptability of treatment and their approach to feared contaminants

(Levy & Radomsky, 2014). In similar contamination experiments, participants were either in an exposure and response prevention (ERP) condition or exposure followed by a safety behaviour (using a handwipe). Both groups experienced comparable levels of disgust, fear, and danger, suggesting that the response prevention component of ERP is not always necessary (Rachman, Shafran, Radomsky, & Zysk, 2011; van den Hout, Engelhard, Toffolo, & van Uijen, 2011). While these results suggest that preventing safety behaviours may not always be necessary, it appears that engaging in safety behaviours in a graduated manner may not always prevent the disconfirmation of feared outcomes.

Putting the empirical research together, the literature both supports the role of safety behaviours in the maintenance of anxiety and the notion that, in some instances, safety behaviours might not always be anti-therapeutic. Thus, while safety behaviour use overall has been associated with maintaining or increasing anxiety symptoms, reduced feelings of self-efficacy, and less cognitive change (Morgan & Raffle, 1999; Powers et al., 2004; Sloan & Telch, 2002; Wells et al., 1995), permitting their use in early treatment stages may in fact encourage approach behaviour during exposure, and thus facilitate treatment gains.

In their recent meta-analytic review, Meulders and her colleagues evaluated the impact of safety behaviours (termed safety-seeking behaviours (SSBs) in this paper) on 20 exposure-based fear reduction interventions (Meulders, Van Daele, Volders, & Vlaeyen, 2016). They focused on two primary comparisons: 1) studies using exposure without SSBs (i.e., explicit instructions to drop or decrease, or were denied access) versus control conditions (i.e., standard exposure/no instructions or instructions to use SSBs), and 2) those using exposure with SSBs (i.e., explicit instructions to maintain or increase) versus control conditions (standard exposure/no instructions). To account for the different interventions and outcomes measured, the authors used a random effects model which assumes each study is estimating a different treatment effect. For the first comparison, they found a small,

borderline significant overall effect size ($SMD = 0.26, p = .06$) in favour of omitting safety behaviours. For the second comparison, they found a small, non-significant overall effect size ($SMD = - 0.37, p = .28$) in favour of control conditions. Taken together, the results were inconclusive, with no strong evident support for either the removal or addition of safety behaviour use in exposure-based treatments and thus the authors could not provide any clinical recommendations.

While further research is required to elucidate exactly when safety behaviour use should be dropped during exposure, there is a common underlying notion that they play an integral role in exposure therapy. That is, safety behaviours undermine the learning processes that are critical for successful extinction in exposure, and ultimately, research in this field aims to ensure that anxious individuals successfully complete treatment with the belief that they can navigate the world without use of these behaviours. In order to obtain this goal, the development of measures to assess safety behaviour use should be a priority for both clinicians and researchers.

4. Safety Behaviour Research in Youth

Current CBT treatments for children and adolescents by and large parallel the components featured in adult programs, such as the inclusion of cognitive restructuring, relaxation and exposure. Naturally, programs for youth are tailored to accommodate developmental differences, conceptual understanding, and language abilities (Barrett, Dadds, & Rapee, 1996; James, James, Cowdrey, Soler, & Choke, 2013; Kendall & Hedtke, 2006). With necessary adjustments notwithstanding, one notable difference between youth and adult programs is the depth of discussion regarding safety behaviour use, with most youth-focused CBT treatments lacking the explicit inclusion of a safety behaviour-reduction component. For example, the clinician manuals for the child and adolescent CBT programs *Coping Cat* and *C.A.T. Project* indicate that anxious situations should not be avoided, however no elaboration

or examples of safety behaviours to observe or expect during exposure tasks are provided (Kendall & Hedtke, 2006; Kendall et al., 2002). Similarly, while the manuals for the *Cool Kids Child and Adolescent Anxiety Program* do encourage clinicians to “build awareness of possible safety behaviours”, no further guidance such as examples or ways to identify safety behaviours are provided (Rapee et al., 2006; pg 46). This does not suggest that safety behaviours are less important in child and adolescent psychopathology, but rather that research into safety behaviour use in this population is lagging behind the attention received in the adult literature.

Nevertheless, the few studies that have been conducted do indicate that further understanding of these behaviours in this population can lead to improvements in treatments for children. In a correlational study using participants aged 11-14 years, Hodson and her colleagues (2008) investigated the applicability of Clark and Wells’ (1995) model of social phobia to younger people. Participants completed questionnaires measuring social anxiety and the variables hypothesised to maintain social anxiety in the model: negative social cognitions, safety behaviours, self-focused attention, and pre- and post-event processing. Participants were split into “high”, “middle”, and “low” anxiety groups based on their social anxiety questionnaire scores and levels of the presumed maintaining variables were compared. Results demonstrated that the high anxiety group scored significantly higher on all five variables, compared to the low anxiety group. Furthermore, each of the five variables individually predicted social anxiety, suggesting that the overall model may be applied to younger populations. This includes the explicit role of safety behaviours.

Another study recruited children aged 8 to 13 years and identified three groups using diagnostic assessment: children with social anxiety disorder (SAD group), non-clinical, high social anxiety (SA), or non-anxious (NA; Kley, Tuschen-Caffier, & Heinrichs, 2012). All participants then completed a modified version of an adult safety behaviour questionnaire. In

line with research in the adult literature, children with SAD reported that they engaged in more frequent safety behaviour use, as well as a higher number of different safety behaviours compared to their NA counterparts. Interestingly, safety behaviour use in SA children fell between that of SAD and NA children, however did not differ significantly from NA children. This suggests that safety behaviour use may be more of a characteristic of the clinical manifestation of social anxiety disorder, rather than a general characteristic associated with heightened anxiety.

In a clinical trial of 87 children (7-13 years old) with various anxiety disorders who completed a 16-session cognitive-behavioural therapy (Hedtke et al., 2009), researchers analysed video tapes of the exposure sessions for use of safety-seeking behaviours (SSB) and coping behaviour (CB). Children were assessed using the Anxiety Disorders Interview Schedule for Children – Child and Parent Versions (ADIS-C/P; Silverman & Albano, 1996) and the clinician ratings for these, referred to as CSRs (range = 0-8; $CSR \geq 4$ = meeting diagnostic criteria) were used as the primary index of treatment outcome. With regards to the video tapes, SSB and CB were coded and rated using a 6-point scale for each observed exposure task from 1 (*no usage*) to 6 (*a great deal of usage*). For SSB specifically, if the observer rating was higher than 1, then the type of SSB used was also recorded as either *avoidance*, *escape*, *distraction*, or *other*. Results of standard linear regressions demonstrated that use of CB during exposure tasks did not significantly predict CSRs at post-treatment. However, consistent with findings in adults, greater use of SSB during exposure tasks contributed significantly to lower pre- to post-treatment change in CSRs, and the magnitude of this relationship was large.

Thus, while there is a relative paucity of safety behaviour research in young people, the preliminary results support the notion that assessing the use of safety behaviours will

improve understanding of the mechanisms of change in treatment and ultimately improve treatment success.

5.. Assessment of Safety Behaviours

5.1. Current measures for adults. At present, there are seven self-report measures of safety behaviour for adults, however not all are published, and most are limited to a specific anxiety disorder. Social anxiety disorder has no doubt received the most attention in the safety behaviour domain, and thus it is unsurprising that the most widely used questionnaires focus on this disorder. The Social Behaviours Questionnaire (SBQ; Clark et al., 1995) was one of the first questionnaires to measure safety behaviour. Unfortunately, the measure remains unpublished but reported good internal consistency, test-retest reliability and convergence with measures associated with social anxiety symptom severity (Clark et al., 1995; Plasencia et al., 2011). Individuals indicate how likely they are to engage in 28 potential strategies aimed to prevent feared social outcomes (e.g., “gripping a glass tightly”) on a 4-point Likert-scale from 0 (“Never”) to 3 (“Always”). Many studies have either used the original SBQ or modified versions containing fewer items (Hirsch, Meynen, & Clark, 2004; Plasencia et al., 2011; Taylor & Alden, 2010).

Despite its relatively recent development, the *Subtle Avoidance Frequency Examination* (SAFE; Cuming et al., 2009) is an increasingly used measure. While the existing measures of safety behaviour in social anxiety have focused on the typically overt behaviours (e.g., avoiding social situations), the SAFE also includes more subtle behaviours such as “imagine you are somewhere else”. It contains 32 items measuring the frequency of safety behaviours on a 5-point Likert-scale ranging from 1 (“Never”) to 5 (“Always”), and has demonstrated sound convergent and discriminant validity. A principal components analysis of the SAFE revealed three factors: inhibiting or restricting behaviours, more active behaviours aimed at impression management in social situations, and behaviours aimed at

managing the physical symptoms of anxiety (Cuming et al., 2009). Another safety behaviour measure for social anxiety is the *Social Phobia Safety Behaviours Scale (SPSBS*; Kocovski et al., 2016; Pinto-Gouveia, Cunha, & Salvador, 2003), which has demonstrated moderate test-retest reliability and concurrent validity. The scale consists of 15 items rated on a 4-point Likert-scale from “Never” to “Usually” and includes two items in which individuals have the opportunity to add safety behaviours not already included in the list.

Safety behaviour measures for other anxiety disorders are much less frequently used. For panic disorder, the *Texas Safety Maneuver Scale (TSMS*; Kamphuis & Telch, 1998; Telch & Lancaster, 2012) is a 50-item measure of potential safety behaviours exhibited by people with panic disorder with or without agoraphobia. The authors reported good internal consistency and preliminary evidence to support the divergent validity of the scale. For generalised anxiety disorder, a recent unpublished measure has been developed called the *Generalised Safety Behaviour Scale (GSBS*; Baker, Alden, & Robichaud, 2014), which demonstrated sound internal consistency and convergent validity with measures of worry. Lastly, a recent safety behaviour measure specifically developed for specific fear of storms, the *Storm-Related Safety Behavior Scale (SRSBS*; Krause, MacDonald, Goodwill, Vorstenbosch, & Antony, 2017) has demonstrated preliminary evidence of sound convergent and discriminant validity, as well as good test-retest reliability.

While they may allow for greater depth of assessment in some cases, it can be argued that disorder-specific measures are limited by their specificity to one anxiety disorder (Milosevic, 2011; Rector, Kamkar, Cassin, Ayearst, & Laposa, 2011). Measures that can be applied across anxiety disorders would be fruitful for research with mixed anxiety samples, and in a clinical setting as either a screening tool or treatment aid to gauge the spectrum of safety behaviours experienced by those with comorbid anxiety disorders. In addressing this limitation, Milosevic and Radomsky (2011) recently developed the *Safety Behaviour*

Inventory (SBI). This novel measure contains 22 items and requires respondents to indicate the extent that each strategy was essential to their ability to endure a recent anxiety-provoking situation using a 6-point Likert-scale ranging from 0 “did not use” to 5 “extremely essential – could not have endured situation without it”. Identified categories of the featured strategies include escape/vigilance to threat (e.g., “I checked the presence of escape routes”), companionship/reassurance seeking (e.g., “I asked someone for reassurance”), cognitive avoidance/disengagement (e.g., “I pretended not to be there”), and positive focus/minimisation (“I thought of pleasant/calming images”). Preliminary analyses of the full SBI scale using non-clinical adult participants demonstrated sound internal consistency, convergent validity and discriminant validity. However, its subscales failed to demonstrate adequate discriminant and divergent validity. Its contribution to safety behaviour research notwithstanding, the SBI is an unpublished measure in its infancy and the literature will benefit from its further validation and investigation.

5.2. Current measures for children and adolescents. Unfortunately, no child- or adolescent-focused measures of safety behaviour exist. Researchers who intend on exploring safety behaviour use in this population must choose from the selection of aforementioned measures originally designed for adults (Baker et al., 2014; Clark et al., 1995; Cuming et al., 2009; Kamphuis & Telch, 1998; Milosevic & Radomsky, 2011; Pinto-Gouveia et al., 2003). Two experimental studies have used Clark et al.’s Social Behaviours Questionnaire (1995) in their younger participants, with one study using children aged 8 to 13 years (Kley et al., 2012) and the other using youth aged 11 to 14 years (Hodson et al., 2008). Whilst the findings from both studies suggest that models of social anxiety in adults are in some part applicable to children and adolescents, they acknowledge that as the SBQ has no established psychometric properties with under-18s, it may not be a valid measure for use in this population despite demonstrating adequate internal consistency.

Only two studies to date have focused on assessing the ability of an adult safety behaviour measure to be reliably and validly used in anxiety assessments in youth. Thomas and her colleagues (2012) tested the SAFE (Cuming et al., 2009) with adolescents aged 14-17 years with social anxiety, and demonstrated the scale's high internal consistency, as well as strong convergent, divergent and discriminant validity. The authors suggest that this psychometric validation indicates that the SAFE is suitable for inclusion in screening batteries for adolescent social anxiety. Not only could it be used as a measure to screen for the appropriateness of treatment, but it may also be used to determine the extent of an adolescent's safety behaviour use to guide their treatment. In their development of the GSBS for adults, Baker and her colleagues (2014) also examined its psychometric properties using a community sample of older adolescents aged 16 to 18 years. The GSBS demonstrated good internal consistency, and was associated with other measures of worry and uncertainty, similarly suggesting the benefits of its inclusion in youth-focused CBT programs.

While there is value in validating these adult measures, they carry the limitation of not being specifically developed with younger populations in mind, and thus questions remain about their developmental sensitivity. Creating downward extensions of adult scales assumes that children experience and report anxiety in the same way adults do (Campbell & Rapee, 1996). Indeed, using adult scales in younger populations raises validity issues due to developmental differences between the populations, including those regarding cognitive and emotional developmental, reading ability, and language comprehension (Campbell, Rapee, & Spence, 2000; McShane, 1991). Furthermore, the experience and expression of anxiety also distinctly changes from more concrete to abstract themes throughout development into adulthood, thus adult scales may not be assessing the appropriate symptoms and constructs (Emmelkamp & Ehring, 2014; Gullone, 2000; Schniering, Hudson, & Rapee, 2000). Thus, further research specifically in child and adolescent populations is required to determine

whether and how children and adolescents conceptualise safety behaviour, to ensure that appropriate behaviours are being measured.

In summary, the review of the literature on safety behaviours and limitations of current measures raise an important question about the current state of safety behaviour research. Are the existing adult measures of safety behaviour appropriate for use across the developmental lifespan? In light of the idiosyncratic nature of safety behaviours and the aforementioned developmental issues in assessment, there is a need to develop a measure more specifically tailored to the unique emotional, cognitive, and behavioural complexities of childhood and adolescence to ensure that age-appropriate safety behaviours are being measured.

6. Summary and Aims of the Thesis

The continual need to improve current treatments of anxiety disorders requires investigation into the underlying mechanisms of anxious psychopathology. Accordingly, the last decade has seen an emergence of research on the transdiagnostic phenomenon of safety behaviours, which are now understood to have a pivotal role in each of the anxiety disorders (Helbig-Lang & Petermann, 2010; Parrish, Radomsky, & Dugas, 2008; Piccirillo, Taylor Dryman, & Heimberg, 2016). With respect to exposure-based treatment to date, it remains difficult to conclude whether safety behaviour use is always deleterious, and exactly when their use should be dropped during exposure for optimal treatment. Theoretically however, there is a consensus that excessive safety behaviour use clearly undermines learning processes during exposure that are critical for successful extinction (for a review, see Helbig-Lang & Petermann, 2010). In order for research to advance in this domain, the development of more theoretically and psychometrically sound measures of safety behaviours are needed. While there have been attempts to validate adult measures of safety behaviour in younger populations (Baker et al., 2014; Cuming et al., 2009), child-specific measures of safety

behaviour specifically tailored to the developmental experiences of childhood and adolescence do not exist.

Given the limitations of the few existing adult-focused measures, and the lack of child- and adolescent-specific measures of safety behaviour, this thesis aimed to develop such a measure for application across the anxiety disorders. The development of a youth-focused measure will enable research to further explore the nuances of the construct and its effects on childhood anxiety, with important implications for treatment. The thesis is comprised of two studies: study one focused on exploring how children conceptualise safety behaviours, and study two focused on the development and psychometric validation of a novel questionnaire, the *Safety Behaviours Inventory for Children and Adolescents* (SBICA).

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STUDY 1

Target journal: Journal of Anxiety Disorders

Title: *"I need my blanket when I'm scared"*. An exploratory study of safety behaviour use in children and adolescents

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Key words: *Anxiety, child, adolescent, safety behaviour, qualitative, development*

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Abstract

Little is known about safety behaviour use in children and adolescents. In light of this limitation, the current study aimed to explore the ability of children and adolescents to recognise, conceptualise, and report on the use and function of safety behaviours. Data were obtained from 128 children (7-11 years) and 60 adolescents (12-17 years) obtained from both clinical and non-clinical populations. A qualitative approach was employed whereby participants completed open-ended questions regarding safety behaviours, in addition to a measure of anxiety. Results demonstrated that children can understand the concept of safety behaviours and their function. Five primary categories of safety behaviour were identified: needing inanimate objects, needing an attachment figure, active behaviours, withdrawal behaviours, and cognitive strategies. Consistent with adult research on the role of safety behaviours in maintaining anxiety, most participants reported that their safety behaviour served to reduce their anxiety, that it would change the outcome of their feared situation, and that they would not be able to cope without it. Associations with age and levels of anxiety were also identified. Given their central role in the clinical treatment of anxiety, this study has provided new insights on childhood safety behaviour use to inform theory and clinical practice.

Key words: *Anxiety, child, adolescent, safety behaviour, qualitative, development*

1. Introduction

1.1. The Importance of Safety Behaviours in Exposure Therapy

Cognitive-behavioural treatments (CBT) are often used as the first-line treatment of anxiety disorders, with exposure therapy a key component of these interventions (Deacon & Abramowitz, 2004; Hofmann & Smits, 2008; Kashdan & Herbert, 2001). One crucial factor that has been found to hinder effective exposure is avoidance during exposure tasks, which often occurs through the use of safety behaviours. Yet despite its importance, exposure therapy is often undermined by avoidance and the use of cognitive or behavioural strategies known as safety behaviours. This encompasses both active and overt behaviours (e.g., frequently washing hands), as well as covert restriction of behaviours (e.g., avoiding eye contact; Salkovskis, 1991) that are employed to reduce the experience of anxious feelings and/or the risk of feared outcomes occurring. Such behaviours occur as a response to an individual's perception of threat and are prevalent across all anxiety-related disorders (Salkovskis, 1991).

Research into safety behaviours in the adult literature has provided critical information about why individuals may continue to experience anxiety despite 'successful' and repeated exposure to feared events in which they experience no negative outcomes (Kim, 2005; Salkovskis, Clark, Hackmann, Wells, & Gelder, 1999). Cognitive models suggest that while safety behaviours provide immediate relief to an anxious individual, prolonged use is problematic in three respects. First, safety behaviours perpetuate the maintenance of anxiety by preventing the challenging of unrealistic threat disconfirmation. That is, the individual will often attribute the non-occurrence of a feared event to the safety behaviours in which they engaged, thereby preventing them from gaining information to contradict their threat belief (Clark & Wells, 1995; Salkovskis, 1991). Second, safety behaviours may actually exacerbate the anxiety symptoms they were intended to alleviate (Deacon & Maack, 2008). As with Dostoevsky's 'White Bear' (1988), the effort to suppress a thought may in fact increase its frequency and intensity, and subsequently enforce

negative emotions. Third, a safety behaviour can paradoxically increase the probability of the outcome it was meant to protect against, with the cognitive burden of the behaviour limiting the ability of an individual to observe new and possibly anxiety alleviating information (Powers, Smits, & Telch, 2004; Sloan & Telch, 2002). For example, a socially anxious individual may avoid eye contact for fear of negative evaluation. Ironically, avoiding eye contact may actually increase the chance of this outcome occurring as they may appear distant and uninterested, thus inviting negative responses from others and possibly being ignored. The cyclical nature of safety behaviours is then evident as their expectation of negative evaluation is in turn strengthened.

A body of research with adult populations has shown support for the role of safety behaviours in maintaining anxiety (Furukawa et al., 2009; Kim, 2005; McManus, Sacadura, & Clark, 2008; Moscovitch et al., 2013; Plasencia, Alden, & Taylor, 2011; Rowa et al., 2015; Taylor & Alden, 2010; Wells et al., 1995). Laboratory studies with socially anxious individuals have found that safety behaviour use elicits **poorer objective performance ratings and** negative reactions from others, and greater post-event negative affect (Moscovitch et al., 2013; Plasencia et al., 2011; Rowa et al., 2015), whereas instructing participants to drop their safety behaviours has led to better performance ratings from others, greater anxiety reduction, and more accurate self-appraisals (Furukawa et al., 2009; Kim, 2005; McManus et al., 2008; Taylor & Alden, 2010).. Studies in clinical settings have found that exposure with either a psychoeducation component of safety behaviours or instructions to drop safety behaviours, compared to normal exposure, results in greater reductions in social anxiety symptoms (Morgan & Raffle, 1999; Wells et al., 1995). While a majority of safety behaviour research has focused on social anxiety disorder, studies investigating other anxiety subtypes has also grown in recent years, providing new insight on the role of safety behaviours in exposure therapy for anxiety disorders in the broader context (Salkovskis et al., 1999; Sloan & Telch, 2002).

While the above research supports the anti-therapeutic effect of safety behaviours on exposure-based treatments, a different body of work has shown that safety behaviours do not necessarily hinder therapy gains, and can sometimes benefit the effects or use of exposure. This growing body of literature supports the “judicious” use of safety behaviours in exposure therapy – that is, allowing safety behaviour use in the early stages but gradually reducing their use over the course of treatment (Rachman, Radomsky, & Shafran, 2008). For example, spider phobic participants that were allowed to use safety behaviours such as wearing goggles and gloves in an exposure task approached the spider faster than participants who didn’t, although the end distance was equivalent for both groups (Hood, Antony, Koerner, & Monson, 2010). These results have been replicated across other specific phobias including snake fear (Milosevic & Radomsky, 2008) and claustrophobic fear (Deacon, Sy, Lickel, & Nelson, 2010). Similar findings from OCD research have also come to light, where allowing limited use of safety behaviours (e.g., wearing gloves) during exposure increased approach to feared contaminants as well as participants’ acceptability of treatment. Given the distressing nature of exposure therapy, allowing limited safety behaviour use may improve retention rates and cooperation especially for individuals with OCD and may not always prevent the disconfirmation of feared outcomes.

While the literature offers conflicting perspectives on what stage during exposure therapy individuals should be encouraged to drop safety behaviours, there is an indisputable common ground: that safety behaviours undermine the learning processes that are critical for successful extinction in exposure. Given the implications this has for anxiety treatment, surprisingly little attention has been paid to the reliable and valid assessment of these behaviours. At present, there are only four published measures of safety behaviours for adults, all of which are specific to a particular anxiety disorder. Thus far, social anxiety disorder has been a focus within the safety behaviour literature, with the *Subtle Avoidance Frequency Examination (SAFE)*; Cuming et al., 2009) and the *Social Phobia Safety Behaviours Scale (SPSBS)*; Pinto-Gouveia, Cunha, & Salvador,

2003) having demonstrated sound psychometric properties. Additionally the *Texas Safety Maneuver Scale (TSMS)*; Kamphuis & Telch, 1998) is available for panic disorder with or without agoraphobia, and the *Storm-Related Safety Behavior Scale (SRSBS)*; Krause, MacDonald, Goodwill, Vorstenbosch, & Antony, 2017) for specific fear of storms, however these have been less frequently used.

1.2. Safety Behaviour Research in Youth

In contrast to the adult literature, little is known about the use of safety behaviours among children and adolescents. Yet, preliminary research suggests that an adequate understanding of safety behaviours may be vital in optimising interventions for anxiety disorders in younger populations. For example, safety behaviour use has been shown to predict social anxiety among participants aged 11-14 years (Hodson, McManus, Clark, & Doll, 2008). Another study recruited children aged 8 to 13 years and found that those classified as having social anxiety disorder (through diagnostic assessment) reported more frequent use of safety behaviours, compared to both controls and those with high levels of social anxiety (but who did not meet diagnostic criteria; Kley, Tuschen-Caffier, & Heinrichs, 2012). Lastly, in their clinical CBT trial of children with various anxiety disorders, Hedtke, Kendall and Tiwari (2009) found that, consistent with findings in adults, safety behaviour use during exposure tasks contributed significantly to reduced improvement from treatment. Despite the paucity of safety behaviour research in children and adolescents, these preliminary results are promising in implicating the fundamental role of safety behaviours in undermining treatment for childhood anxiety.

Despite the potential importance of safety behaviour within youth populations with anxiety disorders, no child- or adolescent-focused measures of safety behaviour currently exist. Hence researchers who wish to investigate safety behaviours in young people remain reliant on the measures originally designed for adults (Cuming et al., 2009; Kamphuis & Telch, 1998; Pinto-Gouveia et al., 2003). Because adult measures have not been specifically developed with younger

populations in mind, questions remain about their developmental sensitivity. There are distinct differences between adults and young people with regards to cognitive and emotional development, reading ability, and language comprehension. Furthermore, the experience and expression of anxiety also distinctly changes from more concrete to abstract themes throughout development into adulthood, thus adult scales may not be assessing the appropriate symptoms and constructs (Emmelkamp & Ehling, 2014; Gullone, 2000; Schniering, Hudson, & Rapee, 2000). Given that anxiety is an internalizing disorder, it is also important to obtain information about an inherently subjective experience from children and adolescents themselves.

In addressing a gap in the literature on safety behaviour assessment, a measure that ideally accounts for the emotional, cognitive, and behavioural complexities of childhood and adolescents is needed. In doing so, however, a conceptual foundation for such development is first necessary to determine whether children and adolescents can in fact understand and communicate their experience of safety behaviours. While many children may be self-aware of emotions such as anxiety, research has demonstrated that there are differences across child and adolescent years in the capacity to identify, label, and communicate such feelings (Damon & Hart, 1991; Lewis, 2012; Shaffer & Kipp, 2013). For example, it has been shown that prior to age seven, children lack the ability to understand and evaluate their internal processes and to provide accurate information regarding their emotions (Docherty & Sandelowski, 1999; Harter, 1990; Irwin & Johnson, 2005). Further cognitive development occurs approximately between the ages of 11 and 12 years, during which young people start to think in more abstract terms (Inhelder & Piaget, 1958). Thus, this study employed a qualitative approach to explore new territory in understanding children's abilities to recognise, conceptualise, and report on the use and function of safety behaviours.

2. Method

2.1. Participants

Data were obtained from 188 participants from both clinical and non-clinical populations. The clinical participants consisted of 29 children and adolescents (15 males, 8 females) who sought treatment at the Centre for Emotional Health at Macquarie University in Sydney, Australia between 2014 and 2016. Eligibility for the research treatment program at the time (the Cool Kids Combined Treatment Program; CKC) required participants to meet Diagnostic and Statistical Manual-Fifth Edition (DSM-5; American Psychiatric Association, 2013) criteria for a primary diagnosis of an anxiety disorder, assessed using a modified version of the Anxiety Disorders Interview Schedule for DSM-IV, Child and Parent versions (Silverman & Albano, 1996).

The non-clinical participants consisted of 159 children and adolescents (80 males, 79 females). This population was recruited through Girl Guides and Scouts NSW units across Sydney, and were not screened for mental disorders.

2.2. Measures

2.2.1. Safety behaviour questions. Participants completed a brief questionnaire with four open-ended questions regarding safety behaviour use. Participants were instructed to answer the questions based on one example of a commonly used safety behaviour. The specific questions were as follows:

1. *Think about doing something that you normally are really scared of and try to avoid.*

Pretend that you can't avoid it and you have to do it. What is something you would try to do, or anything you would take with you, to make you feel better and stop you feeling so scared?

2. *When you use or do this thing, how do you think it will help you?*
3. *Does using or doing this thing help you to think something differently about your fear? In other words, does it change what you expect will happen?*

4. *What would happen if you couldn't use or do this thing?*

2.2.2. Spence Children's Anxiety Scale (SCAS). The SCAS was developed to assess the severity of anxiety symptoms in children in the general population (Spence, 1998). The measure has six subscales which broadly reflect the DSM-defined domains of generalised anxiety, social phobia, separation anxiety, panic/agoraphobia, obsessive compulsive disorder, and physical injury fears. Young people are asked to rate the degree to which they experience 38 symptoms on a 0 (never) to 3 (always) scale. The total scale and subscales have demonstrated internal consistency of 0.60 to 0.92, and test-retest reliability of 0.45 to 0.60 in both child and adolescent populations (Spence, 1998; Spence, Barrett, & Turner, 2003).

2.2.3. Anxiety Disorders Interview Schedule – Child and Parent Version (ADIS-IV C/P; clinical participants only). The ADIS-IV C/P (Silverman & Albano, 1996) is a widely used semi-structured clinical interview that assists in the diagnosis of current anxiety disorders, mood disorders, and externalising disorders, and was modified for use with DSM-5 (American Psychiatric Association, 1994). Diagnoses and clinician severity ratings (CSRs) were assigned by provisional psychologists (graduate students in clinical psychology) or clinical psychologists based on composite parent and child reports. CSRs are assigned from 0-8, with severity ratings greater than 4 indicative of a clinical diagnosis.

2.3. Procedure

2.3.1. Data collection. Approval for this study was granted by the Macquarie University Human Research Ethics Committee (see Appendix A) and all participants and their parents/caregivers gave informed consent for participation in the study.

Children and parents in the clinical group were initially screened using a telephone interview and were then required to complete questionnaires (including the safety behaviour questions) and symptom measures prior to attending their pre-treatment assessment interview. This interview included the administration of the ADIS-IV (DiNardo, Brown, & Barlow, 1994).

Treatment was delivered using the Cool Kids program (Lyneham, Abbott, Wignall, & Rapee, 2003), a manualised program with a Cognitive Behavioural Therapy framework that is designed for the management of childhood anxiety disorders. The program was delivered through 10 x 50 minute sessions over a 12-week period.

For the non-clinical population, the experimenter visited individual Girl Guides and Scouts NSW units throughout Sydney, NSW and provided an information session about the study and instructions on accessing the information page, consent form and questionnaire online (see Appendix B).

2.3.2. Coding qualitative data. A thematic analysis approach (Braun & Clarke, 2006) was applied to qualitative data coding process. The first author thoroughly reviewed the responses, scanning for repeated patterns and noting down any preliminary ideas for each question. Potential themes and categories were extracted and a coding system was generated for each question. In consultation with the second author, the themes for each code were reviewed and refined with clear definitions, ensuring that each response could be categorised. Using the finalised coding system, an independent rater also coded the responses and inter-rater agreement was high for all four questions (Cohen's $\kappa = 0.99, 0.95, 1.00, 1.00$ respectively).

3. Results

Chi-squared analyses were conducted for categorical data, and independent samples t-tests and one-way ANOVAs were conducted for continuous data. For the analyses, age of participants was dichotomised into 7-11 years and 12-17 years to conceptually represent children and adolescents respectively, as well as the age at when cognitive development is believed to transition from concrete to formal operations (Inhelder & Piaget, 1958).

3.1. Sample Characteristics

The age range for both clinical and non-clinical participants was 7-17 years. The mean age of clinical participants was 10.17 years ($SD = 2.67$), and 10.68 years ($SD = 2.85$) for the non-

clinical participants, and this was not significantly different ($t(186) = 0.89, p = .38$). There was no significant difference on sex distribution between the clinical and non-clinical samples, $\chi^2(1, n=188) = 0.93, p = .34$.

3.2. Categories of Safety Behaviours

A number of themes emerged from the analysis of the first question, and these were grouped into five main categories of safety behaviours. Table 1 presents the categories of behaviours, along with verbatim examples of responses corresponding to each category.

Table 1.

Safety Behaviour Categories and Verbatim Examples

Safety Behaviour Category	Verbatim Examples
Inanimate safety object	<ul style="list-style-type: none"> - <i>Ask to have my blanket</i> - <i>Take my good luck charm</i> - <i>Stress balls</i>
Attachment figure	<ul style="list-style-type: none"> - <i>I need my mum or dad with me</i> - <i>I'm scared to sleep by myself, my sister sleeps with me</i> - <i>Tell my mum to go with me</i>
Active behaviour	<ul style="list-style-type: none"> - <i>I play video games to relax myself</i> - <i>I would ask questions to make sure</i> - <i>Lifts are scary I need to clench my fist and it helps</i>
Withdrawal behaviour	<ul style="list-style-type: none"> - <i>I try not to look at people in the eye</i> - <i>I hide my face</i> - <i>I speak in a whisper so people can't really hear me</i>
Cognitive strategy	<ul style="list-style-type: none"> - <i>Think of positive happy things</i> - <i>Imagine I'm in a happy place</i> - <i>Think about something else and distract myself</i>

Table 2 presents the descriptive statistics for the reported categories of safety behaviours across the whole sample, and broken down by gender, participant status, and age group. Chi-square tests for independence indicated no significant association between category of safety behaviour reported and gender, $\chi^2(4, n=188) = 3.15, p = .53$, or between categories of safety behaviour reported and whether participants were clinical or non-clinical, $\chi^2(4, n=188) = 3.56, p = .47$. There was a significant association between category of safety behaviour reported and age group, $\chi^2(4, n=188) = 50.18, p = .00$. As demonstrated in the table, children more frequently reported needing an inanimate object or attachment figure, whilst adolescents more frequently reported using active behaviours, withdrawal behaviours, and cognitive strategies.

Table 2

Frequency of Reported Safety Behaviours by Gender, Participant Status, and Age Group (N=188)

	Total	<u>Gender</u>		<u>Participant Status</u>		<u>Age Group</u>	
		Male	Female	Clinical	Non-Clinical	Children (7-11yrs)	Adolescents (12-17yrs)
n =	188	98	90	159	29	128	60
Need Inanimate Object	44 (23.4)	24 (24.5)	20 (22.2)	35 (22.0)	9 (31.0)	42 (32.8)	2 (3.3)
Need Attachment Figure	41 (21.8)	20 (20.4)	21 (23.3)	36 (22.6)	5 (17.2)	38 (29.7)	3 (5.0)
Active Behaviour	51 (27.1)	31 (31.6)	20 (22.2)	46 (28.9)	5 (17.2)	23 (18.0)	28 (36.7)
Withdrawal Behaviour	21 (11.2)	9 (9.2)	12 (13.3)	16 (10.1)	5 (17.2)	8 (6.3)	13 (21.7)
Cognitive Strategy	31 (16.5)	14 (14.3)	17 (18.9)	26 (16.4)	5 (17.2)	17 (13.3)	14 (23.3)

A one-way ANOVA was conducted to compare levels of anxiety between participants who used different categories of safety behaviour. There was a significant effect of safety behaviour

category on scores on the SCAS Separation subscale, $F(4, 169) = 2.66, p = .03$, and on the SCAS Social subscale, $F(4, 169) = 5.40, p = .00$. No significant effect of safety behaviour on scores on the Total SCAS, $F(4, 169) = 0.63, p = .64$, OCD subscale, $F(4, 169) = 1.15, p = .35$, GAD subscale, $F(4, 169) = 1.04, p = .39$, Panic/Agoraphobia subscale, $F(4, 169) = 1.59, p = .18$, or Physical Injury subscale, $F(4, 169) = 0.31, p = .87$, was found.

Planned comparisons revealed that compared to the other behaviours, those who reported needing an inanimate object scored significantly higher on the SCAS Separation subscale $t(169) = 2.54, p = .01$ (see Figure 1). Furthermore, compared to the other behaviours, those who reported withdrawal behaviours scored significantly higher on the SCAS Social subscale $t(169) = 3.90, p = .00$ (see Figure 2).

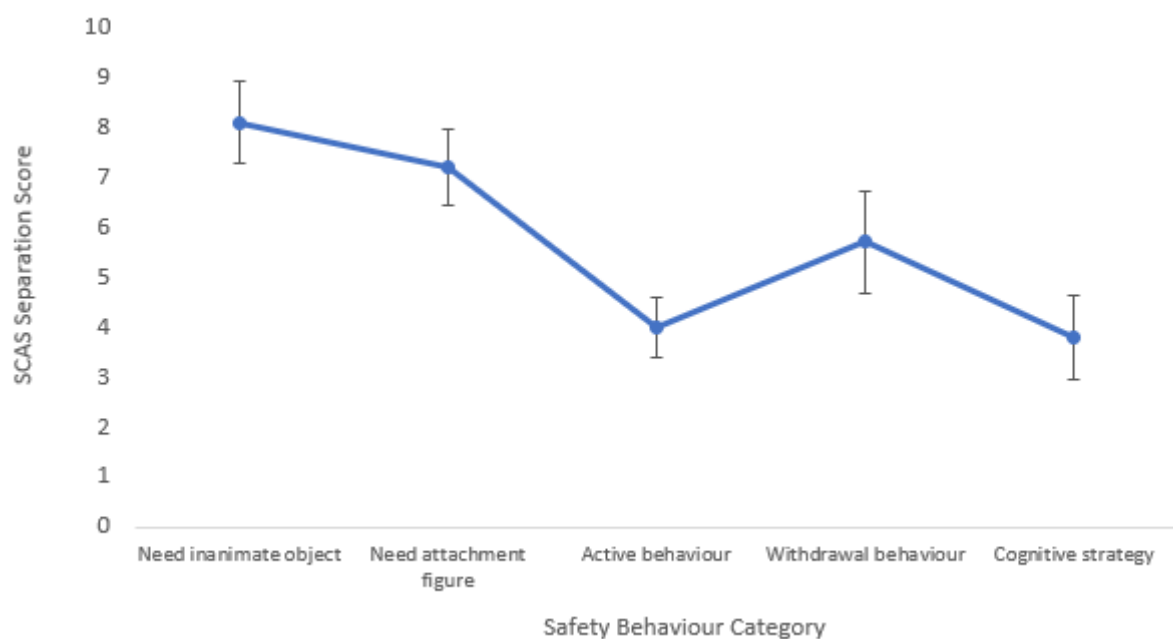


Figure 1. Mean SCAS Separation subscale score by safety behaviour category.

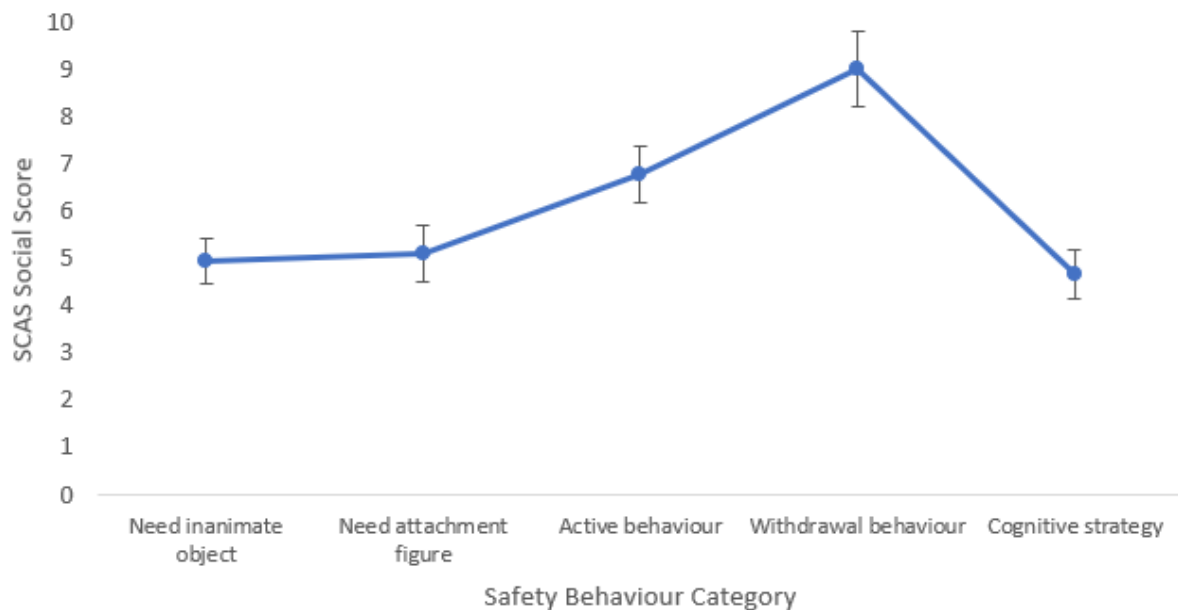


Figure 2. Mean SCAS Social subscale score by safety behaviour category.

3.3. Beliefs Regarding the Role of Safety Behaviours

Table 3 presents verbatim examples of responses to Questions Two, Three, and Four.

Table 3

Verbatim Examples of Responses to Questions Two, Three, and Four

Question	Verbatim Examples
2. When you use or do this thing, how do you think it will help you?	<ul style="list-style-type: none"> - <i>It will make me feel better</i> - <i>It calms me down and makes me feel safe</i> - <i>It causes less worry, because I'm not thinking about it</i>
3. Does using or doing this thing help you to think something differently about your fear? In other words, does it change what you expect will happen?	<ul style="list-style-type: none"> - <i>Yes it helps to decrease my anxiety temporarily so things turn out better</i> - <i>Yes because if I didn't do it I wouldn't do as well at things</i> - <i>Yes because I will be less worried and act differently</i>
4. What would happen if you couldn't use or do this thing?	<ul style="list-style-type: none"> - <i>I would get really scared and cry</i> - <i>I would panic and become more anxious</i> - <i>I would probably freak out</i>

With regards to how their chosen safety behaviour helped them in anxious situations (i.e., the perceived role of the safety behaviour), 95.2% of participants reported that it made them less anxious, worried, or scared, whereas the remaining 4.8% reported that they were “not sure”. Chi-square analyses did not reveal any associations between these beliefs and gender, participant status, or age group. The descriptive statistics and results of these chi-square analyses are presented in Table 4.

Table 4

Descriptive Statistics and Chi-Square Analyses for Beliefs about the Role of Safety Behaviours, by Gender, Participant Status, and Age Group (N=188)

Role of SB			χ^2 (df=1)	<i>p</i>
	<u>Gender</u>			
	Males	Females		
<i>Makes me less anxious</i>	94 (96%)	85 (94%)	0.02	.90
<i>Not sure</i>	4 (.05%)	5 (.06%)		
	<u>Participant status</u>			
	Control	Clinical		
<i>Makes me less anxious</i>	150 (94%)	29 (100%)	0.71	.40
<i>Not sure</i>	9 (6%)	0 (0%)		
	<u>Age group</u>			
	Children	Adolescents		
<i>Makes me less</i>	123 (96.1%)	56 (93%)	0.21	.65
<i>Not sure</i>	5 (4%)	4 (7%)		

With regards to whether their safety behaviours helped change a situation or outcome, 81.4% of participants reported that it did change what they expected to happen. Of the remaining participants, 16% reported that it did not change what they expected to happen, and 2.7% reported that they were “not sure”. Table 5 presents descriptive statistics and chi-square analyses between responses from Question Three and gender, participant status, and age group. As demonstrated,

chi-square analyses did not reveal any significant associations between beliefs about whether beliefs changed outcomes and gender. However, there was a significant association between these beliefs and participant type, whereby clinical participants were more likely to believe that their safety behaviour would help change a situation or outcome than were non-clinical participants. There was also a significant association between these beliefs and age, whereby younger children were more likely to believe that using or having their safety behaviour helped change the situation or outcome.

Table 5.

Descriptive Statistics and Chi-Square Analyses for Beliefs About Whether Safety Behaviours Change Outcomes, by Gender, Participant Status, and Age Group (N=188)

Does your SB change what you expect to happen?			χ^2 (df=2)	<i>p</i>
	<u>Gender</u>			
	Males	Females		
<i>Yes</i>	78 (80%)	75 (83%)	1.66	.44
<i>No</i>	16 (16%)	14 (16%)		
<i>Unsure</i>	4 (4%)	1 (1%)		
	<u>Participant status</u>			
	Control	Clinical		
<i>Yes</i>	124 (78%)	29 (100%)	7.84*	.02
<i>No</i>	30 (19%)	0 (0%)		
<i>Unsure</i>	5 (3%)	0 (0%)		
	<u>Age group</u>			
	Children	Adolescents		
<i>Yes</i>	119 (93%)	34 (57%)	36.08***	.00
<i>No</i>	7 (6%)	23 (38%)		
<i>Unsure</i>	2 (2%)	3 (5%)		

3.4. Beliefs Regarding Consequences of Lack of Safety Behaviour

With regards to the question of what would happen if they could not have or carry out their safety behaviour, 70.7% of participants believed that they would get anxious and would not cope, whereas 21.3% believed they would be fine, and 8% reported that they were “not sure”. Table 6 presents descriptive statistics and chi-square analyses between responses from Question Four and gender, participant status, and age group. Chi-square analyses did not reveal any significant associations between beliefs about coping and gender. However, there was a significant association between coping beliefs and participant status, whereby clinical participants were more likely to believe that they would not cope without their safety behaviour. There was also a significant association between coping beliefs and age, whereby younger children were more likely to believe they would not cope without their safety behaviour.

Table 6

Descriptive Statistics and Chi-Square Analyses for Coping Beliefs, by Gender, Participant Status, and Age Group (N=188)

What would happen if you couldn't use or do this thing?			χ^2 (df=2)	<i>p</i>
	<u>Gender</u>			
	Males	Females		
<i>Will panic/not cope</i>	72 (74%)	74 (82%)	1.60	.21
<i>Will be fine</i>	26 (27%)	16 (18%)		
	<u>Participant status</u>			
	Control	Clinical		
<i>Will panic/not cope</i>	117 (74%)	29 (100%)	8.40	.00
<i>Will be fine</i>	42 (26%)	0 (0%)		
	<u>Age group</u>			
	Children	Adolescents		
<i>Will panic/not cope</i>	112 (88%)	34 (57%)	20.64	.00
<i>Will be fine</i>	16 (13%)	26 (43%)		

Independent samples t-tests were conducted to explore potential differences in SCAS scores between those who believed they could cope if they weren't able to have or carry out their safety behaviour, to those who believed they would not cope or would panic. Means of SCAS and SCAS subscales scores between the two groups are presented in Table 7. Results showed that those who believed they could not cope without their safety behaviour reported significantly higher levels of anxiety on the total SCAS and its subscales.

Table 7

Mean SCAS and SCAS Subscale Scores Between Participants Who Believed They Would Cope With and Without Their Safety Behaviour

	Mean Score (SD)		t(df) =
	Will cope without SB (n = 38)	Will not cope without SB (n = 121)	
Total SCAS	16.83	33.44	t(172) = -6.01***
Separation	2.30	6.52	t(96) = -6.70***
Social	3.33	6.72	t(102) = -6.14***
OCD	3.43	5.13	t(73) = -2.44*
GAD	3.95	6.90	t(172) = -5.30***
Panic/Agoraphobia	1.85	4.52	t(127) = -5.13***
Physical Injury	1.98	3.64	t(172) = -5.30**

* $p < .05$, ** $p < .01$, *** $p < .001$

3.5. Association Between Safety Behaviour and Coping Beliefs

A chi-square analysis was conducted to explore associations between the one category of safety behaviour reported by participants and beliefs about coping. A significant association was found, $\chi^2(4, n=188) = 29.09, p = .00$. Interestingly, when looking at participants who had positive beliefs that they would cope without their safety behaviour, a large proportion (42.9%) of these participants reported using a cognitive strategy. Participants who believed that they would not cope without their safety behaviour, most commonly reported using active behaviours (27.4%), needing an object (26.7%), and needing someone (24.7%).

4. Discussion

The aim of the present study was to explore and develop an understanding of how children and adolescents conceptualise safety behaviours, in order to inform understanding of the development of safety behaviour recognition in younger people and its possible role in undermining exposure. By further understanding the capacity of children and adolescents to

understand the construct of safety behaviours, the present study also aimed to inform future development of a child and adolescent specific measure of safety behaviour. The findings from this exploratory study demonstrated that children and adolescents do indeed understand the concept of safety behaviours and their function. Being able to identify and comment on their own safety behaviour use demonstrates their awareness of the role of these behaviours and their potential ability to validly self-report about these behaviours in future measures.

Five primary categories of safety behaviours were identified as follows: needing an inanimate object (to carry, hold, or wear); needing an attachment figure (e.g., parent, sibling, friend); an active behaviour (e.g., listening to music); a withdrawal behaviour (e.g., avoiding eye contact); and a cognitive strategy (e.g., thinking of something else). These categories provide interesting insight into the nature of the types of behaviours children use to provide themselves with a sense of protection from perceived danger. Younger children were more likely to use safety behaviours requiring an external source (i.e., an object or person), whereas adolescents reported a greater tendency to use self-reliant safety behaviours (e.g., doing something or utilising a cognitive strategy). Interestingly, the categories of needing an object and withdrawal behaviours were associated with higher levels of separation anxiety and social anxiety, respectively, as measured by scores on the SCAS Separation and Social subscales. However, it must be noted that this finding is most likely confounded with age, given that younger children are more likely to have separation anxiety disorder compared to adolescents, whereas adolescents are more likely to have social anxiety disorder (Rapee, Schniering, & Hudson, 2009)

These findings are consistent with longstanding research on cognitive development that describes adolescence as a period in which an individual's cognitive capacity begins to transition from concrete to abstract and introspective processes (Inhelder & Piaget, 1958). Furthermore, while some categories and specific safety behaviour responses share overlap with items in current measures of adult safety behaviour (e.g., withdrawal behaviour – avoiding eye contact), the

categories of needing an inanimate object and needing an attachment figure appear to be unique to this population and do not feature in current adult measures. As such, these findings provide further indication of the unique categories of items needed for a safety behaviour measure tailored to children and adolescents. Without interviewing the younger population for which a measure is intended, these age-specific details would likely be overlooked in a downward extension of an adult measure.

The open-ended questions provided great insight into the beliefs children and adolescents hold regarding safety behaviours, which were found to be consistent with the definition and common conceptualisation of safety behaviours in the literature (Salkovskis, 1991). A majority of the participants were able to identify the role of their safety behaviour, in that it served to reduce their anxiety or worry, or increase their perceptions of safety and calm. Furthermore, many also believed that utilising their safety behaviour would change the outcome of their feared situation. Consistent with the adult research on the role of safety behaviours in maintaining anxiety, these findings provide insight into why safety behaviours continue to be used in children and adolescents (Helbig-Lang & Petermann, 2010; Salkovskis, 1991).

Responses that were also in line with common beliefs about safety behaviours were those regarding one's ability to cope without their safety behaviour. A majority reported that they would not be able to cope, would panic, or would feel a negative emotion (e.g., would be anxious, scared, worried). Furthermore, participants who reported these beliefs tended to be younger and from a clinical population, and reported higher levels of anxiety on the total SCAS and all its subscales.

Overall, the results of this study were derived from a majority non-clinical population. Despite this limitation, it is conceptually interesting that very few differences were found between the clinical and non-clinical participants. This importantly suggests that the use and understanding of safety behaviours is not limited to clinically disordered individuals, but rather that it is relevant across the full spectrum of anxiety. Indeed, this is consistent with Barlow's (2000) broader

definition of safety behaviours as dysfunctional emotional regulation strategies, which belong to a group of inherent anxiety-related behaviours that are adaptive defense mechanisms designed to ensure the survival of a species. Additionally, this finding has important implications for the development of a child and adolescent measure of safety behaviour, as it indicates that items derived from both clinical and non-clinical populations will be relevant for clinical use, and that such a measure may have utility across clinical and non-clinical settings.

4.1. Limitations

This study sampled both clinically anxious and non-clinical populations to allow generalizability of the results. However, only 29 responses were collected from the clinical population due to logistical reasons and future research would benefit from recruiting a larger clinical sample. Nonetheless, there were few apparent differences observed between the populations. Both clinical and non-clinical samples were comprised of children from middle socio-economic backgrounds in Sydney, Australia. To increase the generalisability of the findings, replication in other geographical areas and socio-demographic groups and potentially in other cultures is recommended. Of note, this is one of the first studies to explore safety behaviour beliefs through qualitative methods. However, future research would benefit from using methods such as focus groups or interview, which could potentially provide more extensive and rich responses compared to those received from written questions.

4.2. Implications for Future Research

The findings from this exploratory study demonstrate that children as young as seven years of age appear able to understand and report of the use of safety behaviours, thereby providing a foundation for future researchers who wish to study safety behaviour in young people. The present findings suggest that any measure of children's use of safety behaviours should feature items from the five clear categories that were extracted from the responses. Responses also appeared to reflect potential differences in the beliefs surrounding safety behaviours between those with a clinical

level of anxiety, and those without, suggesting that a measure of safety behaviour would indeed be useful and relate to clinical status. Furthermore, the associations between specific categories of safety behaviour and scores on SCAS subscales demonstrated potential differences in the types of behaviours used by those with different disorders, although confounded with age. Further formal investigation may lead to a better understanding of these differences in a clinical population.

Given the central role and clinical relevance of safety behaviours in the treatment of anxiety, research dedicated to the assessment of these behaviours is lacking, especially in young people. This exploratory study has provided new insights into how children and adolescents conceptualise safety behaviour use, and has provided a clear foundation for the future development of safety behaviour measures in younger populations.

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STUDY 2

Target journal: Psychological Assessment

Title: Development and validation of the Safety Behaviours
Inventory for Children and Adolescents (SBICA)

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Key words: *Anxiety, child, adolescent, safety behaviour, assessment,
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Abstract

Safety behaviours have been found to undermine successful exposure in the treatment of anxiety disorders for both adults and children. Although reliable measures of safety behaviour have been developed for use with adults, no such measure has been developed specifically for child and adolescent populations. In light of this limitation, the current study aimed to develop and validate a measure of the use of safety behaviours suitable for children and adolescents: The *Safety Behaviour Inventory for Children and Adolescents* (SBICA). Clinical (n = 196) and non-clinical (n = 169) young people provided data. Both exploratory and confirmatory factor analyses supported a three-factor solution of the SBICA, which reflected checking behaviours, behaviours related to image management, and behaviours related to physical protection. The SBICA and its subscales demonstrated strong internal consistency, test-retest reliability, construct validity, and the ability to discriminate between clinical and non-clinical participants. The SBICA was also responsive to the effects of treatment. Given its solid psychometric properties, the SBICA will prove useful for both research and clinical purposes.

Key words: *Anxiety, child, adolescent, safety behaviour, assessment, psychometrics*

1. Introduction

1.1. The Importance of Safety Behaviours in Exposure Therapy

Cognitive-behavioural treatments (CBT) are often considered the “gold-standard” for the treatment of anxiety disorders, with exposure therapy believed to be the cornerstone of these interventions (Deacon & Abramowitz, 2004; Hofmann & Smits, 2008; Kashdan & Herbert, 2001). One crucial factor that has been found to hinder effective exposure is avoidance during exposure tasks, which often occurs through the use of safety behaviours. These refer to cognitive or behavioural strategies that are employed to reduce the experience of anxious feelings and/or the risk of feared outcomes occurring, and include active and overt behaviours (e.g., frequently washing hands), as well as covert restriction of behaviours (e.g., avoiding eye contact; Salkovskis, 1991). The particular use of safety behaviours is linked to the specific and anticipated perceived threat of an individual, and such use is prevalent across all anxiety-related disorders (Salkovskis, 1991).

Research into safety behaviours in the adult literature has provided critical information about why individuals may continue to experience anxiety despite ‘successful’ and repeated exposure to feared events in which they experience no negative outcomes (Kim, 2005; Salkovskis et al., 1999). While the use of safety behaviours may bring immediate relief to an anxious individual, cognitive models suggest that prolonged use is problematic in three respects. First, safety behaviours maintain anxiety by interfering with unrealistic threat disconfirmation while individuals confront their feared situations. That is, the individual will often attribute the non-occurrence of a feared event to the safety behaviours in which they engaged, thereby preventing them from gaining information to contradict their threat belief (Clark & Wells, 1995; Salkovskis, 1991). Second, safety behaviours may actually exacerbate the anxiety symptoms they were intended to alleviate (Deacon & Maack, 2008). For example, deliberate efforts to suppress unwanted thoughts may in fact increase the frequency of these suppressed thoughts, thus

intensifying the feared negative responses to them. Third, as an individual's attentional resources are allocated to self-monitoring and executing safety behaviours, not only are less attentional resources available for processing new information about the feared situations, a paradoxical effect occurs in which these behaviours contaminate the feared situations (Powers et al., 2004; Sloan & Telch, 2002). For example, a socially anxious individual may avoid eye contact for fear of negative evaluation. Ironically, avoiding eye contact may actually increase the chance of this outcome occurring as they may appear distant and uninterested, thus inviting negative responses from others and possibly being ignored. The cyclical nature of safety behaviours is then evident as their expectation of negative evaluation is in turn strengthened.

A body of research with adult populations has shown support for the role of safety behaviours in maintaining anxiety (Furukawa et al., 2009; Kim, 2005; McManus et al., 2008; Moscovitch et al., 2013; Plasencia et al., 2011; Taylor & Alden, 2010; Wells et al., 1995). Laboratory studies with socially anxious individuals have found that safety behaviour use elicits negative reactions from others and greater post-event negative affect (Moscovitch et al., 2013; Plasencia et al., 2011), whereas instructing participants to drop their safety behaviours has led to better performance ratings from others, greater anxiety reduction, and more accurate self-appraisals (Furukawa et al., 2009; Kim, 2005; McManus et al., 2008; Taylor & Alden, 2010). Studies in clinical settings have found that exposure with either a psychoeducation component of safety behaviours or instructions to drop safety behaviours, compared to normal exposure, results in greater reductions in social anxiety symptoms (Morgan & Raffle, 1999; Wells et al., 1995). While a majority of safety behaviour research has focused on social anxiety disorder, studies investigating other anxiety subtypes has also grown in recent years, providing new insight on the role of safety behaviours in exposure therapy for anxiety disorders in the broader context (Salkovskis et al., 1999; Sloan & Telch, 2002).

While the above research supports the anti-therapeutic effect of safety behaviours on exposure-based treatments, a different body of work has shown that safety behaviours do not necessarily hinder therapy gains, and can sometimes benefit the effects or use of exposure. This growing body of literature supports the “judicious” use of safety behaviours in exposure therapy – that is, allowing safety behaviour use in the early stages but gradually reducing their use over the course of treatment (Rachman et al., 2008). For example, spider phobic participants that were allowed to use safety behaviours such as wearing goggles and gloves in an exposure task approached the spider faster than participants who didn’t, although the end distance was equivalent for both groups (Hood et al., 2010). Studies involving single-session exposures with snake fear (Milosevic & Radomsky, 2008) and claustrophobic fear (Deacon et al., 2010) have similarly found that engaging in limited or planned safety behaviour use does not hinder anxiety reduction. Similar findings from OCD research have also come to light, where allowing limited use of safety behaviours (e.g., wearing gloves) during exposure increased approach to feared contaminants as well as participants’ acceptability of treatment. Given the distressing nature of exposure therapy, allowing limited safety behaviour use may improve retention rates and cooperation especially for individuals with OCD and may not always prevent the disconfirmation of feared outcomes.

Despite varying procedural views on when safety behaviours should be dropped during exposure therapy, there is an indisputable common ground: that safety behaviours undermine the learning processes that are critical for successful extinction in exposure. Given the clinical relevance of safety behaviours for anxiety treatment, surprisingly little attention has been paid to the reliable and valid assessment of these behaviours. At present, there are only three published measures of safety behaviour for use among adults, all of which are limited to a specific anxiety disorder. Thus far, social anxiety disorder has been a focus within the safety behaviour literature, with the *Subtle Avoidance Frequency Examination (SAFE)* (Cuming et al., 2009) and the *Social Phobia Safety Behaviours Scale (SPSBS)* (Pinto-Gouveia et al., 2003) having demonstrated sound

psychometric properties. Additionally the *Texas Safety Maneuver Scale (TSMS)*; Kamphuis & Telch, 1998) is available for panic disorder with or without agoraphobia, and the *Storm-Related Safety Behavior Scale (SRSBS)*; Krause et al., 2017) for specific fear of storms, however these have been less frequently used.

1.2. Safety Behaviour Research in Youth

In contrast to the adult literature, little is known about the use of safety behaviours among children and adolescents. Nevertheless, the existing studies do indicate that further understanding of these behaviours in this population could also lead to improvements in treatments for children. For example, safety behaviour use has been shown to predict social anxiety among participants aged 11-14 years (Hodson et al., 2008). Another study recruited children aged 8 to 13 years and found that those classified as having social anxiety disorder (through diagnostic assessment) reported more frequent use of safety behaviours, compared to both controls and those with high levels of social anxiety (but who did not meet diagnostic criteria; Kley et al., 2012). Lastly, in their clinical CBT trial of children with various anxiety disorders, Hedtke, Kendall and Tiwari (2009) found that, consistent with findings in adults, safety behaviour use during exposure tasks contributed significantly to reduced improvement from treatment. Despite the paucity of safety behaviour research in children and adolescents, these preliminary results are promising in implicating the fundamental role of safety behaviours in undermining treatment for childhood anxiety.

Unfortunately, given that safety behaviour research within this population is in its infancy, no child- or adolescent-focused measures of safety behaviour currently exist. Therefore, researchers who intend on exploring safety behaviour in younger people must choose from the aforementioned measures originally designed for adults (Cuming et al., 2009; Kamphuis & Telch, 1998; Pinto-Gouveia et al., 2003). Two studies to date have assessed the ability of an adult safety behaviour to be reliably and validly used in anxiety assessments in younger populations. First,

Thomas and her colleagues (2012) tested the SAFE (Cuming et al., 2009) with adolescents aged 14-17 years with social anxiety, and demonstrated the scale's sound psychometric properties and suitability to be used for treatment within this population. Second, Baker and her colleagues (2014) examined the Generalized Safety Behaviour Scale (GSBS; Baker et al., 2014) for adults in a community sample of adolescents aged 16 to 18 years. While it is an unpublished measure and further refinement and validation in a clinical sample is required, the GSBS demonstrated good internal consistency and potential for future use in youth-focused anxiety treatment.

While there is value in validating adult measures, they carry the limitation of not being specifically developed with younger populations in mind, and thus questions remain about their developmental sensitivity. A majority of existing child measures of anxiety are in fact downward extensions of an adult scale, which incorrectly assumes that children experience and report anxiety in the same way adults do (Campbell, Rapee, & Spence, 2000). However, longstanding research has shown that there are distinct differences between adults and young people with regards to cognitive and emotional development, reading ability, and language comprehension. Furthermore, the experience and expression of anxiety also distinctly changes from more concrete to abstract themes throughout development into adulthood, thus adult scales may not be assessing the appropriate symptoms and constructs (Emmelkamp & Ehrling, 2014; Gullone, 2000; Schniering et al., 2000). Given that anxiety is an internalizing disorder, it is also important to obtain information about an inherently subjective experience from children and adolescents themselves.

To reliably measure age-appropriate safety behaviour, these developmental issues suggest the need for a measure that ideally accounts for the emotional, cognitive, and behavioural complexities of childhood and adolescence. In addressing this gap in the literature of safety behaviour assessment, this paper aimed to develop and validate the *Safety Behaviours Inventory for Children and Adolescents* (SBICA), a measure of safety behaviour specifically for children and adolescents.

2. Method

2.1. Initial Item Generation

The initial items for the SBICA were generated using a multi-step process to incorporate feedback from both clinicians in the field and families with anxious children. Items were first derived by modifying items from existing measures of safety behaviours, namely the Subtle Avoidance Frequency Examination (SAFE; Cuming et al., 2009) and the Modified Social Behavior Questionnaire for Children (M-SBQ-C; Kley et al., 2012). As existing measures at the time focused largely on social anxiety, additional items were generated from research in the broader anxiety literature. For example, the findings from a recent qualitative study (Chapman and Rapee, unpublished) exploring safety behaviour use in children and adolescents provided a foundation of themes and items of safety behaviours reported by participants that informed item generation. Lastly, interviews were conducted with clinicians experienced in the assessment and treatment of child and adolescent anxiety disorders. Clinicians were asked to consider both cognitive and behavioural safety behaviours that they may have encountered in their practice.

These initial steps produced a preliminary pool of 35 items. Semi-structured interviews with anxious children and their parents were then conducted to obtain further feedback and input for the questionnaire. Consent was obtained from five families involved in the Cool Kids Program at the Centre of Emotional Health, Macquarie University, and parents and children were interviewed separately to include opinions from both perspectives. The semi-structured interview was adapted and revised from a survey used by Kley et. al. (2012) and involved open-ended questions regarding the child's potential use of any overt or subtle strategies used to reduce anxiety in various situations. Both children and parents were also asked several feedback questions regarding ambiguous wording or interpretation of any items, and their opinions about omitting or adding any items to the list. An example of the script is provided in Appendix C.

These interviews resulted in revision, removal and addition of several items, and distributed again to ensure the content validity of the items. This last stage of revision involved a review of the list by three senior university staff in clinical psychology and five clinical psychology doctoral students (all of whom were provisional or fully registered clinical psychologists). These modifications resulted in a final version of 37 items suitable for psychometric testing.

2.2. Participants

2.2.1. Clinical group. The clinical group consisted of 196 children and adolescents (105 males, 91 females) who sought treatment at the Centre for Emotional Health at Macquarie University in Sydney, Australia between 2014 and 2016. Eligibility for the research treatment program at the time (the Cool Kids Combined Treatment Program; CKC) required participants to meet Diagnostic and Statistical Manual-Fifth Edition (DSM-V; American Psychiatric Association, 2013) criteria for a primary diagnosis of an anxiety disorder, assessed using the Anxiety Disorders Interview Schedule for DSM-IV (ADIS-IV; DiNardo et al., 1994). Table 1 shows additional demographic characteristics and frequency of disorders at pre-treatment relevant to the clinical sample.

2.2.2. Non-clinical group. The non-clinical group consisted of 169 children and adolescents (85 males, 84 females). This population was recruited through Girl Guides and Scouts NSW units across Sydney.

2.2.3. Sample characteristics. Data were collected from two groups of participants: clinical and non-clinical. There was no significant difference on sex distribution between the clinical and non-clinical samples, $\chi^2(1, n=365) = .40, p = .53$. Clinical participants ($M = 9.76$ years, $SD = 2.22$) were significantly younger than control participants ($M = 10.64$ years, $SD = 2.80$), $t(363) = 3.31, p = .00$.

Table 1

Demographic and Diagnostic Characteristics of the Clinical Sample (N=196)

Primary diagnoses	n (%)
Generalised Anxiety Disorder	90 (45.9)
Social Anxiety Disorder	41 (20.9)
Separation Anxiety Disorder	25 (12.8)
Obsessive-Compulsive Disorders ^a	7 (3.5)
Specific Phobias	12 (6.1)
Other Anxiety Disorders	12 (6.6)
Non-Anxiety Disorders	8 (4.1)

^a This group includes Obsessive Compulsive Disorder, Trichotillomania, and Other Specified Obsessive-Compulsive and Related Disorder.

2.3. Measures

2.3.1. All participants (clinical and non-clinical).

37-item SBICA. All participants completed the 37-item SBICA by rating the frequency with which they would use the potential safety behaviours when they felt anxious on a five-point (0-4) Likert rating scale from *never* to *always*. Higher scores indicated greater use of the safety behaviours (see Appendix D).

Spence Children's Anxiety Scale (SCAS). The SCAS was developed to assess the severity of anxiety symptoms in children in the general population (Spence, 1998). The measure has six subscales which broadly reflect the DSM-defined domains of generalised anxiety, social phobia, separation anxiety, panic/agoraphobia, obsessive compulsive disorder, and physical injury fears. Young people are asked to rate the degree to which they experience 38 symptoms on a 0 (never) to 3 (always) scale. The total scale and subscales have demonstrated internal consistency of 0.60

to 0.92, and test-retest reliability of 0.45 to 0.60 in both child and adolescent populations (Spence, 1998; Spence et al., 2003).

Children's Automatic Thoughts Scales (CATS). The CATS is a measure of negative self-statements in children across both internalising and externalising problems of physical threat, social threat, personal failure, and hostility (Schniering & Rapee, 2002). The scale consists of 40 items whereby participants are asked to rate the frequency with which they have experienced each thought over the past week on a five-point 0 (not at all) to 4 (all the time) scale. The total scale and subscales have demonstrated internal consistency ranging from 0.85 to 0.95, and test-retest reliability ranging from 0.66 to 0.79 (Schniering & Rapee, 2002).

Short Mood and Feelings Questionnaire (SMFQ). The SMFQ is a measure of recent depressive symptoms in children aged 6-17 years (Angold, Costello, Messer, & Pickles, 1995). The scale consists of 13 items whereby participants report how they have been feeling or acting in the past two weeks on a three-point 0 (not true) to 2 (true) scale. Scores on the SMFQ range from 0 to 26, with higher scores reflecting greater depressive symptoms experienced by the participant. The SMFQ has demonstrated good internal consistency ($\alpha = 0.85$) and the ability to successfully discriminate between children in psychiatric and control groups (Angold et al., 1995).

2.3.2. Clinical participants only.

As a requisite of their participation in the CKC treatment program, children in the clinical group also completed the following interview and battery of questionnaires.

Anxiety Disorders Interview Schedule (ADIS-IV; clinical participants only). The ADIS-IV (DiNardo et al., 1994) is a widely used semi-structured clinical interview that assists in the diagnosis of current anxiety, mood, obsessive-compulsive, trauma, substance abuse and somatoform disorders based on the DSM-IV. Diagnoses and clinician severity ratings (CSRs) were assigned by provisional psychologists (graduate students in clinical psychology) or clinical

psychologists based on composite parent and child reports. CSRs are assigned from 0-8, with severity ratings greater than 4 indicative of a clinical diagnosis.

Strengths and Difficulties Questionnaire (SDQ). The SDQ is a behavioural screening questionnaire commonly used to identify behavioural and emotional problems in children and adolescents 3-17 years old (Goodman, 1997). The questionnaire contains five subscales (conduct problems, hyperactivity, emotional symptoms, peer problems and prosocial behaviour) and a 'total difficulties' score is calculated by summing the problem-focused subscales (i.e., all except for prosocial behaviour). Respondents report on 25 items using a three-point Likert scale from 0 (not true) to 2 (certainly true). The SDQ has demonstrated sound internal consistency ($\alpha = 0.73$) and the ability to discriminate between children in the community and those attending a mental health clinic (Goodman, Meltzer, & Bailey, 1998)

Child Anxiety Life Interference Scale (CALIS). The CALIS measures life interference and impairment associated with childhood anxiety (Lyneham et al., 2013). Respondents report on 9 items using a five-point Likert scale from 0 (not at all) to 4 (a great deal) and the total score is calculated by summing the items. The CALIS has demonstrated good internal consistency, ($\alpha = .80$), moderate to strong positive correlations with measures of self-reported internalising symptoms (e.g., SCAS, SDQ-emotional symptoms), and sensitivity to treatment change.

2.4. Procedure

Approval for this study was granted by the Macquarie University Human Research Ethics Committee (see Appendix A) and all participants and their parents/caregivers gave informed consent for participation in the study.

2.4.1. Clinical participants. Children and parents in the clinical group were initially screened using a telephone interview and were then required to complete the battery of questionnaires and symptom measures prior to attending their pre-treatment assessment interview. This interview included the administration of the ADIS-IV (DiNardo et al., 1994). Treatment was

delivered using the Cool Kids program (Lyneham et al., 2003), a manualised program with a Cognitive Behavioural Therapy framework that is designed for the management of childhood anxiety disorders. The program was delivered through 10 x 50 minute sessions over a 12-week period.

Upon completion of treatment, the treating clinicians assigned CSRs for all diagnoses presented at pre-treatment, and families also completed the same battery of questionnaires and symptom measures. Diagnostic data are available for 87 participants at post-treatment, with 66 of these participants completing the SBICA at this time point. Diagnostic data are also available for 78 participants who returned for a 6-month follow-up interview, however the SBICA was not administered at this time point.

2.4.2. Non-clinical participants. For the non-clinical population, the experimenter visited individual Girl Guides and Scouts NSW units throughout Sydney, NSW and provided an information session about the study and instructions on accessing the information page, consent form and questionnaires online (see Appendix B).

To evaluate test-retest reliability of the SBICA, non-clinical participants also completed the same battery of questionnaires approximately 12-13 weeks after their initial completion. Data for 141 of these participants are available. This time frame was chosen to approximately parallel the completion of treatment for the clinical group. Families were reimbursed with a \$15 gift voucher for their time and participation in the study.

3. Results

In order to validate the questionnaire using exploratory factor analysis (EFA) and confirmatory factor analysis (CFA), the sample was randomly split into two subsamples (Fabrigar, Wegener, MacCallum, & Strahan, 1999). The first subsample (n=182) was used to conduct EFA, and the second (n=183) was used to conduct CFA. The total sample size (N=365) was then utilised for psychometric analyses including reliability and validity, with clinical-only or control-only

analyses used where relevant. For the analyses, age of participants was dichotomised into 7-11 years and 12-17 years to conceptually represent children and adolescents respectively. SPSS version 23 was used for the EFA and psychometric analyses, and AMOS version 22 was used to conduct the CFA.

3.1. Whole Sample Analyses

3.1.1. Item and sample characteristics. Means for the 37 items of the SBICA in the EFA subsample ranged from 0.64 to 1.80, standard deviations ranged from 0.89 to 1.39, and the full range of the scale was used for all items. Multivariate normality was assessed with Mardia's coefficient of kurtosis (Mardia, 1970). This yielded a normalised estimate of 5.71, which is greater than the cut-off value of 3, thus demonstrating a departure from multivariate normal distribution (Yuan, Marshall, & Bentler, 2002). With regards to distribution of individual items, skewness of the items ranged from .23 to 1.57 and kurtosis ranged from -1.30 to 2.30. Given the high positive kurtosis value of one item (29. "Hide your face", kurtosis = 2.30) which was above the cut-off value of |2|, it was deleted from the item pool (West, Finch, & Curran, 1995).

An inter-item correlation matrix was produced and no items correlated too little ($-0.3 < r < 0.3$) or too strongly ($r > 0.8$ or $r < -0.8$) with each other (Field, 2013). Correlation coefficients between each item and the total questionnaire score were calculated, and as all items demonstrated item-total correlations greater than 0.3 no items were excluded from the scale based on this recommendation (Kline, 2014).

3.1.2. Exploratory factor analysis (first subsample). The 36-item pool was subjected to a principal axis factor analysis with a Promax rotation and the interpretability of the factors was examined. Promax rotation was chosen as the rotation method as some correlation among factors was expected, and oblique rotation methods (rather than orthogonal rotations) are highly recommended in social science research for this reason (Costello & Osborne, 2005). The following

steps were taken in obtaining the factorial solution, using recommended criteria. Note that any removal of items was performed sequentially and PAF was re-run after each item removal.

1. The initial solution produced a seven-factor model based on factors with eigenvalues greater than 1 (Kaiser criterion) and this solution explained 54.67% of the total variance in scores. Examination of the scree plot suggested a break after the third or fourth factor. Both three and four-factor analyses were conducted. The three-factor solution explained 43.99% of total variance in scores while the four-factor-solution explained 47.64%. Upon evaluating the factors and item loadings, the three-factor solution was chosen as it was deemed the most parsimonious and interpretable.
2. A threshold of .32 was implemented as a minimum loading for an item to be retained (Tabachnick & Fidell, 2001). This cut-off resulted in the removal of two items (24. “Call or text parents frequently to check” and 26. “Say that you are sick and/or visit school sick bay”) as they did not load onto any factors. This resulted in a model that accounted for 45.69% of the total variance across 34 items.
3. Five items (items 9, 14, 15, 34, and 37) cross-loaded onto two factors. Each item was individually inspected and removal was justified for statistical (e.g., not clearly loading more strongly on either factor) or theoretical reasons (e.g., similar wording). This resulted in a model that accounted for 46.19% of the total variance across 29 items.
4. Two items (30. “Try to think about other things” and 19. “Imagine you are somewhere else”) had low communalities and were conceptually dissimilar from the other items in the factors they loaded on, and thus were removed. This resulted in a final model that accounted for 47.08% of variation in scores.

From this process, a three-factor solution with 27 items was deemed the most optimal and offered a theoretically sound and parsimonious representation of the data. Factor loadings for the final 27-item SBICA are presented in Table 2. Examination of the items that loaded onto each of the three factors suggested relatively coherent categories of safety behaviours represented by each. The first factor appeared to reflect safety behaviours related to excessive checking tendencies and vigilance (labelled ‘Checking’). The second factor focused clearly on safety behaviours related to social anxiety, with both restrictive and active behaviours associated with social worries (labelled ‘Image Management’). Items on the third factor reflected safety behaviours that are employed to manage anxieties related to separation (labelled ‘Physical Protection’).

3.1.3. Confirmatory factor analysis (second subsample). To confirm the factor structure of the 27-item SBICA, a CFA was conducted on the second half of the randomly split sample. Multivariate tests of normality were conducted through AMOS and revealed significant positive skewness and kurtosis in the data. This was expected given the sample characteristics (i.e., inclusion of nonclinical individuals) and the nature of the questionnaire. In light of this, a bootstrap procedure was employed to reduce potential biases resulting from deviations from multivariate normality (Efron & Tibshirani, 1994). The Bollen-Stine bootstrap (500 samples; Bollen & Stine, 1992) was used to obtain a corrected p -value for the χ^2 statistic. Model fit was also evaluated on the basis of a range of goodness-of-fit indices, including the Comparative Fit Index (CFI; Bentler, 1990), the Incremental Fit Index (IFI; Bollen, 1989), and the Root Mean Square Error of Approximation (RMSEA; Steiger, 1990). Lastly, correlated error variances (i.e., those that represent non-random measurement error) within the same factor were permitted, justified on the basis of content or wording (Brown, 2014).

Table 2

Factor Loadings for the 27-Item SBICA in the EFA Sample (n=182)

	Factor		
	1	2	3
10. Check items in your bag to make sure you haven't forgotten things	.859		
36. Double-check instructions to make sure you've heard correctly	.817		
16. Check and re-check homework/school work	.813		
25. Excessively study for tests and exams	.769		
13. Always need to stick to rules	.767		
18. Return permission slips day after receiving them	.743		
7. Check with parents or teacher	.743		
6. Always ask questions to make sure of things	.680		
8. Keep an eraser for correcting mistakes	.631		
32. Stand or sit in a way so people won't notice you much		.923	
31. Speak really fast and avoid pauses		.719	
27. Worry about or spend a long time on how you look		.714	
28. Avoid asking questions		.660	
5. Look down/avoid eye contact		.597	
2. Always carry a mobile		.547	
33. Do anything to try not to shake (e.g., hold things tightly, clench fist)		.525	
12. Keep quiet or try not to say much		.427	
11. Play or fidget with something		.420	
21. Practices sentences you'll say to others in your mind		.417	
35. Not say what you really want to		.403	
17. Avoid answering the phone or the door		.379	
3. Stand close to parent's side			.827
22. Sleep with family member			.734
4. Make sure parents are always close by			.705
23. Have your parents complete tasks on your behalf			.615
20. Use a night light, lamp, fan, etc at night			.587
1. Carry, wear, or have something special nearby (e.g., lucky charm, bracelet, blanket, toy)			.416

The resulting model demonstrated acceptable fit; CFI = .89, IFI = .89, RMSEA = .06. The bootstrap p value for the χ^2 statistic was significant, $\chi^2(308) = 532.44, p = .05$. However, the χ^2 statistic is sensitive to sample size and can detect significant differences despite well-fitting models, and thus the relative χ^2 statistic (χ^2/df) is often recommended as it is adjusted for sample size. The relative χ^2 statistic for this model was 1.73, indicating good fit. Figure 1 presents the path diagram with the standardised estimates obtained from the CFA.

3.1.4. Internal consistency. Internal consistency of the 27-item scale and each of the three factors was calculated using Cronbach's coefficient alpha. The total scale demonstrated good internal consistency ($\alpha = .907$), as did the three factors (Checking factor $\alpha = .912$, Image Management factor $\alpha = .848$, Physical Protection factor $\alpha = .825$).

3.1.5. Discriminant validity. Discriminant validity was evaluated by examining the ability of the SBICA to discriminate between clinically anxious and non-clinical participants. Initially four, three-way ANOVAs were conducted to examine the effect of clinical status, age group, and gender on SBICA scores for the total scale and each subscale. There were no significant effects of gender for any analyses so, to simplify reporting, results were collapsed across boys and girls and re-analysed as a series of two-way (clinical status by age group) ANOVAs.

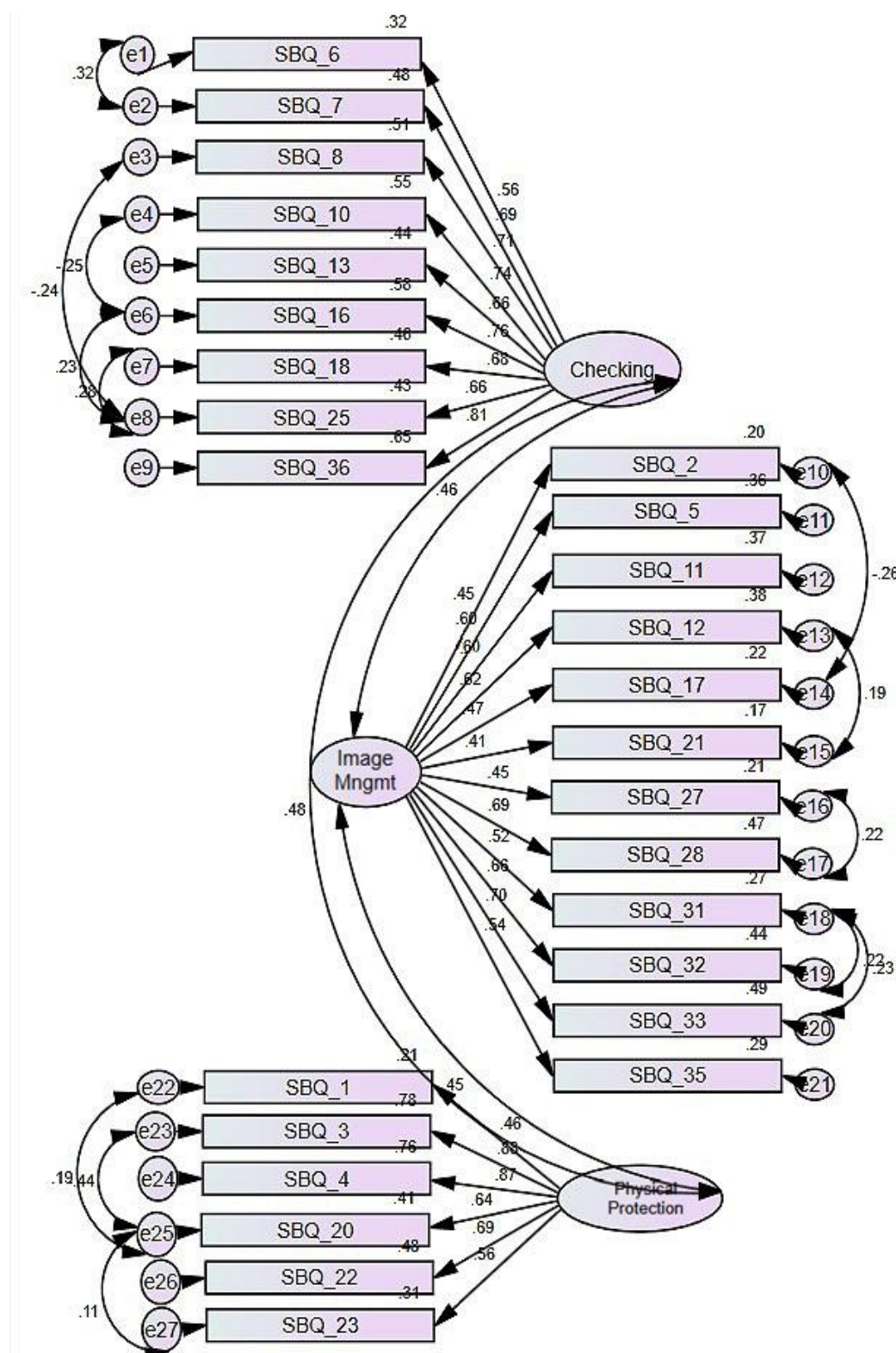


Figure 1. Confirmatory factor analysis path diagram of the three-factor model of the 27-item SBICA. All factor loadings and covariances are significant at $p < .01$.

For the total score on the SBICA, there was a significant main effect of clinical status, $F(1) = 65.41, p = .00$, no significant main effect of age group, $F(1) = 0.01, p = .98$, and no significant status by age interaction, $F(1) = 0.17, p = .68$. For the checking subscale, there was a significant main effect of clinical status, $F(1) = 51.54, p = .00$, no significant main effect of age group, $F(1) = 0.04, p = .84$, and no significant status by age interaction, $F(1) = 0.01, p = .95$. For the image management subscale, there was a significant main effect of clinical status, $F(1) = 22.97, p = .00$, a significant main effect of age group, $F(1) = 8.13, p = .01$, but no significant status by age interaction, $F(1) = 3.58, p = .06$. For the physical protection subscale, there was a significant main effect of clinical status, $F(1) = 32.31, p = .00$, a significant main effect of age group, $F(1) = 12.02, p = .00$, but no significant status by age group interaction, $F(1) = 1.86, p = .17$. Mean SBICA and subscale scores are presented in Table 3.

Table 3

Mean SBICA and Subscales Scores of Clinical and Non-Clinical Participants

	Mean Scores (SD)			
	<u>7-11 years</u>		<u>12-17 years</u>	
	Clinical	Non-Clinical	Clinical	Non-Clinical
Total SBICA Scale	32.42 (14.19)	20.20 (11.20)	33.12 (14.02)	19.57 (12.04)
Checking	17.97 (8.61)	10.67 (8.85)	17.76 (8.04)	10.40 (7.97)
Image Management	7.34 (5.06)	5.42 (4.94)	10.32 (5.36)	6.02 (5.46)
Physical Protection	7.21 (3.78)	4.10 (3.78)	5.05 (3.51)	3.15 (3.21)

3.1.6. Construct validity. To examine convergent and divergent validity, the scores of the SBICA and its subscales were correlated with other administered measures. Results were as expected and are presented in Table 4. In general, the largest correlations appeared to be between relevant pairs of anxiety-related constructs, such as the SBICA and SCAS ($r = .58$), and the SBICA and CATS ($r = .47$), compared to the SMFQ which is believed to be a measure of the different but related construct of depression ($r = .24$).

Correlations between the SBICA subscales and the subscales of the SCAS and CATS also demonstrated further convergent and divergent validity. Results were as expected in that the largest correlations appeared to be between the SBICA and relevant CATS subscales, compared to the subscales of different constructs.

Table 4

Correlations Between the SBICA and its Subscales and Other Administered Measures (N=365)

		Total SBICA	Checking Subscale	Image Management Subscale	Physical Protection Subscale
SCAS	Total	.58**	.41**	.49**	.49**
	Separation	.35**	.18**	.19**	.58**
	Social	.42**	.22**	.65**	.13**
	GAD	.47**	.35**	.40**	.34**
	OCD	.46**	.43**	.28**	.28**
	Panic/Agoraphobia	.42**	.28**	.43**	.31**
	Physical injury	.41**	.38**	.15**	.42**
CATS	Total	.47**	.32**	.51**	.28**
	Physical threat	.42**	.29**	.34**	.39**
	Social threat	.33**	.11*	.59**	.13*
	Personal failure	.45**	.42**	.36**	.16**
	Hostile intent	.32**	.22**	.32**	.23**
SMFQ		.14*	.19*	.15*	.10*

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

3.2. Clinical Sample Analyses

3.2.1. Discriminant validity. To demonstrate further discriminant validity against clinical diagnoses, scores on the SBICA subscales were compared between clinical participants suffering from a specific anxiety disorder, to those without. First, three anxiety disorders were dummy-coded to indicate presence or absence. The disorders of focus were Social Anxiety Disorder, Separation Anxiety Disorder, and Generalised Anxiety Disorder (GAD). Obsessive-Compulsive Disorder (OCD) was not included due to the small sample with this disorder ($n = 7$). Next, a series of one-way ANOVAs were conducted to evaluate the ability of the SBICA subscales to discriminate between those with and without specific disorders.

Participants with Social Anxiety Disorder were found to score significantly higher ($M = 8.50$, $SD = 5.60$) on the SBICA Image Management subscale than those without ($M = 7.17$, $SD = 4.73$; $F(2) = 6.29$, $p = .00$). Those with Separation Anxiety Disorder were found to score significantly higher ($M = 8.24$, $SD = 3.58$) on the SBICA Physical Protection subscale than those without ($M = 6.45$, $SD = 3.81$; $F(2) = 8.69$, $p = .00$). Participants with GAD scored higher on the SBICA Checking subscale ($M = 19.35$, $SD = 9.04$) compared to those without GAD ($M = 16.44$, $SD = 7.60$, $F(2) = 3.73$, $p = .03$). These results further support the validity of the SBICA and its subscales in its ability to discriminate between clinical participants suffering different types of anxiety disorders

3.2.2. Construct validity. Given the additional measures completed by clinical participants, convergent and divergent validity was further examined in this sample. Correlations between the SBICA, SDQ and CALIS are presented in Table 5. As expected, correlations were highest between the SBICA and the subscales of the SDQ related to anxiety (i.e., the emotional symptoms scale and total difficulties) compared to the other subscales measuring different constructs (e.g., behavioural and externalising problems). The SBICA and its subscales were also significantly correlated with the CALIS which is an anxiety-related measure.

Table 5

Correlations Between Total SBICA and Subscale Scores and Additional Measures of Psychopathology in the Clinical Sample Prior to Treatment (n = 196)

		Total SBICA	Checking Subscale	Image Management Subscale	Physical Protection Subscale
SDQ	Emotional Symptoms	.38**	.32**	.33**	.22**
	Conduct Problems	-.05	-.15	.17*	-.09
	Hyperactivity	-.00	-.06	.11	-.04
	Peer Problems	.17*	.10	.15	.20*
	Prosocial	.26	.20	.07	.22
	Total Difficulties	.33*	.22*	.32*	.24*
CALIS		.32*	.21*	.29*	.26*

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

3.2.3. Responsiveness to treatment change. Responsiveness to change was determined by examining the capacity of the SBICA to detect change resulting from treatment, using responses from the 55 clinical participants who completed the SBICA and questionnaires post-treatment. The mean SBICA score prior to treatment was 35.38 (SD = 14.40) and the mean score post-treatment was 23.38 (SD = 12.70). A repeated measures ANOVA showed that mean SBICA scores in the clinical group reduced significantly from pre- to post-treatment, $F(1, 54) = 22.13, p = .00$.

Furthermore, using total SCAS score as the primary outcome measure for levels of anxiety, the extent to which safety behaviour changed over treatment significantly correlated with the extent to which anxiety changed over treatment, ($r = .40, p = .00$). The level of safety behaviour at the end of treatment also significantly predicted the level of anxiety at 6-month follow-up ($r = .41, p = .00$). Similarly, change in safety behaviour over treatment correlated significantly with the extent to which negative thoughts changed over treatment ($r = .30, p = .03$). However, the level of safety behaviour at the end of treatment did not correlate significantly with the level of negative thoughts at 6-month follow-up ($r = .23, p = .08$). Of note, CSRs were not used to evaluate construct validity given issues regarding their use in evaluating treatment outcome, including

problems with inter-rater reliability (DiBartolo, Albano, Barlow, & Heimberg, 1998; Hope, Laguna, Heimberg, & Barlow, 1996).

3.3. Control Sample Analyses.

3.3.1. Test-retest reliability. Retest reliability was assessed approximately 12-13 weeks after the initial data collection with the non-clinical participants. Test-retest reliability was $r = .794$, $p = .00$ for the total scale, $r = .713$, $p = .00$ for the checking subscale, $r = .764$, $p = .00$ for the image management subscale, and $r = .846$, $p = .00$ for the physical protection subscale.

4. Discussion

The aim of the present study was to develop and validate the SBICA, a measure of safety behaviours for children and adolescents. In addressing the lack of child-specific measures of safety behaviour, the SBICA was developed specifically for this population to be applicable across the anxiety disorders. Examination of the factor structure of the SBICA with an unconstrained EFA provided evidence for a three-factor solution for the 27 items of the scale that reflects three types of safety behaviours: checking, image management, and physical protection behaviours. A CFA with a separate subsample supported the obtained factor structure, although some of the fit indices were slightly below optimum. Hence the SBICA appears to describe three related, but somewhat distinct forms of safety behaviour.

Strong internal consistency of the total SBICA scale indicated a substantial degree of homogeneity among items within the safety behaviour construct. Furthermore, strong internal consistency of each subscale suggested that the items within each subscale tap a specific category of safety behaviour. Good test-retest reliability of the total scale and each subscale three months after initial testing indicated that the questionnaire is a stable measure of safety behaviour in children and adolescents. Interestingly, the retest correlations appeared to be slightly higher than is often observed over similar periods on measures of anxiety symptoms (Spence, 1998), possibly suggesting a more stable construct. Test-retest reliability was assessed only with control

participants, given that clinical participants underwent treatment, thus is it unclear whether similar retest reliability will be shown in clinical populations.

Discriminant validity was supported by the ability of the SBICA and its subscales to significantly differentiate between clinical anxious and control participants. More interestingly, different anxiety disorders appeared to relate to certain categories of safety behaviour more than others. That is, the SBICA subscales were able to discriminate between children with certain diagnoses and those without. Specifically, the checking subscale discriminated between children with Generalised Anxiety Disorder to those without, and the image management subscale discriminated between children with Social Anxiety Disorder to those without, whereas the physical protection subscale discriminated between children with Separation Anxiety disorder to those without. These novel findings suggest that not only is the SBICA sensitive to clinical levels of anxiety, but that it has potential utility across multiple anxiety disorders.

The SBICA and its subscales also demonstrated good convergent and divergent validity, with stronger associations to anxiety-related measures and subscales, compared to those related to other constructs such as depression and externalising problems. Construct validity of the SBICA was further supported by the SBICA's responsiveness to the effects of treatment, with change in SBICA scores over treatment significantly correlating with change in anxious symptoms. Future research would benefit from further examination of this relationship using further analyses and obtaining longer-term data. Specifically, it would be interesting to see whether treatment change is partially mediated by via changes in safety behaviour, and whether failure to change safety behaviour can undermine long term treatment gains.

4.1. Strengths and Limitations

This study sampled both clinically anxious and non-clinical populations to ensure generalisability and tests of validity. However, although the sample size allowed for an item to participant ratio of 1:5 and was considered sufficient for exploratory factor analysis (Floyd &

Widaman, 1995; Gorsuch, 1997), this ratio is in fact the minimum recommendation, with some authors advocating a ratio of 1:10 (Nunnally & Bernstein, 1994). Future validation studies would benefit from larger sample sizes to ensure the factor stability of the SBICA. Furthermore, both clinical and non-clinical samples were comprised of children from middle socio-economic backgrounds in Sydney, New South Wales. To increase the generalisability of the findings, replication in other geographical areas and socio-demographic groups, and potentially in other cultures, is recommended. Furthermore, due to restricted resources, the SBICA was not administered at a further time point (e.g., 6-month follow up). Thus, it would be interesting for future studies to investigate the longer-term effects of safety behaviour to shed light on potential associations with relapse and return of fear.

4.2. Clinical Implications

These findings have promising implications for clinical practice. Given the good psychometric properties of the SBICA and its subscales, the SBICA has potential to be used to inform treatment planning by clinicians in identifying the types and extent of safety behaviour use their clients engage in. Given the ingrained and instinctive nature of safety behaviours, many individuals may struggle to identify their (or their children's) behaviours. Thus, the SBICA can be implemented as part of psychoeducation and provide parents and children with examples. Given that the SBICA is sensitive to changes in anxious symptoms, it can be administered at post-treatment as a benchmark against which treatment progress can be assessed. Additionally, clinicians may also choose to utilise the measure throughout treatment to monitor possible threats to exposure. For example, clients may rank the behaviours hardest to easiest which will guide exposure tasks, and clinicians may then subsequently administer the SBICA to monitor and adjust sessions accordingly. Furthermore, given its ability to tap into different specific types of anxiety domains, the SBICA may be an ideal instrument for researchers to assess the impact of treatment for mixed anxiety samples.

Given the central role and clinical relevance of safety behaviours in the treatment of anxiety, there has not been sufficient research dedicated to the assessment of these behaviours, especially in young people. This study has filled a critical gap in the literature and has provided the groundwork for the valid assessment of safety behaviours in children and adolescents. While further work will help to refine and validate the measure, the SBICA is a promising tool to be used for both clinical and research purposes.

5. References

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General Discussion

This thesis addressed a gap in the literature surrounding the assessment of child and adolescent anxiety and contributes to our understanding of safety behaviours in this population. The thesis included a qualitative study that explored children's use and beliefs around safety behaviours, which in turn informed a quantitative study to develop a conceptually and psychometrically sound measure for assessing safety behaviour in young people.

1. Summary of Findings

1.1. Study One. The first study was exploratory in nature and aimed to elucidate safety behaviours currently reported by children and adolescents, in addition to their beliefs regarding their safety behaviour use. In addressing a gap in the literature, this study provided necessary exploration of young people's ability to understand and conceptualise safety behaviours. This conceptual exploration also provided actual safety behaviours currently being reported and determined young people's abilities to report on their own safety behaviour use. Not only do these findings provide new and interesting theoretical insights, but given the lack of a safety behaviour measure tailored for this population, they also have important implications in informing future development of such a measure.

The findings from the study elucidated five primary categories of safety behaviours reported by children and adolescents representing both clinical and non-clinical populations. These categories were: needing an inanimate object (to carry, hold, or wear), needing an attachment figure (parent, sibling, or friend), an active behaviour (e.g., listening to music), a withdrawal behaviour (e.g., avoiding eye contact), and a cognitive strategy (e.g., thinking of something else). The reported use of different categories of safety behaviours was associated with age, whereby younger children reported greater frequency of using safety behaviours requiring an external source (i.e., an object or person), whereas adolescents reported higher numbers of self-reliant safety behaviours (e.g., doing something or utilising a cognitive strategy). Interestingly, those who

reported needing an object or using a withdrawal behaviour reported higher levels of separation and social anxiety, respectively, as measured by scores on the SCAS Separation and Social subscales.

These findings are consistent with longstanding research on cognitive development that describes adolescence as a period in which an individual's cognitive capacity begins to transition from concrete to abstract and introspective processes (Inhelder & Piaget, 1958). Furthermore, while some categories and specific safety behaviour responses share overlap with items in current measures of adult safety behaviour (e.g., withdrawal behaviour – avoiding eye contact), the categories of needing an inanimate object and needing an attachment figure appear to be unique to this population and do not feature in current adult measures. As such, these findings provide further indication of the unique categories of items needed for a safety behaviour measure tailored to children and adolescents. Without interviewing the younger population for which a measure is intended, these important details would likely be overlooked in a downward extension of an adult measure.

Responses regarding the role of safety behaviours were consistent with the common definition and conceptualisation of safety behaviours in the literature (Salkovskis, 1991). That is, a majority of the participants identified that using or having their safety behaviour reduced their anxiety or worry, or increased their perceptions and feelings of safety and calm. In addition, they believed that utilising their safety behaviour would change the outcome of their feared situation.

Responses were also in accordance with the common catastrophic beliefs associated with safety behaviour use (Clark & Wells, 1995; Salkovskis, 1991). That is, when asked what would happen if they could not have or use their safety behaviour, most participants reported that it would result in a negative emotion or outcome (e.g., will be anxious, scared, worried), that they would panic, or that they would not be able to cope. These catastrophic coping beliefs were reported more by younger participants and by those with a clinical disorder. Furthermore, those

who reported catastrophic coping beliefs were found to have significantly higher levels of anxiety in various domains, as measured by the SCAS and its subscales. These insights into catastrophic coping beliefs contribute to the ongoing research that aims to delineate safety behaviours from adaptive coping strategies (Thwaites & Freeston, 2005). Consistent with these results, compared to adaptive coping strategies, safety behaviours are characterised by the catastrophic beliefs surrounding their use, and misattributions that they prevent feared catastrophes (Salkovskis, 1991). Of course, the distinction between safety behaviours and coping strategies is a fine one and there can be substantial overlap. For example, in the absence of additional information about coping beliefs, it is notable that some safety behaviours described in this study, such as *“I think positive thoughts”*, may in fact be categorised as adaptive coping strategies. This demonstrates the difficulty in delineating the two constructs, and future research would benefit from further investigation of the similarities and differences between these constructs

1.2. Study Two. Using the information obtained from Study One, Study Two focused on the development and psychometric evaluation of the SBICA, a measure of safety behaviours specifically tailored for child and adolescent populations. While there have been attempts to validate adult safety behaviour measures in adolescent populations with promising results (Baker et al., 2014; Thomas et al., 2012), no measures designed specifically for children and adolescents have previously been developed. Given the developmental differences in how children and adults experience and express anxiety (Emmelkamp & Ehring, 2014; Gullone, 2000; Schniering et al., 2000) and the developmental differences shown in Study One, there is reason to believe that a measure specifically tailored to the emotional, cognitive, and behavioural complexities of childhood and adolescence would ensure that age-appropriate safety behaviours are being measured. Thus by using the information obtained in Study One to inform item development, Study One aimed to address this gap in the literature on the assessment of safety behaviours.

Using both clinical and non-clinical participants, examination of the factor structure of the SBICA provided evidence for a three-factor solution, and resulted in a 27-item version of the measure. Based on item content, the factors reflected three distinct, but related, types of safety behaviours: checking, image management, and physical protection behaviours. A confirmatory factor analysis (CFA) using a separate subsample supported the obtained factor structure, although some of the fit indices were slightly below optimum.

The total SBICA demonstrated strong internal consistency, indicating substantial homogeneity among the items within the safety behaviours construct. The individual subscales also demonstrated strong internal consistency, suggesting that the items within each subscale tap a specific category of safety behaviour. The total SBICA scale and its subscales were also found to have good test-retest reliability three months after initial testing, indicating that the questionnaire provides a stable measure of safety behaviour in children and adolescents. Interestingly, the re-test correlations appeared to be slightly higher than is often observed over similar periods on measures of anxiety symptoms (Spence, 1998), possibly suggesting a more stable construct.

Discriminant validity was supported by the ability of the SBICA and its subscales to significantly differentiate between clinically anxious and control participants. More interestingly, participants with particular anxiety disorders appeared to score higher on certain categories that matched theoretical conceptualisation. Participants with Social Anxiety Disorder scored higher on the SBICA Image Management subscale than those without, participants with Separation Anxiety Disorder scored higher on the SBICA Physical Protection subscale than those without, and participants with GAD scored higher on the SBICA Checking subscale than those without. The ability of its subscales to discriminate between clinical participants suffering from different types of anxiety disorders provided further support for the SBICA's discriminant validity.

Lastly, the SBICA and its subscales also demonstrated good convergent and divergent validity, with stronger associations to anxiety-related measures and subscales, compared to those

related to other constructs such as depression and externalising problems. Change in SBICA scores over treatment significantly correlated with change in anxious symptoms, further supporting the SBICA's construct validity and responsiveness to the effects of treatment. Overall, the SBICA demonstrated good psychometric properties and appears to be a promising measure of safety behaviours in children and adolescents.

2. Strengths, Limitations, and Future Directions

A primary strength of this thesis was the use of qualitative data collection in Study One with focus groups in Study Two to first provide a unique developmental understanding of the conceptualisation of safety behaviours, and second to inform the development of the SBICA, a process consistent with contemporary scale development procedures (Bearss et al., 2016; DeVellis, 2003). By first obtaining input from the target population and experts in the field, the items in the SBICA are more likely to reflect a range of items that are age and relevant to children and adolescents, for whom the measure was intended. Given the small number of clinical participants included in Study 1 ($n = 29$), future qualitative exploration of the safety behaviours construct would benefit from recruiting a larger clinical sample. With regards to Study 2, the sample size allowed for the minimum recommendation of an item to participant ratio of 1:5 (Floyd & Widaman, 1995; Gorsuch, 1997). However, as some authors advocate a ratio of 1:10 (Nunnally & Bernstein, 1994), future validation of the SBICA would benefit from recruiting a larger sample to ensure the factor stability of the questionnaire.

The use of clinical and non-clinical participants in both the exploratory phase, and the psychometric validation of the questionnaire, ensures generalisability and validity for use in clinical settings. However, it is important to acknowledge that samples in both studies had higher representation of somewhat advantaged families from middle to high socio-economic backgrounds in Sydney, Australia. Thus, replication of these studies in other geographical areas, socio-

demographic groups, and other cultures is recommended to increase generalisability of the findings.

While the SBICA and its subscales demonstrated higher test-retest reliability than is often observed over similar periods on measures of anxiety symptoms (Spence, 1998), retest reliability was only assessed among non-clinical participants, given that clinical participants underwent treatment. Thus, it is unclear whether similar retest reliability would be demonstrated in clinical populations, and future research with clinical groups would allow for further evaluation of the SBICA's stability. Future development of the SBICA would also benefit from establishing norms for the measure, which would in turn determine appropriate clinical cut-off scores. Furthermore, due to restricted resources, the SBICA was not administered at longer follow-up (e.g., after 6 months), thus future studies could investigate longer-term effects to elucidate potential associations with relapse of anxiety.

3. Implications

3.1. Theory and research. The qualitative findings of Study One hold important theoretical implications. First, the findings demonstrated that children as young as seven years were able to understand the concept of safety behaviours and report on their own use of these behaviours. Second, this has been the first study to directly ask children and adolescents about their current use of safety behaviours. In doing so, the results have contributed unique information to the conceptualisation of safety behaviours, providing new insight into the most common categories of safety behaviours reported by younger populations. Third, responses received from the children and adolescents support current theories and conceptualisations of safety behaviours that have typically been developed from research with adults (Clark & Wells, 1995; Helbig-Lang et al., 2014; Salkovskis, 1991). That is, participants identified the function of safety behaviours in serving to reduce anxiety or worry, or increase perceptions of safety and calm. By using their safety behaviour, participants reported that it would change the outcome of their feared situation.

Furthermore, the findings elucidated the catastrophic beliefs associated with safety behaviours with regards to coping with or without them. Not only are these coping beliefs consistent with previous research, but they further contribute to the ongoing research which aims to distinguish safety behaviours from adaptive coping strategies (Thwaites & Freeston, 2005).

The development of the safety behaviour measure for children and adolescents in Study Two also has important applications for research. Given that research about these behaviours in younger populations is still in its infancy, the use of a psychometrically sound measure can hopefully encourage and contribute to ongoing research in this field. Furthermore, most of the existing measures of safety behaviour are aimed at measuring behaviours specific to an anxiety disorder, such as social anxiety disorder (e.g., Clark et al., 1995; Cuming et al., 2009). Thus, given its ability to tap into different specific types of anxiety domains, the SBICA may be an ideal instrument to assess the impact of treatment for mixed anxiety samples. Given the high levels of comorbidity found in most anxious populations (Brown, Antony, & Barlow, 1995; Brown & Barlow, 1992) this is an important advantage.

3.2. Clinical practice. The results of this thesis have important implications for the assessment and treatment of anxiety disorders in children and adolescents. Given the strong psychometric properties of the SBICA and its subscales, the SBICA has potential to be used throughout various stages of treatment. It may be used in the assessment and treatment planning process by clinicians to identify the types and extent of safety behaviour use their clients are initially engaging in prior to treatment. Given the ingrained and instinctive nature of safety behaviours, many individuals may struggle to identify their (or their children's) behaviours, thus the SBICA could be implemented as part of psychoeducation and provide parents and children with examples. Clinicians may also choose to administer the measure throughout treatment to monitor progress and possible threats to exposure. For example, clients may rank the behaviours hardest to easiest which will guide exposure tasks, and clinicians may then subsequently

administer the SBICA to monitor and adjust sessions accordingly. Lastly, given that the SBICA is sensitive to changes in anxious symptoms, clinicians may choose to administer the questionnaire at post-treatment to ascertain progress made throughout treatment, which may inform further follow-up or referral recommendations. Overall, given the integral role of exposure exercises in the treatment of anxiety disorders (Abramowitz, Deacon, & Whiteside, 2012; Kashdan & Herbert, 2001), the assessment and monitoring of safety behaviours which are known to threaten exposure (for a review, see Helbig-Lang & Petermann, 2010), will likely support and improve the effectiveness of exposure and treatment of childhood anxiety disorders.

4. Conclusion

The central role and clinical relevance of safety behaviours in the treatment of anxiety disorders is undisputed. However, research focusing on safety behaviour use in children and adolescents continues to lag behind research in the adult literature. To date, assessment of safety behaviours in young people has relied on the use of downward extensions of adult questionnaires. This thesis aimed to fill a critical gap in the literature by elucidating current safety behaviours and associated beliefs held by children and adolescents, and using this information to inform the development of the first safety behaviour measure specifically developed for this population. Taken together, this thesis has contributed to the understanding and conceptualisation of the safety behaviour construct, and has provided groundwork for the valid assessment of safety behaviours in children and adolescents.

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Appendix A & B of this thesis have been removed as they may contain sensitive/confidential content

Consent Form

Development of a new measure for children and adolescents with anxiety

PARTICIPANT'S COPY TO KEEP

We have read and understand the information given above, and any questions asked have been answered to our satisfaction. We have discussed the procedures with our child, and we consent to their voluntary participation. As stated in the information sheet, our details remain confidential and are only used for the purposes of this research study.

We agree to their participation in this research knowing that we can withdraw from further participation in the research at any time without consequence. We acknowledge that, if we wish to participate, we will provide an ID code for re-testing, which will be the first three (3) letters of our child's surname, and the last three (3) numbers of a phone number they will remember. This code will ensure that responses cannot be directly identified and are for only for the purpose of matching the questionnaires. I have been given a copy of this form to keep.

Please tick the relevant boxes:

☐ I would like my child to participate in this research.

☐ I would also like my child to participate in re-testing. Our ID code for re-testing is –

OR

☐ I do not want my child to participate in this research

Child's Name (block letters): _____

Child's date of birth: _____ Gender: Male / Female (please circle)

Email address: _____

Guide/Scout Unit Name: _____

Parent/Guardian's Name (block letters): _____

Parent/Guardian's Signature: _____ Date: _____

Investigator's Name: Cindy Chapman Investigator's Signature: _____ Date: _____

The ethical aspects of this study have been approved by the Macquarie University Ethics Review Committee (Medical Sciences). If you have any complaints or reservations about any ethical aspect of your participation in this research, you may contact the Committee through the Research Ethics Officer (telephone (02) 9850 7854, email: ethics@mq.edu.au). Any complaint you make will be treated in confidence and investigated, and you will be informed of the outcome.

Appendix C: Semi-Structured Interview Scripts

For children and adolescents (italicised words indicate spoken word)

Begin with informal discussion about the child's anxiety to obtain contexts in which he/she is anxious. Talk about situations in which they become anxious and the symptoms they recognise they have.

We have just talked about the fact that you have anxiety often in certain situations, such as when people are around. For example you told me that [give example of child's symptoms and particular situations of when they experience anxiety]. There are many people that have this anxiety in similar situations and do certain things to try and reduce their anxiety. For example, if they are anxious about meeting someone new, they might try and rehearse what they will say to people in their mind.

When people feel anxious in those situations, they often find it uncomfortable when other people notice that they are worried/scared, and so they do certain things so people don't notice this (or notice this less). And because fear/feeling scared does not feel good, people try and do things so that their fear is reduced.

*Can you think of any things that you do, so that your fear is reduced? [Record responses].
Can you think of any things that you do, so that no-one notices your fear? [Record responses].*

In some cases, the children may not be able to think of anything and we may need to prompt them further and guide them through various social situations/scenarios. *Can you remember a time/situation when you were scared? What was it that you were scared of? Do you think other children/people could see that you were afraid? What did you do so they couldn't see, or couldn't remember that you were afraid? For example, maybe you looked away from people?*

If they provide some information: *Thanks for sharing some of the things you do when you're scared in some situations. Even though you've told me a few ways I'm going to show you some different things people do when they're feeling anxious.*

If they are still unable to provide any more detail, we'll still proceed to the next section: *For a lot of children/people, it's not easy to say exactly what they do so others don't notice their fear. So in the next section, I'm going to show you some different things people have told us they do when they're feeling anxious.*

Think about whether you do any of the following in situations that make you feel anxious, and if so, how often. Please highlight as many that are similar to what you do.

Run slowly through each item. When the child affirms an item: *Do you do this often, or just sometimes? Or every time other people are around?* When they say no to an item: *Have you never done this, or just very rarely?* Remember to clarify that these are in relation to times when they have felt afraid/anxious/worried.

[Always Often Sometimes Never]

1. I try not to make eye contact with others, or make as little as possible
2. If I am holding something like a cup, I hold it tightly so others don't see I'm trembling
3. I try to position myself so I won't be noticed
4. I try really hard to find the right words
5. I concentrate on imagining how I appear to others
6. I say that I am sick/unwell
7. I talk less
8. I avoid asking questions
9. I try not to tremble
10. I avoid pauses
11. I ask others about my performance
12. I speak in short sentences
13. I wear clothing or makeup so that others can't see when I'm blushing
14. I try and make my mind blank
15. I walk away
16. I try and check what I look like in the mirror
17. I spend a lot of time getting ready for the situation (e.g., preparing how I'll look)
18. I wear cool clothes so I don't sweat
19. I avoid talking about myself
20. I say my sentences in my head before I say them out loud
21. I move as little as possible
22. I try to think of reasons why the other person isn't as good as me
23. I make excuses about my appearance
24. I spend time thinking of an excuse to escape
25. I ask a lot of questions
26. I hide
27. I say 'it's hot' to explain sweating or blushing
28. I try to distract myself with other thoughts
29. I stand at the edge of the group
30. I hide my face (e.g., behind my hair) so that other don't see how red I am
31. If my parents are with me, I hold on to their hands very tight
32. I talk more
33. I breathe deeply
34. I start to cry
35. I try to imagine myself somewhere else

Is there anything else like these that you do to try to reduce your fear or help you when you are feeling scared? [Clarify responses as much as possible]

Encourage open discussion about wording of the items, or how their behaviour may be slightly different to how one is worded. Have a discussion about items they would think are common and any they would omit/think do not apply to kids in their opinion.

For parents and caregivers (italicised words indicate spoken word)

Begin with informal discussion about their child's anxiety to obtain contexts in which they have seen their child anxious. Talk about situations where they have seen their child become anxious and the symptoms they have recognised.

We've just talked about your child's anxiety in certain situations such as social gatherings and some symptoms they may have discussed to you, such as feeling nervous and sweaty. Many children experience anxiety in similar situations and actually do certain things to try and reduce their anxiety. For example, children who are anxious about meeting new people may try and mentally rehearse what they will say to people.

Can you think of any behaviours or strategies that your child does to try and reduce his/her fear?
[Record responses]

Can you think of any behaviours or strategies that your child engages in so that no one will notice their anxiety? [Record responses]

In some cases the parents may not be able to think of anything and we may need to prompt them further and guide them through various social situations/scenarios. *Can you remember a time/situation when your child was quite anxious? Did you notice any differences in the way they behaved as a way to hide their anxiety? For example, maybe they were avoiding eye contact with people, or spoke less?*

If they provide some information: *Thanks for sharing some of the behaviours and strategies you've noticed your child engages in when they're anxious. Even though you've told me a few ways I'm going to show you some different things children have reported doing to reduce their anxiety.*

If they are still unable to provide any more detail, we'll still proceed to the next section: *That's ok, it's hard to notice these behaviours sometimes, and sometimes they might be hiding it well, or they might not be changing their behaviour at all. So in the next section, I'm going to show you some different things children have told us they do when they're feeling anxious. Think about whether you think your child might engage in any of the following behaviours when they're anxious. Please highlight as many that are similar to what you do.*

Run slowly through each item. When the parent affirms an item: *Do you think they do this often, or just sometimes? Or every time other people are around?* When they say no to an item: *Have they never done this, or just very rarely?* Remember to clarify that we're only asking about situations where there are other people and you are afraid/anxious.
Is there anything else like these that you think your child may do in anxious situations? [Clarify responses as much as possible]

Encourage open discussion about wording of the items, or how their child's behaviour may be slightly different to how one is worded. Have a discussion about items they would think are common and any they would omit/think do not apply to kids in their opinion.

Appendix D: 37-item SBICA for Psychometric Testing

Some children and teenagers do the following things when they feel anxious, and these things often help make the anxiety less. Please rate how often you have done these things recently (in the past 1-2 months) when you felt anxious/worried scared by choosing the right circle. Circle your answer in the following way: 1 = never, 2 = occasionally, 3 = sometimes, 4 = often, 5 = always

	Never	Occasionally	Sometimes	Often	Always
1. Carry, wear, or have something special nearby (e.g. lucky charm, bracelet, toy, blanket, book)	1	2	3	4	5
2. Always carry a mobile phone	1	2	3	4	5
3. Stand close to parent's side/hold on to parent's clothes	1	2	3	4	5
4. Make sure parents/guardians are always close by	1	2	3	4	5
5. Look down/avoid eye contact	1	2	3	4	5
6. Always ask questions to make sure of things	1	2	3	4	5
7. Check with parents/guardians or teacher	1	2	3	4	5
8. Keep an eraser for correcting mistakes	1	2	3	4	5
9. Have back ups (e.g. extra pencils in an exams; pack extra clothes in case you want to change)	1	2	3	4	5
10. Check the items in your bag to make sure you haven't forgotten things	1	2	3	4	5
11. Playing or fidgeting with something (e.g. cracking knuckles, twirling hair, biting nails)	1	2	3	4	5
12. Keep quiet or try not to say much	1	2	3	4	5
13. Always need to stick to rules	1	2	3	4	5
14. Rehearse what you'll say or do in your head	1	2	3	4	5
15. Have your parents check homework	1	2	3	4	5
16. Check and rechecking homework, school work, etc.	1	2	3	4	5
17. Avoid answering phone or the door	1	2	3	4	5
18. Return permission slips day after receiving them	1	2	3	4	5
19. Imagine you are somewhere else	1	2	3	4	5
20. Use night lights, torches, fans, etc. at night	1	2	3	4	5
21. Practice sentences you'll say to others in your mind	1	2	3	4	5

THE NATURE AND USE OF SAFETY BEHAVIOURS IN CHILDREN AND ADOLESCENTS

	Never	Occasionally	Sometimes	Often	Always
22. Sleeping with parents or in same room (sometimes siblings)	1	2	3	4	5
23. Have your parents complete tasks on your behalf (e.g. saying things for you, collecting things)	1	2	3	4	5
24. Call or text parents frequently to check	1	2	3	4	5
25. Excessively study for tests and exams	1	2	3	4	5
26. Say that you are sick/unwell, and/or visit school sick bay	1	2	3	4	5
27. Worry about or spend a long time on how you wear your clothes/hair	1	2	3	4	5
28. Avoid asking questions (e.g. in class)	1	2	3	4	5
29. Hide your face (e.g., behind people, with a hat)	1	2	3	4	5
30. Try to think about other things	1	2	3	4	5
31. Speak really fast and avoid pauses	1	2	3	4	5
32. Stand or sit in a way so people won't notice you much (e.g. behind people, keeping still, look busy)	1	2	3	4	5
33. Do anything to try not to shake (e.g., holding things tightly, clenching fist)	1	2	3	4	5
34. Shut your eyes	1	2	3	4	5
35. Not say what you really want to	1	2	3	4	5
36. Double-check instructions to make sure you've heard correctly	1	2	3	4	5
37. Speak softly/in a whisper	1	2	3	4	5