UNIVERSITY OF SOUTHAMPTON

FACULTY OF SOCIAL AND HUMAN SCIENCES

School of Psychology

Volume 1 of 1

Childhood Anxiety Disorders: Exploring Targeted Preventative Interventions and Spontaneous Recovery from Diagnosis

By

Sally M Rooke, BSc, PgDip.

Thesis for the degree of Doctor of Clinical Psychology

May 2017

Word Count: 17, 497

UNIVERSITY OF SOUTHAMPTON

ABSTRACT

FACULTY OF SOCIAL AND HUMAN SCIENCES

School of Psychology

Thesis for the degree of Doctor of Clinical Psychology

Childhood Anxiety Disorders: Exploring Targeted Preventative Interventions and Spontaneous Recovery from Diagnosis

Sally M. Rooke

The first section of this thesis submission consists of a systematic literature review of randomised controlled trials evaluating intervention programmes aimed at preventing the onset of Anxiety Disorders in 'at risk' young people. A total of 16 studies (2545 young people) met inclusion criteria. Intervention characteristics were varied, although most often based on cognitive behavioural therapy. The range of risk factors used for inclusion in selective interventions was wide ranging. Evidence for effectiveness was mixed. Studies included in this review revealed a trend for a reduction of anxiety symptoms post intervention, but inconsistent findings regarding the significance of this decrease in comparison with control groups. The need for future research is discussed.

The second part contains an empirical research paper investigating potential predictive factors of spontaneous recovery from childhood anxiety disorders. Sixty-three children, aged 7-12 years old, with a current anxiety disorder took part in the study. The main findings were that children's spontaneous recovery from childhood anxiety disorders was higher among children with a single anxiety disorder than for children with comorbid anxiety disorders, and for those with parents who displayed lower levels of passivity, threat promotion, or vulnerability promotion. Clinical implications and suggestions for future research are discussed.

Table of Contents

List of Tables

List of Figures

Declaration of Authorship

I, Sally Rooke, declare that this thesis and the work presented in it are my own and has been generated by me as the result of my own original research.

Childhood Anxiety Disorders

I confirm that:

1. This work was done wholly or mainly while in candidature for a research degree at this University;
2. Where any part of this thesis has previously been submitted for a degree or any other

qualification at this University or any other institution, this has been clearly stated;

3. Where I have consulted the published work of others, this is always clearly attributed;
4. Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;
5. I have acknowledged all main sources of help;
6. Where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;
7. None of this work has been published before submission.

Signed: .....

Date: .....

Acknowledgements

I would like to thank everyone who has encouraged and supported me throughout my time on the doctoral course, and in particular, with the writing of this thesis. Foremost, thanks must go to the Anxiety and Depression in Young people (AnDY) research clinic for welcoming me into their team, and in particular to my supervisors, who have provided me with invaluable advice, guidance, and support throughout. Thank you Dr. Kerstin Thirlwall, Prof. Cathy Creswell and Dr. Peter Lawrence. I am also grateful to the children and young people who participated in this research, without whom none of this would have been possible.

Thanks to my family, friends, peers and colleagues, who have provided me with an unwavering network of support to motivate me, sympathise with me, and to make me smile at even the most challenging times. Special thanks must be given to my mum, who thought she was retiring from teaching years ago, but has continued to teach and guide me in a way that has enriched every aspect of my life. Finally, a heartfelt thank you also goes to my husband Chris who, without hesitation or complaint, has put his own wants and needs aside in order to support me to achieve my goal.

Definitions and Abbreviations

ABM = Attention Bias Modification; ADIS C/P = Anxiety Disorders Interview Schedule, Child Version; ADIS CSR = ADIS Clinician Severity Rating; Anx Dx = Anxiety Diagnosis; Anx Sens = Anxiety Sensitivity; Anx Sx = Anxiety Symptoms; Att = Attention Control; BAI = Beck Anxiety Inventory; BIS = Bullying Incidence Scale; CAPS = Coping and Promoting Strength Programme; CBCL = Child Behaviour Checklist; CKP = Coping Kids Programme; Cont type = Control typeDep Sx = Depression symptoms; Dx Tool = Diagnostic Tool; F/U = Follow-up; Format: Indiv = Individual; FSSC-R Fear Survey Schedule for Children Revised; Inf. mon = Information and monitoring; Int Sx = Internalizing symptoms; Low self-est = low self esteem; MASC = Multidimensional Anxiety Scale for Children; MASQ = Mood and Anxiety Symptom Questionnaire; Mo = Mother; N/A = Not applicable; N/C = No contact; PMR = Progressive Muscle Relaxation; Prog Type = Programme Type; RCADS = Revised Child Anxiety and Depression Scale; RCMAS = Revised Children's Manifest Anxiety Scale; SCARED = Screen for Child Anxiety Related Disorders; SCAS = Spence Children's Anxiety Scale; STAI = State-Trait Anxiety inventory; STAIC = State-Trait Anxiety Scale for Children;VR Exp = Virtual Reality Exposure; W/L = Waiting list; Y/P = Young Person.

Chapter 1: Systematic Literature Review. Preventative Interventions for the Onset of Anxiety Disorders in 'At Risk' Young People

1.1 Introduction

In 2010, there were 8.2 million cases of people with an anxiety disorder in the UK (Fineberg et al., 2013). 4.7% of adults in the UK have a diagnosed anxiety disorder, which are most common among young women aged 16 to 24 (GAD 9.0%; phobias 5.4%; OCD 2.4%; and panic disorder 2.2%; Stansfeld et al., 2016). Anxiety disorders are also among the most common mental health problems in children (Polanczyk, Salum, Sugaya, Caye & Rohde, 2015), with 3% of children in England experiencing the disorder (Mental Health Taskforce, 2016).

Cognitive Behavioural Therapy (CBT) is the recommended treatment for anxiety disorders, and for children and young people specifically with social anxiety disorder (National Institute for Health and Care Excellence, 2013; National Institute for Health and Care Excellence, 2014), however a Cochrane review by James, James, Cowdrey and Soler (2015) found that only 58.9% of children who received CBT experienced remission from their anxiety disorder. Furthermore, CBT is a high resource intervention that is demanding for children, their families, and mental health services. The demand on services is currently so high that many children do not get access to any mental health support, and those that do, on average, wait 32 weeks for a routine appointment (Mental Health Taskforce, 2016).

Anxiety disorders can have many negative consequences on a child's day-to-day life, including school refusal (Gresham, Vance, Chenier & Hunter, 2013), lower self-esteem (Reijntjes et al., 2010), higher levels of depression, poor peer relationships and poor health (de Matos, Barrett, Dadds & Shortt, 2003). The consequences of childhood anxiety could put children at a disadvantage throughout their childhood if they do not receive intervention, or if the support is delayed. Young people experiencing anxiety in childhood are, for example, 3.5 times more likely than others to suffer depression or anxiety disorders in adulthood (CAMHS Review, 2008).

An intervention that prevents a child from developing an anxiety disorder would also prevent the distress, social, education and physical difficulties associated with anxiety disorders, and may prevent further mental health conditions. Preventative interventions also have the potential to reduce economic strain on the community. The economic and social costs of mental health conditions in England are £105 billion a year and the national cost of mental health services across England is £34 billion each year (Organisation for Economic Co-operation and Development, 2014). Anxiety and depression in adults has been estimated to cause one fifth of days lost from work in Britain (Das-Munshi et al., 2008). The Mental Health Taskforce (2016) has written The Five Year Forward document to provide the government with recommendations on how to reform the mental health services in the NHS. One of the main priorities of this reform is a focus on prevention:

> "Prevention matters - it's the only way that lasting change can be achieved. …..Children and young people are a priority group for mental health promotion and prevention…. Early intervention and quick access to good quality care is vital – especially for children and young people" (p16).

1.1.1 Prevention programmes for childhood anxiety disorders.

Prevention programs tend to be categorised based on their participant population; universal, or targeted (also know as primary and secondary respectively). Universal prevention is provided to a whole population and is often delivered in schools. For example, the FRIENDS programme (Barrett, 2000) is based on cognitive behavioural therapy and was designed to be delivered in schools to all children with the aim of preventing the onset of anxiety or depression. The programme aims to teach children how to recognise symptoms of anxiety or depression, to utilise relaxation strategies, to challenge unhelpful thoughts, to use positive self talk, to use graded exposure to overcome avoidance, to problem solve, and to self reward. Ahlen, Lenhard, and Ghaderi (2015) completed a review of universal preventative interventions for childhood anxiety and found that the majority of studies (13 out of 18) found that the programmes had a positive effect on anxiety symptoms. The meta-analysis found that participants who had completed universal prevention programmes had significantly lower anxiety symptoms than control participants, however the effect size was small (Hedges g = .13) and the difference was no longer significant at follow-up (ranging from 3 to

36 months, median = 10.5). However, due to the nature of universal programmes, many of the children will not be experiencing anxiety symptoms at baseline and therefore measuring change in anxiety symptoms may underestimate the value of the intervention. There are further limitations of universal interventions. Firstly, those who are at low risk of developing anxiety appear to benefit more from these interventions than those with a higher risk (Stallard et al., 2014) suggesting the interventions are not effective for those who need it the most. Secondly, it is extremely resource intensive to provide universal preventative interventions, with Stockings et al. (2016) estimating that 70 children need to receive universal intervention in order to prevent one child from developing an internalising disorder within 9 months of the intervention. To put this into context, a Cochrane review of CBT for children with anxiety disorders found that six participants needed to be treated for one additional participant to attain remission from their anxiety disorder (James et al., 2015).

Targeted preventative interventions for childhood anxiety are arguably less resource intensive as they are provided only to those who are deemed 'at risk' of developing an anxiety disorder. Furthermore, reviews evaluating the effectiveness of prevention interventions for childhood anxiety and depression have found that targeted interventions are more effective than universal interventions (Reivich, Gillham, Chaplin, & Seligman, 2013; Stockings et al., 2016).

There are two types of targeted preventative interventions. Selective interventions are aimed at subgroup populations that are exposed to a particular risk factor associated with a given disorder. As there are many risk factors for anxiety disorders, selective preventative programmes may target any of a number of populations. Many selective preventative programmes use personality traits of children to select a population at risk, such as behaviourally inhibited children (Chronis-Tuscano et al., 2015). Other programmes may select children with family factors that increase the risk of developing an anxiety disorder, such as children with parents who have an anxiety disorder (Ginsburg, Drake, Tein, Teetsel, & Riddle, 2015). Some selective preventative programmes treat children from populations who are exposed to environmental risk factors, such as those with low social economic status (Izard et al., 2008), those who have witnessed natural disasters, (Shen, 2002) or those who have witnessed social traumas such as community violence (Cooley-Strickland, Griffin, Darney, Otte, & Ko, 2011; Tol et al., 2014). In their meta-analysis of preventative interventions for

childhood anxiety, Neil and Christensen (2009) examined three studies regarding the effectiveness of selective interventions and found that anxiety symptoms were significantly reduced after intervention in two of the three trials. Only one of these trials included a follow-up period and this study did not find a significant difference in symptoms between those who had received the intervention and those who had not. The findings from Neil and Christensen's review reveal some promise regarding the effectiveness of selective prevention interventions at reducing anxiety symptoms, but are limited due to the small number of studies and lack of follow-up data. Further investigation into the effectiveness of selective interventions is therefore needed.

Indicated preventative programmes target children who have elevated symptoms of anxiety. In their meta-analysis, Neil and Christensen found eight indicated trials, four of which showed reductions in anxiety symptoms at post-test with the remaining four studies finding no significant effect. Five of the six studies that measured differences at follow-up found significant effects (Neil & Christensen, 2009). One advantage of indicated preventative programmes over selective and universal programmes is that the criteria for inclusion is clear, replicable and generalisable. It also reduces the numbers of children that are treated, thereby easing pressure on resources.

Previous reviews have included evaluations of preventative interventions for childhood anxiety, within the constraints of some limitations. For example, Stockings et al. (2016) completed a review of preventative interventions for childhood depression and anxiety, however the majority of studies included focused on the prevention of depression, with only one selective intervention and one indicated intervention for anxiety. The findings therefore hold little relevance to the prevention of childhood anxiety. Neil and Christensen (2009) completed a review of preventative interventions for childhood anxiety, which included 16 studies of universal prevention programmes, eight selective programmes and three indicated. Two of the three studies of selective interventions found a significant decrease of symptoms in the experimental group, compared to four of the eight indicated studies. However Neil and Christensen's review included early intervention programmes, therefore some of the children were already known to meet the criteria for a diagnosis of a childhood anxiety disorder. Fisak, Richard, and Mann (2011) completed a meta-analysis of both universal and targeted interventions for childhood anxiety and reported significantly lower anxiety symptoms in experimental group participants than in control group participants post-intervention. The

limitation of these findings is that the results for the children who received a universal intervention were combined with the results for children who received a targeted intervention, precluding the opportunity to assess the effectiveness of each type of intervention separately. Their review also included studies without a control group, which may reduce the power of the statistical analysis when comparing the pooled outcomes of children in experimental versus children in control groups.

1.1.2 Review objectives.

In consideration of the limitations of previous reviews, the current review will report the findings from studies of selective and indicated interventions separately, as well as combined. The review will only include studies that used a control group for comparison, in order to account for non-intervention effects. The current review will exclude studies where children had an identified anxiety disorder in order to preserve the focus on prevention, rather than treatment. By using a narrative approach, the current review will provide a different perspective to Fisak's meta-analysis. A narrative review will enable exploration of similarities and differences between the studies that have been completed on this topic and give further insight as to whether the findings from studies into the effectiveness of targeted prevention interventions are consistent. This review has other unique features, particularly regarding how children are identified for preventative interventions. There is little consistency amongst targeted studies regarding the risk factors required for eligibility. Many reviews have included trials that select their participants on the basis of characteristics of the wider population rather than the individual participants (e.g. Fisak et al., 2011; Stockings et al., 2016). The disadvantage of this method is that there is no certainty that all children in the trials were at risk and therefore the 'targeted' nature of the intervention may be compromised. Furthermore, targeted preventative interventions tend to select children for intervention based on one risk factor only. Ashford, Smit, van Lier, Cuijpers and Koot (2008) investigated the predictive power of a lone risk factor verses multiple risk factors. Their study set out to examine potential risk indicators in children aged between two and five years old to discover if they predicted internalising problems at 11 years old. The factors examined were internalising and externalising problems, child health, single parenthood, stressful life events, parenting stress,

negative maternal attitude, family psychopathy and socioeconomic status. The authors identified that the probability of internalising problems increased with the number of commutative risk factors; from 6.4% when having 0 exposures, 15.5% when having an exposure to one risk indicator, to 48.0% when being exposed to two or more risk indicators. This suggests that interventions should identify children at risk using at least two factors to increase the efficacy of the intervention by targeting those most at risk. Participant selection is a fundamental process in targeted interventions therefore this review will investigate how targeted interventions use risk factors to identify their target population.

As yet, little is known about who these interventions are most effective for, or any factors that may influence the effectiveness of preventative interventions. This review will summarise reports of potential moderating and mediating factors in an attempt to identify key factors for intervention success.

In summary, the aim of this systematic review is to summarise the randomised controlled trials of targeted interventions designed to prevent the onset of anxiety disorders. In particular, the review will discuss 1) study and participant characteristics 2) intervention characteristics, 3) tools used for identification of risk and as outcome measures, 4) the programmes' effectiveness, 5) moderating and mediating factors.

1.2 Method

1.2.1 Protocol.

Methods of the analysis, inclusion and exclusion criteria were specified in advance and documented in a protocol registered on the International Prospective Register of Systematic Reviews (PROSPERO; protocol number: CRD42017055312; Appendix A.)

1.2.2 Eligibility criteria.

A study was selected for inclusion if:

1. It included an active intervention which aimed to reduce anxiety symptoms and/or prevent the emergence of anxiety disorders in children/adolescents.
2. Participants were children or adolescents. Studies were excluded if the mean age of the children/adolescents was over 18 years or the sample included adults over 21 years.
3. Participants were selected for inclusion on the basis of being 'at-risk' of the development of an anxiety disorder as defined in DSM5. Studies were excluded if they included children identified as having a *current* anxiety disorder.
4. It reported outcomes using a diagnostic tool for an anxiety disorder that is recognised in the DSM5, or a validated measure of anxiety symptoms using standardised scores.
5. It used a Randomised Controlled Trial (RCT) design to compare a preventative intervention with a waitlist and /or a demand matched comparison condition. Studies that provided qualitative data only and those that did not include any new data (e.g. reviews) were excluded.
6. It was published in a peer-reviewed journal.

In order to reduce bias, papers written in languages other than English were not automatically excluded, and instead an attempt was made to gain the required information in English. Where this was not possible, these studies were excluded.

As the focus of the review was targeted prevention programmes for children identified as being 'at-risk', studies focusing on access within a special population (e.g.,

children/adolescents with intellectual disability or a specific physical health condition) were not included.

Programmes that included children who had an anxiety disorder at baseline as determined by structured diagnostic interview or validated clinical scales (see Stockings et al., 2016) were excluded from this review (e.g Kennedy et al., 2009), as this violates the assumptions of a preventative intervention.

Programmes that had selected children on the basis that they were from a specific population, such as those with a medical condition or those that who were from an area that had recently been affected by violence or a natural disaster, were excluded from the study if participant selection within this sub-population was universal. The rationale for this decision was that it was impossible to control for external variables, such as whether the child was directly affected by the event. Where studies controlled for this by also requiring an additional risk factor such as anxiety symptoms, the study was not excluded.

1.2.3 Information sources and search terms.

The search was performed in October 2016 using the following electronic databases; Scopus, Ovid, Psychinfo, Pubmed and Cinahl. Search terms used by a similar review (Stockings, et al., 2016) were initially utilised for this search strategy. These terms were refined following guidance on the Cochrane Collaboration (2017) website and from a librarian with specialist knowledge of systematic reviews. Terms that resulted in an unmanageable number of results were eliminated (e.g. 'internal*) and additional terms were added to refine the results (e.g. risk search terms). The systemic search strategies included the following terms, adapted to befit each database:

anx* OR panic disorder OR phobi* or worr* AND prevent* OR early interve* OR risk* OR at-risk OR vulnerab* AND Infant* OR toddler* OR "pre-school"* OR preschool OR adolescen* OR youth OR teen* OR "young person OR young adult* OR "school child* OR kid* OR juvenile* OR child* AND placebo* OR random* OR "comparative stud*" OR clinical trial* OR research design OR evaluat* stud* OR prospectiv* stud* OR (singl* OR doubl* OR trebl* OR tripl*) AND (blind* OR mask*) OR double-blind OR random* assigned OR control.

No limitations were used for date of the publication or language. The initial search identified 3070 records (following de-duplication). A hand search was also completed, including a search of references from previous reviews with related topics (Stockings et al., 2016; Neil & Christensen, 2009; Fisak et al., 2011).

1.2.4 Study Selection.

The abstracts of all retrieved references were screened for eligibility by the author. The abstracts were then re-examined independently by the first supervisor or one of two research assistants. An abstract included by any rater was included at the full text stage. These articles were then read in full and rated again, and re-examined independently by the author and the first supervisor. There was 93.5% agreement on inclusion between raters (Kappa = 0.76). Disagreements were discussed and reviewed by the author and first supervisor together and an agreement was reached in all cases at this stage. On completion of the selection process (Figure 1; based on PRISMA; Moher, Liberati, Tetzlaff, Altman, The PRISMA Group, 2009) 16 records were deemed eligible for this review.

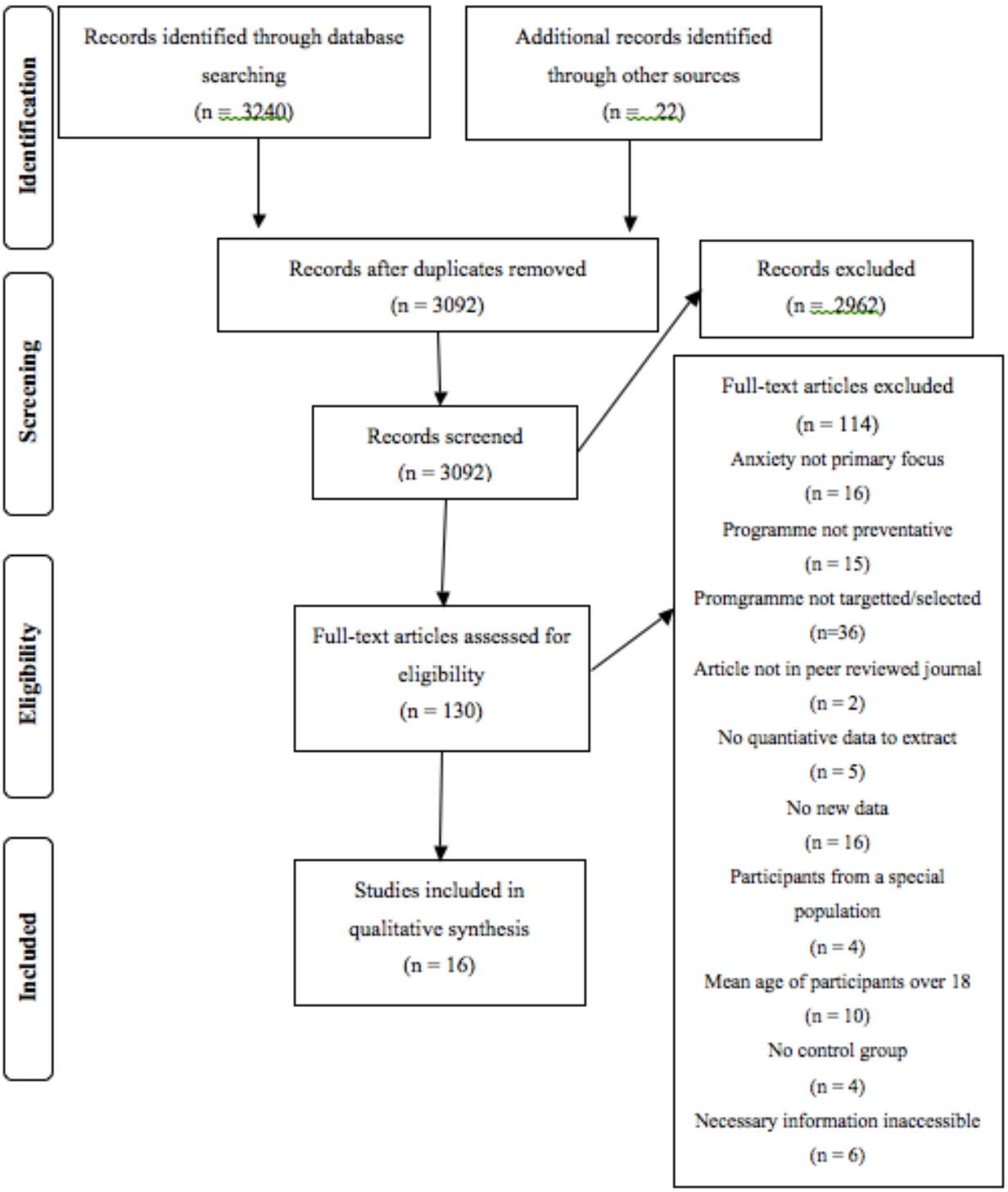

Figure 1. Selection process.

1.2.5 Data extraction.

The primary outcomes for this review were anxiety symptom severity or anxiety diagnosis. Relevant data for each measure was collated alongside relevant information about the participants and the intervention.

1.2.6 Coding of study quality.

The quality of each study was assessed by the author, and independently re-examined by the first supervisor, using the QualSyst quantitative study quality tool (Kmet, Lee, & Cook, 2004). The scoring system is robust and has shown initial signs of reliability. The main strength of this tool is that it is applicable to a wide variety of study designs. Various features of each study were assessed, including description of study objectives, sample size, analysis description, risk of bias, and reported estimates of variance for primary outcomes (Appendix B). Disagreements were discussed and reviewed by the author and first supervisor together and an agreement was reached in all cases at this stage. The domains assessed for quality included risk of bias and description of study objectives, sample size, analysis description, and reported estimates of variance for primary outcomes. A score of 2 was given for each standard that was completely met, 1 if it was partially met or not applicable, and 0 if it had not been met. The most common concerns were regarding randomisation, blinding, and the reporting of variance statistics. All studies achieved a level of quality above a liberal cut-off score of 55% (Kmet et al., 2004) and were therefore included in the review.

1.2.7 Meta-analysis

This study was carried out in collaboration with a meta-analysis review using the same data-base search and selection of studies (Lawrence, Rooke, & Creswell, in press). This narrative review of the same data will identify similarities and differences in the characteristics and findings of the studies.

1.3 Results

This systematic literature search found 16 randomised controlled trials of targeted preventative interventions for children and young people individually identified as at risk for anxiety disorders. Appendix C provides a comprehensive overview of the core characteristics of the reviewed studies. The following sections of this review will summarise these characteristics in order to highlight the critical similarities and differences between the studies.

1.3.1 Study and participant characteristics.

The earliest paper selected by this search was published in 1989. All other papers were published between 2002 – 2016.

The locations of the included trials can be seen in Figure 2. The majority of studies took place in developed countries, with the exception of one in Mexico (Gutiérrez-Maldonado, Magallón-Neri, Rus-Calafell, & Peñaloza-Salazar, 2009).

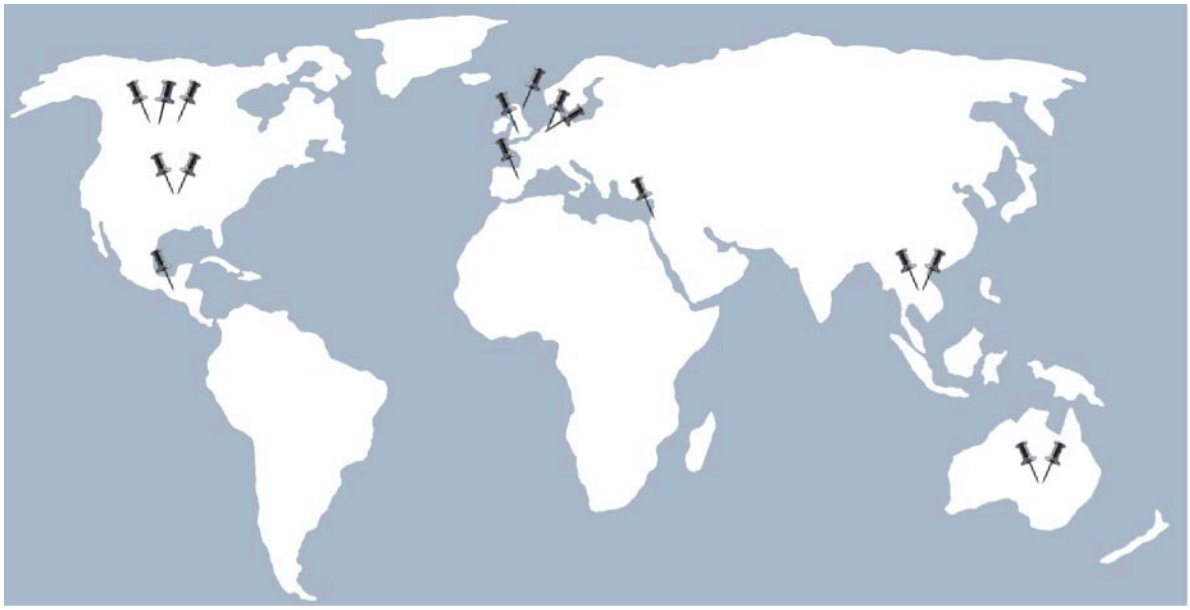

Figure 2. Map of countries where studies took place.

The combined number of participants within the 16 trials was 2545. The median number of participants per trial was 52.50 with a range of 30 to 1024. The combined mean age of participants from the 14 studies that provided this information was 11.57 years. Age range was available for all but two of the studies, and was variable. Collectively, the minimum age was 6 years and the maximum age was 18. The smallest range of ages within

any trial was one year, and the largest spanned seven years. Most commonly, age ranges spanned six years (five trials; Dobson, Hopkins, Fata, Scherrer, & Allan., 2010; Ginsburg et al., 2015; Shen, 2002; Gutiérrez-Maldonado et al., 2009; Liddle & Macmillan, 2010). There were a fairly even number of male and female participants (50.45% female) within the collective sample.

1.3.2 Assessment of risk.

The majority of studies (75%) based their eligibility criteria on one risk factor only. Six (37.5%) assessed the risk of developing an anxiety disorder using one selective risk factor (Balle & Tortella-Feliu, 2010; Dobson et al., 2010; Ginsburg, 2009; Ginsburg et al., 2015; O'Leary-Barrett et al., 2013; Sui, 2007) and six (37.5%) used an indicated approach (Bar-Haim, Morag, & Glickman, 2011; Gutiérrez-Maldonado et al., 2009; Kosters et al., 2015; Miller et al., 2011; Scholten, Malmberg, Lobel, Engels & Granic, 2016; Liddle & Macmillan, 2010). A total of four studies (25%) required that the children met two criteria to be eligible for intervention. Three of these studies (18.75%) adopted a combined approach, only offering their intervention to children who met their criteria for both anxiety symptoms and a non-symptom risk factor (Berry & Hunt 2009; Hiebert, Kirby, & Jaknavorian, 1989; Mifsud & Rapee, 2005), whilst one study based their participant selection on the basis of two selective risk factors (Shen, 2002). No trials recruited on the basis of more than two risk factors. Table 1 summarises these frequencies.

Table 1

Frequency of the Use of Selective, Indicated, and Combined Participant Selection

	Selective only	Indicated only	Selective and Indicated	Total
1 Risk Factor	6	6	-	12
2 Risk Factors	1	0	3	4
Total	7	6	3	16

Within the ten trials where a selective method of participant recruitment was used, the range of risk factors observed and the risk measurement tools were diverse, with only two studies utilising the same risk criteria (Table 2).

Table 2

Selective Risk Factors and Measurement Tools used for Participant Selection

Risk Type	Risk measurement tool	No of studies
Bullying victim [1]	Bullying Incidence Scale	1
Personality-risk profiles: anxiety sensitivity, hopelessness, impulsivity or sensation seeking	SURPS	1
Elevated symptoms of internalising problems	CBCL	1
Experienced earthquake AND high risk for maladjustment	Children's mental health checklist	1
Depression symptoms	Centre for Epidemiological Studies-Depression Scale (CES-D)	1
Parental Anx Dx	Parent ADIS	2
Identified by teachers as experiencing substantial public speaking anxiety [1]	IPAT	1
Low SES area and score on RCMAS 1	Priority Schools Funding Programme category	1
Identified by teachers [1]	Teacher checklist	1

There was little consistency with regards to tool used to assess anxiety symptoms for participant recruitment for indicated interventions (see table 3).

[1] Selective risk factors assessed alongside anxiety symptoms

Table 3

Indicated Risk Measurement Tools used for Participant Selection

Risk measurement tool	No. of Trials
SCAS	2
School Fears Inventory, School Refusal Assessment Scale, Fear Survey Schedule Children-Revised	1
RCADS	1
Children AS Index	1
SCARED	2
MASC	1
IPAT	1
RCMAS	1

1.3.3 Intervention characteristics.

The majority of studies (11; 68.75%) used an intervention based on CBT. One study had two experimental conditions, with one group of participants completing an intervention on progressive relaxation and the other bio-feedback (Figure 3).

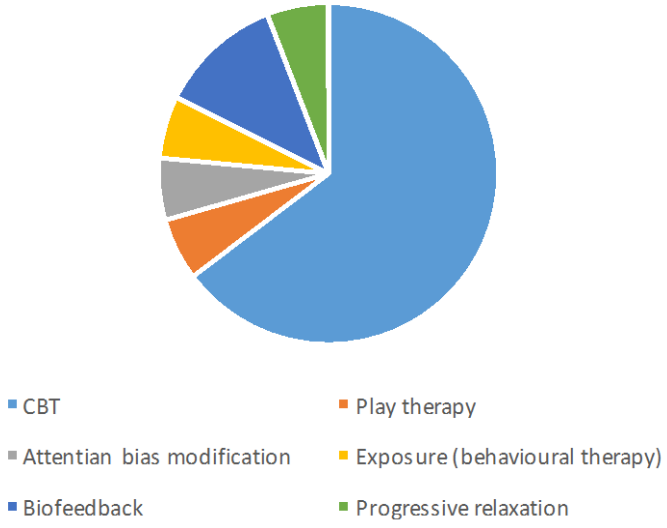

Figure 3. Intervention types.

Thirteen studies (81.25%) compared outcomes for children in the intervention condition with outcomes for children in a non-active control condition (9 using a waitlist control, 4 using a no intervention control), with only four studies (25%) using an active

control. Hiebert et al. (1989) compared the intervention condition with both an active and inactive control. All other studies had just one control group.

The number of sessions provided varied, with an inter-study range from 2 to 15, and a median and mode of 8. Three of the sixteen trials (18.75%) offered booster sessions, with two trials offering one booster session and one trial offering three. Only one trial reported attendance to booster sessions (Ginsburg et al., 2015). Attendance was low (average of 1.2 out of 3 sessions) in that trial.

Figure 4 shows that there was little consistency in terms of who delivered the interventions, with facilitators ranging from those who were likely to have had little or no experience of providing interventions for children with mental health difficulties (e.g. students and teachers) to those with doctoral level qualifications in mental health (i.e. psychologists).

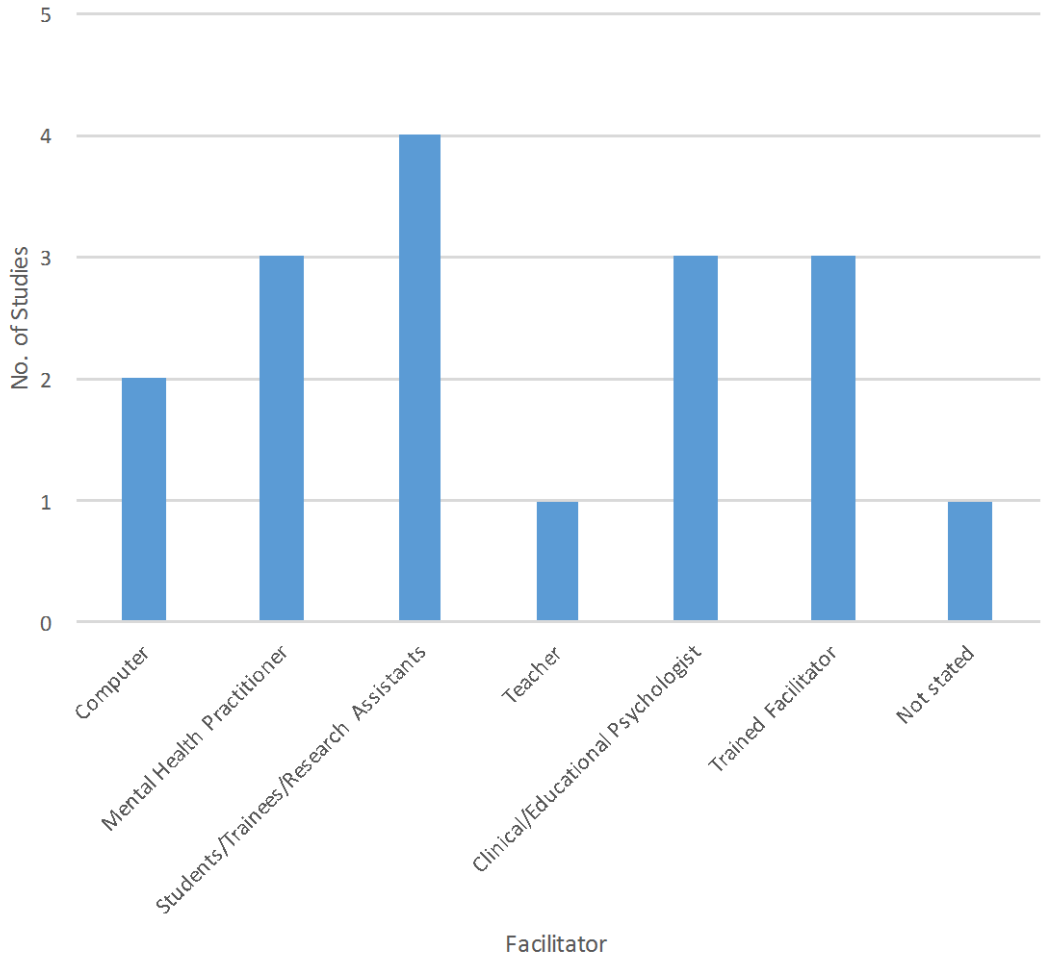

Figure 4. Intervention facilitators

A school venue was the location for all trials that specified the setting of the intervention (11 trials). Five studies did not specify setting, and no trials that provided family interventions stated the venue.

Twelve trials delivered the intervention to the young person only (75%). Of these trials, 9 were delivered in a group format and three were delivered individually (including one computer based intervention). One trial offered the intervention to both the child and a parent, in separate groups. The remaining three trials offered family interventions. It was unclear from the papers if families received the intervention individually or in groups.

1.3.4 Diagnostic outcomes.

Measuring outcomes in terms of diagnosis has an advantage over measuring anxiety symptoms in that it provides a clear indication of how many children are likely to need further mental health services after preventative intervention, compared to those who didn't receive a preventative intervention. Only two studies (Ginsburg, 2009; Ginsburg et al. 2015) measured diagnostic outcomes. The earlier trial was a pilot (n = 40) to the later trial (n = 136). In both trials the ADIS–C/P was used to determine child diagnoses. This involved separate interviews with the young person and a parent to formulate a composite diagnosis, with an element of clinical judgment required by the evaluator. The ADIS is the gold-standard assessment tool for determining anxiety disorders and is well validated (di Nardo, Moras, Barlow, Rapee, & Brown, 1993; Silverman, Saavedra, & Pina, 2001). In the pilot study, Ginsburg (2009) found that significantly more children in the control group developed an anxiety disorder than children in the experimental group, and this continued for up to 1 year later. In the later study, Ginsburg et al. (2015) similarly reported less diagnoses of anxiety disorders in the experimental group than control at post–intervention, and also after 12 months (see Table 4).

Table 4

Number of Clients who met the Criteria for an Anxiety Disorder at Follow-up Intervals.

	Ginsburg (2009)		Ginsburg et al. (2015)	
	Exp. (n = 20)	Control (n = 20)	Exp. (n = 70)	Control (n = 66)
Post intervention	0 (0%)	3 (15%)	0 (0%)	5 (8.33%)
6 month follow-up	0 (0%)	0 (0%)	2 (3.92%)	7 (10.61%)
1 year follow-up	0 (0%)	3 (15%)	1 (1.81%)	7 (14%)
Cumulative	0 (0%)	6 (30%)	3 (5.26%)	19 (30.65%)

The results of these two studies suggested that preventative interventions can reduce the rate of onset of anxiety disorders.

1.3.5 Anxiety symptom outcomes.

1.3.5.1 Self- reported anxiety symptoms. 15 of the 16 studies used self-reported ratings of anxiety symptoms (Figure 5), the exception being Ginsburg et al. (2015). The most common tool used for this outcome measure was the Spence Children Anxiety Scale (SCAS), which has been found to have good validity and reliability (Arendt, Hougaard, & Thastum, 2014).

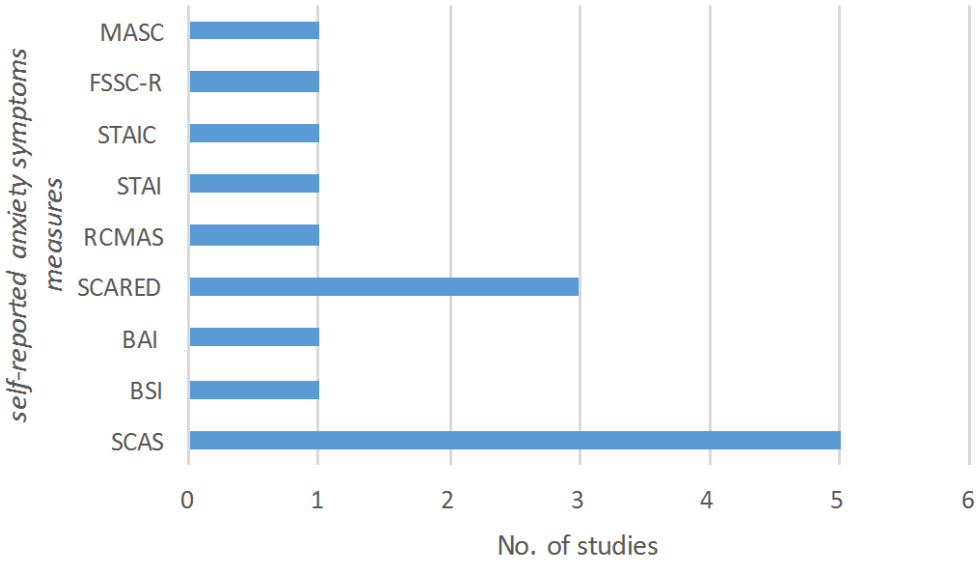

Figure 5. Number of studies reporting self-reported anxiety symptoms measures.

All six of the 15 trials that assessed the levels of change in anxiety symptoms for the children who received intervention reported a significant decline in symptoms. Four of these studies also reported on the levels of change in anxiety symptoms in the control group, with two reporting no significant change and two reporting a significant reduction in symptoms in this group of participants. Five studies reported the effect of time, and all five reported a significant effect with child rated anxiety symptoms reducing over time regardless of group. Nine studies found no significant difference between experimental and control conditions at post intervention, whereas four (Berry & Hunt, 2009; Kosters et al., 2015; Shen, 2002; Sui, 2007) found that the experimental group had significantly lower anxiety symptoms than the control group. The effect sizes (Cohen's d) ranged from 0.28 – 1.53, with three studies (Berry & Hunt, 2009; Shen, 2002; Sui, 2007) reporting a large effect size and one study reporting a small effect size (Kosters et al., 2015). The remaining

two studies did not compare the experimental and control group post-intervention. Six studies reported comparisons of child-rated anxiety symptoms at follow-up between children who received an intervention and children who did not (see Table 5). There appears to be little consistency within these findings, with only half of the studies finding a significant result, and with effect sizes ranging from small to medium. Two further studies (Dobson et al., 2010; Miller et al., 2011) reported follow-up data as a total sample, rendering no comparison between the experiment and control groups, therefore the results are not reported here.

Table 5

Statistical Differences between Child-rated Anxiety Symptoms of Experimental and Control Groups at Follow-up Intervals.

Study	3 months	4 months	6 months	1 year	2 years
Kosters et al. (2015)	–	–	$p < .001$, d = –0.55, 95% CI [–13.58, –7.06]	$p < .001$, d = –0.62, 95% CI [–14.92, –8.35]	–
O'Leary-Barrett et al. (2013)	–	–	–	–	$p < .01$, d= 0.14, 95% CI . [0.59–1.05]
Mifsud & Rapee (2005)	–	$p < 0.01$, d = 0.57, 95% CI [3.64 – 23.36]	–	–	–
Balle & Tortella-Feliu, (2010)	–	–	$p > .05$, d = 0.22, 95% CI [-3.02 – 8.42]	–	–
Scholten et al. (2016)	p = .724, d = 0.08, 95% CI [-0.12 – 0.10]	–	–	–	–
Ginsburg (2009)	–	–	p = 1.0, d = 0.00, 95% CI [-7.26 – 7.04]	p = .57, d = 0.27, 95% CI [-5.01 – 8.77]	–

p = significance, d = Cohen's d effect size, CI = Confident intervals

1.3.5.2 Parent rated anxiety symptoms. Five studies collected parent ratings of child anxiety symptoms to measure effectiveness of their preventative interventions. Mifsud and Rapee (2005) did not complete statistical analyses on this data due to the low response rate (< 50%). The remaining four used a variety of measures of anxiety symptoms (CBCL, FPC, SCARED-P). Two of the four studies (Berry & Hunt, 2009; Sui, 2007) found that the parent rated anxiety symptoms of the experimental group were significantly lower than the parent rated anxiety symptoms of children in the control conditions at the same time interval with large effect sizes (d = 1.73, d = 1.90 respectively), with the other two studies finding no significant difference (Ginsburg, 2009; Shen, 2002). Ginsburg's trial was the only one to gather follow-up data by parent report. No significant differences between groups on parent-rated anxiety symptoms at 6 month follow-up were found, however Ginsburg did report that the mean anxiety symptoms of the experimental group was significantly lower than the control group at 12 month follow-up. The significance level was borderline, although the effect size was large (p = .05, d = 0.82).

1.3.5.3 Clinician rated anxiety symptoms. In Ginsburg et al.'s (2015) trial, anxiety symptoms were rated by clinicians, based on individual interviews with the parent and child (ADIS Clinical Severity Rating; CSR). This trial found a significant reduction in anxiety symptoms post intervention for all children in the study, but significantly lower levels of anxiety symptoms post intervention for children within the experimental group compared to children in the control group (p < .001, d = 0.59). This difference between the two groups was maintained at 6 and 12 month follow-up (p < 0.001, d = 0.81; p = 0.002, d = 0.57 respectively).

1.3.6 Changes in risk factors.

In studies that used a selective approach to participant selection, monitoring changes in anxiety symptoms does not provide an indication of whether the factor that was deemed to put the child at risk for an anxiety disorder had changed. Amongst the ten studies that included a selective risk factor, only four compared the level of the risk factor in children in the intervention group to the level of the risk factor in children in the control group post intervention. Berry and Hunt (2009) found that children who had completed their preventative intervention rated a greater reduction in child and parent rated bullying than children in the control group (p < .001, d = 1.51; p < .001, d = 1.55, respectively), and Sui (2007) found that children who had completed the preventative intervention scored significantly less on internalising behaviours than children in the control group (d = 1.904).

Balle and Tortella-Feliu (2010) and Dobson et al. (2010) found no difference between children who had received intervention and children who had not in terms of depression symptoms and anxiety sensitivity (fear of anxiety symptoms) respectively.

1.3.7 Comparing selective and indicated interventions.

Differences in self-rated anxiety symptoms between experimental and control groups have been used to compare selective and indicated interventions, as this was the most commonly reported outcome measure. One out of six (16.66%) indicated interventions (Kosters et al., 2015) and two out of five (40%) selective interventions (Shen, 2002; Sui, 2007) found significant differences between the two groups, whereas no other trials did. There are therefore no discernable patterns in the success of indicated and selective interventions in terms of differences between experimental and control group self-reported anxiety symptoms.

1.3.8 Multiple risk factors versus one risk factor.

There is limited opportunity for comparing studies based on the number of factors used to determine risk due to the small number of studies that considered more than one risk factor and the differing methods of reporting results. One of the four studies that used multiple risk factors did not compare the self-reported anxiety symptoms of the experimental group with the control groups symptoms post intervention (Liddle & Macmillan, 2010). Of the remaining three trials, two (66.66%) found a significant difference (Berry & Hunt, 2009; Shen, 2002), and one found no significant difference (Mifsud & Rapee, 2005). Eight out of ten studies (80%) that used one factor to determine risk found a significant difference.

1.3.9 Moderating factors.

Five studies reported investigation of moderating factors (see Table 6). Age and gender were the most frequently investigated factors. All four trials that investigated the moderating influence of age found that it was non-significant. Four out of five studies found no significant moderating effects of gender, however Kosters et al. (2015) found that gender was a significant moderator, with girls experiencing a larger decrease in anxiety symptoms at follow-up. Two studies had contrasting findings regarding the moderating influence of baseline symptom severity. Ginsburg et al. (2015) found that the benefit of the intervention was stronger for children with higher baseline anxiety symptoms than for

those with lower baseline anxiety symptoms, whereas Kosters et al. found no significant difference. Other moderators were only investigated by one study. The only one of these factors found to be significant was English ability (Hiebert et al., 1989) where children with average English ability had better post intervention results than those with lower or higher English ability. Ethnicity, comorbid externalising problems, peer rejection (Kosters et al., 2015) and trainer (Hiebert et al., 1989) were not found to be significant moderators.

1.3.10 Mediating factors.

Ginsburg et al. (2015) found that parental modelling of anxiety and parental global distress at the post intervention and 6-month follow-up assessments significantly mediated the intervention effects on outcomes for severity of child anxiety symptoms at the 1-year follow-up.

Table 6

Mediating and Moderating Factors Investigated within Reviewed Studies

Study	Mediators investigated	Moderator investigated
Ginsburg, et al. (2015)	Parental modelling of anxiety*	Age
	Parental global psychopathology*	Gender
	Parental anxiety	Baseline symptoms*
	Child maladaptive cognitions	Parent gender
		Parent anxiety
		Parent comorbidity
		Parent-child gender match
Scholten et al. (2016)		Gender
		Age
Hiebert et al. (1989)		Gender
		Trainer
		Teacher rated English ability*
Miller et al. (2011)		Gender
		Grade (age)
Kosters et al. (2015)		Gender*
		Age

	Ethnicity
	Severity of anxiety symptoms
	Comorbid externalising problems
	Peer rejection

* Significant mediating/moderating effects reported

1.3.11 Control type.

Trials that used a non-active control group were more likely to report significant differences in self-reported anxiety symptoms between groups after intervention. None of the four trials that used an active control (see Table 7) found a significant difference between anxiety symptoms of the control group and anxiety symptoms of the experimental group post intervention. Two of the studies that used a non-active control did not report a comparison of self-rated anxiety symptoms between groups at post-intervention. Of the remaining ten, six reported a significant difference and four reported no significant difference.

Table 7

Descriptions of Active Controls used in Reviewed Studies

Study	Description of experimental condition	Description of control condition
Bar Heim	A computer programme where participants were presented with a succession of photographs of people's faces and given an attention-based task to complete. Participants are primed to disengage from angry faces (Attentional bias modification).	A computer programme where participants were presented with a succession of photographs of people's faces and given an attention-based task to complete. Participants were not primed to disengage from angry faces (No attentional bias modification).
Dobson	15 x 45 minute group sessions of CBT for anxiety (Coping with Stress)	15 x 45 minute group session of Cognitive-Behavioural inert sessions talking about topics of general interest,

		e.g. confidence, role models, and drugs and alcohol (Lets Talk).
Miller	9 x 1 hour group sessions of CBT for anxiety (FRIENDS)	9 x 1 hour group sessions listening to an adventure story (Harry Potter).
Scholten	Bio feed-back video game which teaches emotional regulation skills, provides activities for these skills to be practiced, and provides feedback regarding success of reducing arousal based on the participants heart rate (Dojo)	Generic video game which does not teach emotional regulation skills or provide bio-feedback (Rayman).

1.4 Discussion

This review has provided a summary of the characteristics of targeted prevention interventions for childhood anxiety. The frequency of the use of selective versus indicated interventions appears to be closely matched. The majority of studies measured only one risk factor for participant recruitment, rather than using multiple factors as suggested by Ashford et al. (2008). The types of risk factor assessed in selective interventions were highly diverse, and the risk measurement tools were wide ranging for both selective and indicated trials. In accordance with the National Institute for Health and Care Excellence guidelines for anxiety disorders, CBT was the most commonly used theoretical orientation, and all interventions were fairly brief with a maximum of 15 sessions. The majority of studies were delivered to the young person in a group format. Family interventions tended to be described in less detail than studies that provided intervention to the young person or parents, therefore understanding of the characteristics of this type of targeted preventative intervention is limited.

One difficulty with comparing the outcomes of the studies in this review is the lack of consistency with regards to how the effectiveness of the interventions was reported. The majority of trials only recorded anxiety symptoms as an outcome measure, with just two studies recording diagnostic outcome. Those that reported diagnostic outcomes provided hopeful findings that suggest that those who received targeted preventative interventions are less likely to experience a diagnosis of an anxiety disorder in the future, however having so few studies to compare limits the strength of these findings.

Previous meta-analyses have indicated that universal and targeted preventative interventions are effective at reducing anxiety symptoms (e.g. Fisak et al., 2011). The results from this narrative review show that studies which examined self-rated anxiety symptoms failed to consistently find a significant difference between anxiety symptoms of children in experimental groups compared to children in control groups post intervention. The results are consistent with results from the narrative review by Neil and Christensen (2009), which similarly identified inconsistent results between studies.

The data from the current review did not yield any clear associations between characteristics of interventions and their success in reducing self-rated anxiety symptoms, however no study that used an active control found a significant treatment effect on self-reported anxiety symptoms. The studies that found a significant difference in self-rated

anxiety symptoms between experimental and non-active control group can therefore only conclude that the intervention is better than no preventative intervention.

Follow-up data was limited as few studies reported such outcomes, and only half of the results that were obtained indicated long-term benefits of targeted preventative interventions. These findings are consistent with the findings of the review by Stockings (2016), who also found limited evidence for positive outcomes at follow-up. Together these reviews abate the initial promising findings from previous reviews by Fisak (2011) and Neil and Christensen (2009), who reported more favourable long-term outcomes.

This study has brought some interesting findings to light regarding participant selection processes. Neither type of targeted intervention (indicated or selective) appeared to be superior to the other in terms of self-reported anxiety symptom outcomes. A higher percentage of children who were selected on the basis of one risk factor had significantly reduced self-reported anxiety symptoms than those who were selected based on 2 risk factors. The information that can be drawn from this is limited as the number of studies that used multiple risk factors for participant selection was small. Future research using two or more factors for participant selection would therefore be helpful in determining the value of assessing multiple factors for informing decisions regarding which children would most benefit from preventative intervention.

The finding that age and gender are not significant moderating factors is consistent with Fisak's (2011) meta-analysis of universal and targeted interventions for childhood anxiety. Other moderating and mediating factors reported in this review have each only been investigated in one study, therefore conclusions are limited and further investigation of these factors in future RCT's would be helpful in order to build on our current understanding of these factors. The influence of anxiety severity, in particular, would be an interesting topic for future research.

The meta-analysis that was completed using the same data-base search and selection of studies (Lawrence, Rooke, & Creswell, in press) combined the results of all the included studies and found that children in experimental groups experienced significantly less self-reported anxiety symptoms post intervention than children in waiting list control groups, with a small effect size (MSD = -.43, 95%CI = -.73 - -.12). The differences between the findings of the meta-analysis and narrative review demonstrates that both can provide a unique perspective on the same group of studies, and highlights the advantage of completing a narrative review. An advantage of the meta-analysis is that it overcomes sample size and power difficulties. The advantage of the narrative review is that it identifies similarities and differences in the characteristics and findings of the studies.

1.4.1 Critical review of the literature.

In regards to selective interventions only 40% of the studies included in this review identified whether the intervention modified those risk factors used to identify the participants as at risk. The lack of focus on risk factors is also evident in the interventions themselves, which often aimed to improve resilience rather than directly address the factors that put that child at risk of an anxiety disorder. The CAPS programme (utilised by Ginsburg, 2009) is the only exception within the studies included in this review, as one aspect of this intervention addresses the risk factor of parent-child interaction (Murray et al., 2008; Rubin et al., 1999; Majdandzic et al., 2014). If the risk factor is not addressed directly, then it is possible that the child will continue to be vulnerable to an anxiety disorder. A preventative intervention by Rapee (2014) targeted risk factors directly, but their study was excluded from this review as some of the participants met criteria for diagnosis at baseline. It would be helpful to further investigate such interventions in future research, and to explore the effects of prevention programmes on risk factors for childhood anxiety disorders.

Another limitation of the studies included in this review is that only two assessed diagnostic outcomes. Although this may be less sensitive to change, it is very relevant in terms of which children are likely to require services in the future and therefore could provide valuable information for services. The positive results shown by the studies that did assess diagnostic outcomes suggest that further research using this outcome variable would be worthwhile. In terms of anxiety symptom outcome, the majority of studies utilised self-report. It is possible that this was due, at least in part, to consideration of the ease of collecting self-reported data in comparison with collecting parent rated data. For example, Mifsud and Rapee (2005) attempted to collect parent-rated data but failed to achieve a high enough response rate. This may have influenced the results, as studies have shown that parent reports of anxiety symptoms are superior to self-report at predicting anxiety diagnosis (Villabø et al., 2012; Evans et al., 2016).

All studies included in this review have identified children as being at risk of anxiety disorders generally, rather than of any *specific* anxiety disorder. Different types of anxiety disorders have distinct presentations, and therefore targeting a particular type of anxiety may produce different results. Furthermore, it is plausible that some risk factors might predict the risk of specific anxiety disorders, rather than anxiety disorders in general. For example, Rapee (2014) found that behavioural inhibition predicted later social anxiety disorder in children, but not other childhood anxiety disorders. This could account for the

differences in the findings between the studies included in this review. Future research investigating whether certain risk factors are associated with specific anxiety disorders would be helpful in expanding on current understanding of risk factors for anxiety, and treatment for childhood anxiety disorders.

One possible explanation for the lack of consistent findings from the studies reviewed may be the large variation in the characteristics of the studies. Collectively evaluating the efficacy of these studies therefore provides a very generalised summary of how effective preventative interventions can be. The interventions were varied, with differing theoretical orientations, intervention lengths, and professions of the facilitators. There was a wide range of risk factors used to identify population groups and a wide age range of participants. This variance is perhaps reflective of the relative newness of targeted interventions, and lack of research-based understanding about the core components of effective preventative interventions. Further research is needed in order to clarify how such interventions can best meet the needs of children vulnerable to anxiety disorders. Due to the limited number of studies, it has not been possible to achieve this in the current review. As research in this area increases and more data becomes available, it would be helpful to consider whether some of these factors have influenced the interventions' success, or to collectively evaluate interventions that are more similar in nature.

1.4.2 Limitations of the literature review.

This review has some limitations, particularly the exclusion of potentially eligible studies. Six studies were inaccessible so could not be included in the review. Non-published reports were excluded to ensure the quality of the trials, however this could have created a bias, as it is plausible that studies that show significant results are more likely to be published than those with no significant findings. Another exclusion criteria of this review, which was unique from previous reviews, was that it excluded studies where some children were known to meet the criteria for a diagnosis of an anxiety disorder. Only two reviews assessed for diagnosis at baseline (Ginsburg, 2009; Ginsburg et al., 2015) therefore it is possible that some studies in this review included children who, had they been assessed, would have met the criteria for an anxiety diagnosis.

1.4.3 Implications and future directions.

This review has shown that targeted programmes have the potential to prevent childhood anxiety, however the effectiveness of these programmes is not currently consistent. The examination of the characteristics of the interventions revealed

considerable diversity. In order to continue to develop targeted prevention programmes it is necessary to have a better understanding of the core components that increase the effectiveness of preventative programmes. This information could guide the development of prevention programmes to provide more consistent positive results.

Despite the differences in the presentation of anxiety disorders, there are underlying processes that appear to be common to all emotional disorders. This has led to increased interest in transdiagnostic interventions. This approach identifies psychological processes that are commonly associated with mental health difficulties in order to increase the efficiency of interventions and provide clients with transferable life skills. Common processes in emotional disorders are poor emotional regulation, avoidance, maladaptive cognitive appraisals, poor flexibility in thinking, poor emotional awareness, and poor awareness of emotions in context. Although the trials in this review have measured the effects of targeted early interventions on anxiety, this review has not been able to identify whether the interventions were associated with any changes in these processes. Further research, on whether targeting preventative interventions alter psychological processes that are linked to multiple mental health difficulties may provide further evidence for the emotional and economic value of such programmes.

1.4.4 Conclusion.

This review, within the constraints of its limitations, has highlighted inconsistencies in the effectiveness of targeted interventions for the prevention of childhood anxiety disorders. The results highlight the need for further research in identifying which core components of preventative interventions target the risk factors, in order to ensure that the interventions provided are consistently effective.

Chapter 2: Empirical Research Paper. Investigating Spontaneous Recovery in Children with Anxiety Disorders.

2.1 Introduction

A recent report from the Department of Health states that 1 in 10 children in England have a diagnosable mental illness, with approximately 270,000 children being referred to the Child and Adolescent Mental Health Service (CAMHS) during the year 2014-2015; an increase of 11% from the previous year (see Bethel, 2016). Anxiety disorders are the most common psychiatric disorders over the lifespan (Kessler, et al., 2005) and are among the most common mental health disorders in children, with a worldwide prevalence rate of 6.5% in under 19's (Polanczyk, Salum, Sugaya, Caye & Rohde, 2015). Anxiety is an emotion that serves to keep us safe from harm and the physiological effects of anxiety enable us to take action in order to reduce a perceived threat. However excessive or chronic anxiety in the absence of threat can have a negative impact on everyday life and is therefore deemed to be a disorder. Consequences of child anxiety disorders can include school refusal (Gresham, Vance, Chenier & Hunter, 2013) and less resilient self-esteem (Reijntjes et al., 2010). Childhood anxiety disorders are also strongly associated with depression, poor peer relationships and poor health (de Matos, Barrett, Dadds & Shortt, 2003). There are various types of anxiety disorders, including generalised anxiety disorder (GAD), social anxiety, separation and specific phobia. The median age for onset of anxiety disorders is 11 years old (Kessler et al., 2005), demonstrating the tendency for this disorder to present at a young age.

2.1.1 The natural course of anxiety in childhood.

It has been suggested that mental health disorders in childhood have a tendency to fluctuate in terms of severity, diagnostic status, and type of disorder (Wittchen, Lieb, Pfister & Schuster, 2000). Childhood anxiety disorders, however, appear to remain stable throughout childhood (Carballo et al., 2010) and fluctuate less than other disorders, such as depression (Prenoveau, 2011). The chronic nature of anxiety disorders appears to continue throughout the life-span, with many people who have a childhood anxiety disorder experiencing a relapse in adulthood (Beesdo-Baum & Knappe, 2012). The stability of childhood anxiety disorders is also demonstrated by the limited success of interventions.

James, Soler and Weatherall (2007) completed a Cochrane review of research that has investigated the effectiveness of cognitive behavioural therapy (CBT) for childhood anxiety and found that only 56% of children who received CBT for single or multiple anxiety disorders recovered from their anxiety disorder diagnosis. The evidence above suggests that anxiety disorders are relatively stable and difficult to treat, however it appears that this is not always the case as research has also shown that some children make a spontaneous recovery from their anxiety disorder. Wu et al. (2016) completed a two-year longitudinal study of social anxiety with a community sample of 816 children living in China, with a mean age of 11.2 (SD 2.2). The authors found that 57% of the children whose level of symptoms indicated significant social anxiety at the first assessment no longer met the criteria two years later. Furthermore, studies into the effectiveness of interventions for anxiety disorders in children have found that approximately 25% of children diagnosed with an anxiety disorder at assessment experience a clinically significant reduction in symptoms before any intervention is provided, making a seemingly spontaneous recovery from their anxiety disorder (e.g. Thirlwall et al., 2013). Wergeland et al. (2014) found even higher rates of spontaneous recovery in their study of the effectiveness of CBT for childhood anxiety disorders, with over a third of children no longer meeting the criteria for at least one of the inclusion anxiety disorder diagnoses after 10 weeks on the waiting list. Such spontaneous recovery does not appear to be limited to the short term. Adler Nevo et al. (2014) investigated the long-term differences between children with anxiety disorders who accessed 12 sessions of group or individual therapy, and children who were assessed as having an anxiety disorder but were not offered treatment. The children were between 8 and 12 years old at the time of assessment and completed a follow-up study eight years later. The children were matched in terms of age, gender, diagnosis and clinical severity at the time of assessment. Eight years after initial assessment, 50% of the participants from the treatment group and 48.1% from the non-treatment group did not meet the criteria for any anxiety diagnosis, with no significant difference between the two groups. Furthermore, anxiety levels in the non-treatment group were found to be significantly lower than those in the treatment group, with the non-treatment group experiencing a significant decrease in symptom severity and the treatment group experiencing a non-significant increase in severity. The children in the waitlists in these studies show that, whilst anxiety disorders may be stable and difficult to overcome for some children, other children experience an improvement in symptoms even without treatment.

The phrase spontaneous recovery could imply that this type of remission from anxiety disorders happens without any antecedent or trigger, however it is likely that unknown factors have contributed to the recovery. As yet, there has been no research regarding predictors of recovery from childhood anxiety disorders in the absence of treatment, and therefore we know little about these children or their recovery. A better understanding of when anxiety disorders remit spontaneously is crucial in determining when intervention is necessary. Interventions for childhood anxiety, such as CBT, can be burdensome for both the child and the family of those attending, often requiring time out of school, interruption of social activities and disruption to family life. Furthermore, CBT is a high resource intervention and, with only 1 in 4 children in England receiving the mental health service they need (see Bethel, 2016), not all children are able to access it. With increasing demand for child mental health services (NHS Benchmarking Network, 2013), appropriate provision of intervention is imperative to ensure an efficient and reliable service, and to reduce waiting times for children who would not recover without intervention. Identifying factors associated with spontaneous recovery could reduce the number of children receiving unnecessary intervention, therefore reducing the burden on the children, their families, and mental health services.

2.1.2 Factors associated with the natural trajectory of childhood anxiety symptoms.

Community studies have provided some insight regarding factors that are associated with the natural trajectory of anxiety symptoms. In a prospective longitudinal observational study Duchesne, Vitaro, Larose and Tremblay (2008) measured anxiety symptoms of 1,817 Canadian children aged between 5 and 11 from the general population, over a 6-year period. The children were grouped in terms of whether they had low, moderate, high or chronic levels of anxiety symptoms at initial assessment. The results of the study showed that although anxiety symptoms declined over time for all children, the groups of children remained distinct from each other with the children in the high and chronic groups continuing to experience high and chronic levels of symptoms respectively throughout the time period. It is therefore likely that children with moderate anxiety symptoms who receive a diagnosis of an anxiety disorder would be more likely to remit from this diagnosis than those with severe symptoms. No research has yet investigated this in a clinical study with children with a diagnosed anxiety disorder.

A study by Henriksen et al. (2014) examined the longitudinal outcomes of American adults with untreated mental health disorders. Surveys were completed to establish whether

an individual met the diagnostic criteria for a mental disorder according to the DSM-IV criteria. If they did, four questions were used to discover whether treatment had been sought. The surveys were administered again three years later to determine whether the participant had retained, or was in remission from, their original diagnosis. This community-based study found that comorbidity was associated with lower odds of spontaneous recovery from anxiety in adulthood, as was childhood maltreatment and having never been married. Younger adults were less likely to experience remission from anxiety disorders than older adults. Although not all these factors are relevant to children, comorbidity and age could be, and as yet no such research has examined this.

The main limitation of these community studies is the lack of control over external factors. They also tend to measure outcomes in terms of anxiety symptoms rather than diagnosis, therefore the knowledge imparted is more relevant to the general emotion of anxiety than it is to anxiety disorders. No clinical research has yet been completed to examine factors that are associated with spontaneous recovery from childhood disorders. The majority of clinical research on this topic has investigated which factors are associated with the effectiveness of CBT for recovery from childhood anxiety disorders. As these studies do not typically include a non-intervention control group, there is no way to distinguish whether the factors examined are influencing treatment effectiveness, or whether they are influencing trajectory of the anxiety disorder over time. These factors therefore may also influence spontaneous recovery from childhood anxiety.

2.1.3 Factors associated with recovery from an anxiety disorder following intervention.

Two reviews of the literature have summarised the findings of clinical research regarding factors associated with treatment outcome for childhood anxiety disorders. Nilsen, Eisemann and Kvernmo (2013) completed a review of literature regarding predictive factors of outcomes following CBT with children aged 4-18 years old with a diagnosis of an anxiety or depressive disorder. The paper reviewed 45 published studies and focused on demographic factors. Knight, McLellan, Jones and Hudson (2014) studied demographic, child diagnostic and parental factors of children under the age of nineteen years old with a primary diagnosis of an anxiety disorder, from 51 papers. The children received either individual, group, child only, parent and child combined, parent and child separate, or parent only CBT. Unless stated otherwise, the treatment outcomes reported here relate to the number of children who no longer met the criteria for an anxiety diagnosis after intervention.

With regards to demographic factors, Nilsen et al. (2013) found that the majority of studies suggested no significant effect of gender, ethnicity, or IQ on treatment outcome for children with anxiety disorders. Knight et al. (2014) similarly concluded that gender, ethnic background and social economic status did not predict treatment outcome. Less clear results were found for other factors. In both reviews, the majority of studies found that age did not predict recovery, however those that did find a significant difference concluded that younger children made more improvement than older children (e.g. Bodden et al., 2008). Mixed results were also found for anxiety severity, with both reviews concluding that some studies found that higher severity was linked with fewer remission rates, but more studies found no significant association. Knight et al. (2014) suggested that the predictive nature of this variable depended on the outcome measured, as they reported one study which found that higher anxiety symptom severity, as reported by both parent and child at initial assessment, was significantly associated with a greater response to treatment (Liber et al., 2010).

With regards to comorbid diagnoses, the review by Knight et al. (2014) cited three studies that found that the presence of comorbid disorders was significantly associated with reduced remission rates (Liber et al., 2010; Rapee et al., 2013; Storch et al., 2008), whereas eight found no significant association (Barrett, Duffy, Dadds & Rapee, 2001; Berman, Weems, Silverman & Kurtines, 2000; Cooper, Gallop, Willetts & Creswell, 2008; Kendall, Brady & Verduin, 2001; Kendall, Safford, Flannery-Schroeder & Webb, 2004; Legerstee et al. 2010; Shortt, Barrett & Fox, 2001; Southam-Gerow, Kendall & Weersing, 2001). In Knight et al.'s (2014) review, two studies that investigated the effect of primary diagnosis found that this factor has a significant association with diagnostic status. In both of these studies GAD was associated with better outcomes than social anxiety disorder or separation anxiety disorder (Barmish, 2009; Crawley, Beidas, Benjamin, Martin, & Kendall, 2008). Another five studies found no significant association (Barrett, Dadds & Rapee, 1996; Barrett et al., 2001; Berman et al., 2000; Legerstee et al., 2010; Shortt et al., 2001).

One limitation of both of the reviews (Knight et al. 2014; Nilsen, Eisemann & Kvernmo, 2013) was that many of the studies had small sample sizes. A study by Hudsen et al. (2015) gained data from a sample of 1519 children aged 5 to 18 years of age. All of the children had a primary diagnosis of an anxiety disorder and received CBT in one of 11 multinational sites. Remission from primary diagnosis was measured following treatment, and at three, six and twelve month follow-up. The findings from this study suggest that children with social anxiety disorder had significantly lower rates of remission than those with generalised anxiety disorder. The presence of comorbid mood disorders and

externalising disorders significantly predicted lower rates of remission at post treatment and follow-up. Liber et al. (2010) also found that any comorbid disorder, whether an anxiety disorder or not, predicted less improvement following intervention.

Research exploring whether demographic and anxiety characteristics are factors associated with childhood anxiety disorders has yielded inconsistent findings. This makes it difficult to draw any firm conclusions, however possible associations between age, anxiety severity, comorbidity, and primary diagnosis on treatment outcome cannot be ruled out. These studies did not examine the effect of these factors on children who were not receiving an intervention. Exploring associations between the natural course of childhood anxiety and age, anxiety severity, comorbidity, and primary diagnosis, could advance our understanding of childhood anxiety disorders.

2.1.4 Parental factors associated with childhood anxiety disorders.

The manner in which a parent responds to their child has also been suggested as a factor associated with the course of childhood anxiety disorders. Few studies have directly examined this, however studies that investigate the associations between parenting behaviour and treatment outcome may also indicate factors associated with spontaneous recovery. Parental behaviours can be grouped into three categories; negative behaviours, positive behaviours and communication of fear relevant information (Murray et al., 2012; Creswell, Apetroaia, Murray and Cooper, 2013).

2.1.4.1 Negative parental behaviours.

Expressed anxiety. Elevated parental anxiety has been found to be a significant predictor of treatment outcome for childhood anxiety disorders (Compton et al, 2014; Hudson et al. 2014). Previous research has distinguished between parental anxiety symptoms and the extent to which a parent displays their anxiety in front of their child. Some parents report feeling anxious but will conceal their true feelings from their child (Ginsburg, Grover, Cord, & Ialongo, 2006). As children often imitate behaviour of influential models (social learning theory; Bandura, 1977), a child is likely to adopt anxiety displayed by their parent. Supporting this theory, Burstein and Ginsburg (2010) found that if a parent, particularly a father, modelled anxious behaviour in an anxiety provoking situation then their child was more likely to be anxious, but if they modelled calm behaviour their child was more likely to remain calm. Furthermore, the display of anxiety by parents has repeatedly been shown to be associated with childhood anxiety disorders (Fisak and Grills-Taquechel, 2007), and with poorer outcomes from CBT for anxiety disorders (Creswell, Willetts, Murray, Singhal and Cooper, 2008). The evidence suggests

that expressed anxiety from parents is associated with childhood anxiety disorders and reduces the chances of recovery with intervention. There is therefore a possibility that higher levels of parental expressed anxiety could also impede spontaneous recovery.

*Passivity***.** As well as demonstrating how parental modelling of anxious behaviour could be associated with the maintenance of anxiety, the social learning theory would also suggest that a lack of appropriate modelling inhibits learning. Parents who display passivity are withdrawn or unresponsive towards their child's emotional needs, and are less likely to model adaptive coping strategies. Without guidance from their parents, the chances of a child recovering from an anxiety disorder without intervention could be reduced. There is currently no evidence to support this theory, therefore exploring associations between parental passivity and childhood anxiety disorders could impart new knowledge of the relationship between parenting behaviours and childhood anxiety disorders.

Promotion of avoidance. Avoiding anxiety provoking situations is a maladaptive coping strategy that provides short-term relief but also eliminates opportunities to overcome the fear, therefore maintaining the anxiety. On some occasions a parent may encourage their child to avoid completing a task which they know will be anxiety provoking. Parents of children with anxiety disorders may be more likely to facilitate avoidance than parents of children without an anxiety disorder. Barrett, Rapee, Dadds, and Ryan (1996) conducted a study where children were presented with twelve scenarios, which were ambiguous in terms of whether they could be interpreted as threatening, and were asked to provide a solution to each scenario. The study observed whether children gave a solution that was pro-social, aggressive or avoidant. The results found no significant difference between the children with anxiety disorders compared with children with oppositional defiant disorders and children with no clinical disorders. The children were then asked to discuss two of the scenarios with their parents, and provide a solution again. Following the family discussion, the percentage of anxious children who chose an avoidant solution increased from 29.7% to 67.8%. This is in contrast to the children without an anxiety disorder, who were less likely to choose an avoidant solution after talking to their parents. These findings suggests that parents of anxious children are more likely to promote avoidant behaviour in their children. More recently, Casabianca (2014) observed patterns of behaviours in families and found that anxiety disorders in children were associated with family members allowing avoidance of anxiety provoking situations, either by providing excessive support or a lack of effective support. The evidence so far suggests that promotion or accommodation of avoidance appears to be more prominent in the parents or families of children with anxiety disorders than in those of children without

anxiety disorders. No research has yet investigated if promotion of avoidance is associated with the maintenance of, or recovery from, anxiety disorders.

Overprotection. Some parents may offer their child emotional or practical help despite their child being competent at a task. This type of behaviour is referred to as 'overprotection' or 'excessive parental control' and can reduce opportunities for a child to experience mastery, to gain independence and confidence, and to learn to use coping skills. Parental overprotection has been found to be associated with increased anxiety symptoms in children who were asked to give a short speech (De Wilde and Rapee, 2008) and with anxiety disorders in children (McLeod, Wood, & Weisz, 2007). The evidence for this is mixed though, with Clarke, Cooper, and Creswell (2013) finding that maternal overprotection was not significantly associated with child anxiety symptoms. Settipani, O'Neil, Podell, Beidas and Kendall (2013) found that a reduction in parental over-control from pre- to post- treatment predicted a reduction in the child's anxiety symptoms. These findings may lead to the hypotheses that parental overprotection may maintain anxiety disorders in children and that lack of overprotection may be associated with recovery, however these hypotheses have yet to be tested in current research.

Intrusiveness. Parents who interfere verbally or physically in an attempt to take over a task that their child is engaged in are considered to be acting intrusively. Cooper-Vince, Pincus and Comer (2014) state that parental intrusiveness restricts the child's autonomy which can lead to a sense of hopelessness within the child. This hopelessness is hypothesised to not only be linked with increased anxious behaviour, but also to prevent the child from facing and coping with anxiety provoking situations, and therefore maintaining the anxiety. The influence of intrusiveness appears to be complex though, as the authors also noted that intrusiveness only increases a child's anxiety symptoms in children who are from low-income families. This research has suggested that parental intrusiveness may increase anxiety symptoms in some children, however we do not yet know if the presence or absence of this parental behaviour is associated with anxiety disorders.

2.1.4.2 Positive parental behaviours.

Encouragement. Showing enthusiasm for a task, and the child's efforts in that task, is considered to be a positive parental behaviour. It motivates the child to persevere with tasks or situations that are particularly challenging or anxiety provoking, which increases the likelihood that they will overcome the difficulty and gain confidence in their ability to manage future anxiety provoking situations. This is likely to reduce anxiety symptoms and therefore this parenting behaviour could be associated with anxiety disorders. Silk et al.

(2013) found that parents of children with an anxiety disorder were less likely to encourage bravery than those of children without an anxiety disorder. They also discovered that higher levels of encouragement appeared to be associated with better treatment outcomes. No research has yet established whether parental encouragement is associated with recovery in children with anxiety disorders.

Warmth. Parents who are emotionally warm provide verbal and physical affection and show positive regard towards their child. A lack of parental warmth may portray to the child that the environment is hostile and threatening, which is likely to increase a child's anxiety, and therefore may be associated with the development or maintenance of childhood anxiety disorders (Bogels & Tarrier, 2004). Research has failed to provide consistent findings regarding the associations between warmth and childhood anxiety disorders. Moore, Whaley and Sigman (2004) observed parenting behaviours of anxious and non-anxious mothers of children with and without anxiety disorders and found that mothers of anxious children were less warm toward their children during video taped interaction tasks, regardless of whether they themselves had an anxiety disorder. Contrastingly, Rork and Morris (2009) carried out observations of 32 families from a community sample, and found no significant association between levels of parental warmth and self-reported childhood social anxiety symptoms. The relationship between maternal warmth and treatment outcome is also unclear, with some studies suggesting that children who perceive that they receive low levels of maternal warmth respond less well to treatment for anxiety disorders (Festen et al., 2013) and others suggesting that increased maternal warmth led to poorer treatment outcomes (Liber et al., 2008). The inconsistent findings could be due to maternal warmth being highly associated with other variables, or due to an interactional effect with other variables. For example, maternal warmth has been found to moderate the impact of less desirable parenting behaviours, such as maternal intrusiveness, so that the negative behaviours do not have a negative impact on the level of child's anxiety symptoms when high levels of maternal warmth are displayed (Raudino, Murray et al., 2013). As previous research has failed to provide a clear understanding of the relationship between parental warmth and childhood anxiety disorders, investigation into the associations between parental warmth and spontaneous recovery could provide some clarity.

Quality of relationship. A positive relationship between parent and child is distinguished by a mutual engagement with a sense that the parent and child enjoy each other's company. A high quality relationship between parent and child is likely to increase a child's sense of security and provide the child with a support symptom. Children who do not have this may feel more vulnerable, therefore quality of relationship between a parent

and child could be a factor associated with anxiety disorders. There is a lack of research into the association between quality of parent-child relationship and childhood anxiety disorders, however Raudino, Fergusson and Horwood (2013) found that a more positive parent-child relationship was associated with lower levels of anxiety symptoms in older children. Victor, Bernat, Bernstein, & Layne (2007) also found that positive emotional bonding between family members and the degree that family members are connected increased the effectiveness of CBT on childhood anxiety disorders. Research has yet to identify if there is a significant interaction between the quality of the parent-child relationship on maintenance of anxiety, or on recovery from childhood anxiety without intervention.

2.1.4.3 Communication of fear relevant information. A parent who implies that a task will be scary or unpleasant increases the sense of threat associated with a situation and increases a child's sense of vulnerability. Parents can also increase their child's sense of vulnerability by vocalising potential difficulties in a manner that implies that the child will be unable to complete the task. If a child perceives the world as hostile and intimidating, and themselves as vulnerable, they are likely to experience higher levels of anxiety which could lead to an anxiety disorder. Evidence to support this theory comes from Hosey and Woodruff-Borden (2012), who found communication between parent and child during anxiety provoking tasks were very different for children who were anxious and those who were not. This included using more controlling language, more intrusive commands, and more negative words that communicated to the child that the current situation was threatening. No research has yet identified if these words are implicated in the maintenance of anxiety.

Previous research has so far suggested that negative parental behaviours tend to be more common in parents of children with anxiety disorders than parents of children without an anxiety disorder diagnosis, with some negative parental behaviours also associated with poorer outcomes from treatment. Research into the associations between positive parenting behaviours and childhood anxiety disorders has provided inconsistent findings, although parents of children with anxiety disorders appear to be less likely to encourage their child than parents of children without an anxiety disorder, and this is also associated with poorer outcomes from treatment. Communication of fear relevant information appears to be higher in parents whose children have an anxiety disorder than parents of children who do not. No studies have yet investigated the association between these parenting variables and spontaneous recovery from childhood anxiety disorders.

2.1.5 Aims and hypotheses.

This paper aims to investigate whether factors that have been found to be significantly associated with childhood anxiety disorders in previous research, will also be significantly associated with spontaneous recovery from childhood anxiety disorders. The study will examine spontaneous recovery among children on the waiting list for treatment within a randomised controlled trial. As there has been a lack of previous research in this domain, current knowledge of factors associated with anxiety disorders in children and young people have been drawn upon to formulate the following testable hypotheses.

- Higher rates of recovery will be observed in younger children compared to older children.
- Higher rates of recovery will be observed in children with less severe anxiety disorders compared to those with more severe anxiety disorders.
- Higher rates of recovery will be observed in children with a primary diagnosis of generalised anxiety disorder compared to children with any other primary anxiety disorder.
- Higher rates of recovery will be observed in children with a single anxiety diagnosis compared to children with multiple anxiety diagnoses.
- Lower rates of recovery will be observed in children whose parents display higher levels of negative parental behaviours (expressed anxiety, passivity, promotion of avoidance, overprotection and intrusiveness) compared with children whose parents display none/low levels.
- The extent of positive parental behaviours (warmth, encouragement and the quality of the relationship between the parent and child) will be significantly associated with higher rates of recovery from childhood anxiety disorders.
- The extent of parental communication of fear relevant information (threat promotion and vulnerability promotion) will be significantly associated with lower rates of recovery from childhood anxiety disorders.

2.2 Method

2.2.1 Participants and procedure.

This study used data from a randomised controlled trial that was designed to evaluate guided parent-delivered cognitive-behavioural therapy for treatment of child anxiety disorders (Thirlwall et al., 2013). Participants were recruited between April 2008 and December 2010 from referrals made to a child anxiety clinic for assessment and treatment of an anxiety disorder. Participants were assessed for eligibility using the following criteria:

- Aged between 7 and 12 years old.
- Had a current primary diagnosis of Generalised Anxiety Disorder, Social Phobia, Separation Anxiety Disorder, Panic Disorder, Agoraphobia, or Specific Phobia.
- Had no physical or intellectual impairment.
- If either child or parent had a current prescription of psychotropic medication, the dosage had been stable for at least 1 month, with agreement to maintain dose throughout the study
- The child's primary carer had no current anxiety disorder or intellectual impairments.

194 participants met these criteria and were assessed for baseline measures of childhood anxiety and parenting behaviours. Participants were randomly assigned to one of two treatment groups or to a wait-list, using the centralised telephone randomisation service at the Centre for Statistics in Medicine, University of Oxford. 69 participants were allocated to the wait-list group. Only the data of those children in the wait-list condition was used for this study (see figure 6).

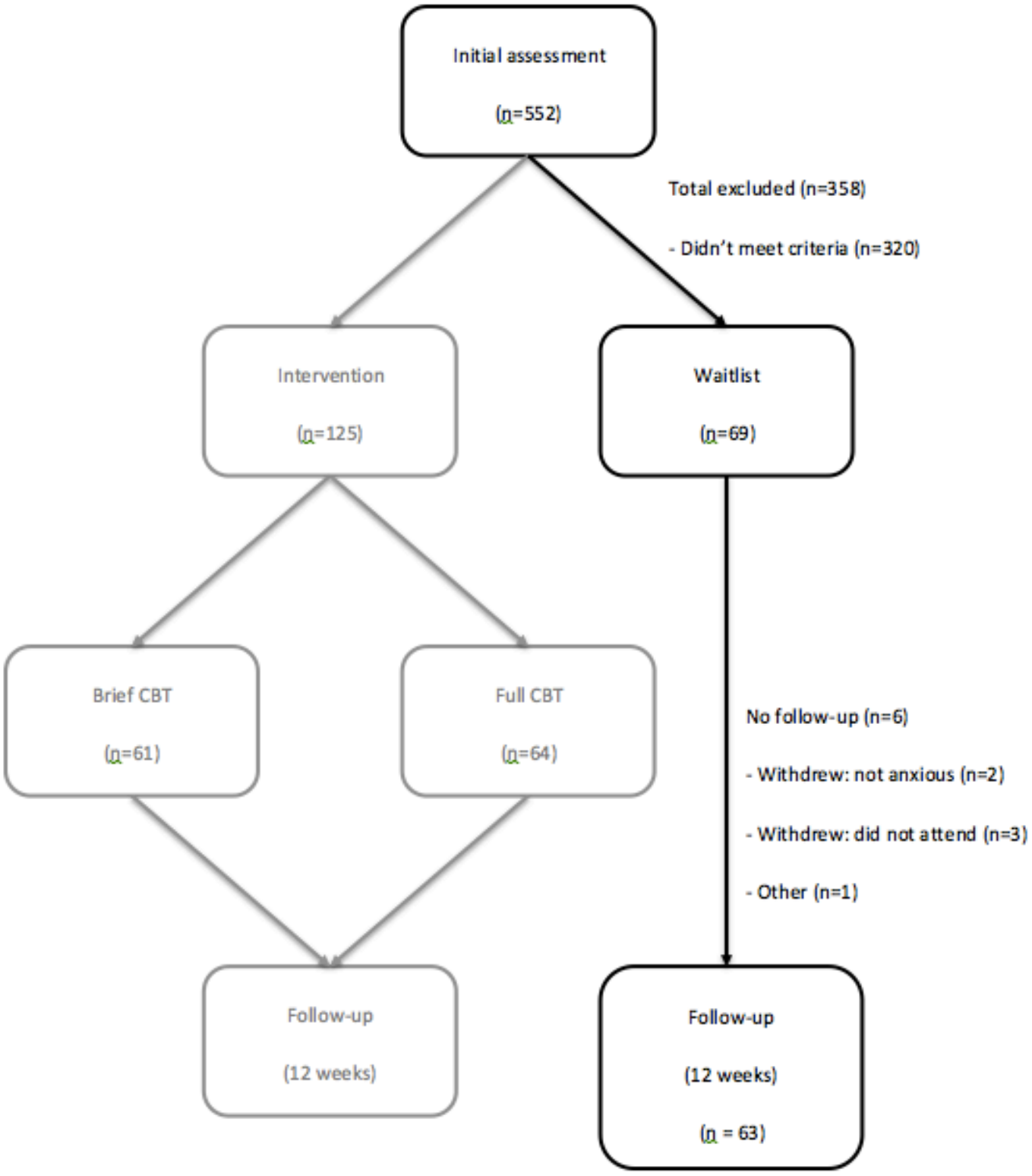

Figure 6. Participant flow chart.

Participants were informed that they had been allocated to the wait-list group and were instructed to refrain from taking part in any intervention for their anxiety disorder for

12 weeks. After this time, measures of anxiety diagnosis were re-administered and an assessment of clinical change was completed.

Six participants did not attend for follow-up therefore were not included in the analysis, as assessment of improvement was not possible for these participants. The total sample after these participants were excluded was 63. A further six cases were missing data on parenting variables. The reasons for this missing data were either that consent was not gained to record the tasks, or that the child refused to participate in a part of the assessment. The data for these participants were not removed from the data set but were excluded pairwise from analyses where applicable. Statistical analyses were completed to explore the differences between those who were included in the study and those who were not (due to lack of follow-up data). Non-parametric tests were used due to the small number of participants in the 'excluded' sample (n=6). Mann-Witney U tests were used to explore continuous data and Chi-Square tests were used to explore differences between categorical data. The tests showed no significant differences between the two groups in any of the independent variables measured (Appendix D and E).

The mean age of the participants was 9.48 years. The sample was well balanced on age and gender (Table 7). The majority of the children were of White British ethnicity (84%) and had parents from a higher professional background (62.3%). The children had a range of anxiety disorder diagnoses and severity. More children than not had comorbid anxiety disorders (69.8%). Comorbid non-anxiety mood disorders (17.5%) and comorbid behaviour disorders (23.8%) were less frequent.

Table 8

Participant Demographics

	Frequency	Percent
Child's gender		
Male	31	49.2
Female	32	50.8
Age		
7	10	15.9
8	10	15.9
9	13	20.6
10	10	15.9
11	10	15.9

12	10	15.9
Socio-economic status of family		
‘Higher’ or ‘professional’	39	61.9
Other employed	18	28.6
Unemployed	2	3.2
Primary diagnosis		
Separation Anxiety Disorder	15	23.8
Social Phobia	15	23.8
Generalised Anxiety Disorder	14	22.2
Other (School refusal, specific phobia, panic disorder, agoraphobia)	19	30.3
Single anxiety disorder or multiple anxiety disorders		
Single anxiety disorder	19	30.2
Co-morbid anxiety disorders	44	69.8
Primary diagnosis		
Moderate (CSR=4)	5	7.9
Moderate (CSR=5)	21	33.3
Severe (CSR=6)	28	44.4
Severe (CSR=7)	8	12.7
Very severe (CSR=8)	1	1.6
Presence of non-anxiety disorder (Dysthymia, Major Depressive Disorder, Post Traumatic Stress Disorder, Obsessive Compulsive Disorder)		
Comorbid non-anxiety mood disorder	11	17.5
Comorbid behavioural disorder	15	23.8

2.2.2 Measures

2.2.2.1. Diagnosis. The outcome measure used to assess diagnostic status was the parent and child versions of the Anxiety Disorders Interview Schedule for DSM –IV (ADIS-C/P; Silverman & Albana, 1996). The ADIS-C/P has been found to have good reliability (Lyneham, Abbott & Rapee, 2007) and validity (Wood, Piacentini, Bergman, McCracken & Barrios, 2002). The ADIS-C/P provides a Clinical Severity Rating (CSR) which rates the severity of the child's anxiety symptoms, ranging from 0 (complete absence of psychopathology) to 8 (severe psychopathology). The CSR was assessed by psychology graduates who were trained on the administration and scoring through verbal instruction, listening to audio recordings of assessment, and by participating in diagnostic consensus discussions. The first 20 interviews were discussed within diagnostic consensus discussions led by an experienced diagnostician and ratings were given by both the independent assessor and the team. Once inter-rater reliability had been achieved (>.85) the raters assessed CSR independently, bringing one in six interviews to the team to prevent inter-rater drift. Reliability for presence or absence of diagnosis on the ADIS-C/P was kappa = 0.98(child report), 0.98 (mother report); and for the CSR intra-class correlation = 0.99(child report), 0.99 (mother report) (Creswell et al, 2013). A CSR rating of 4 or above indicates that a child meets the diagnostic criteria for an anxiety disorder. Children with CSR of less than four were not included in the study. The severity rating for those that did meet the diagnostic criteria was recorded, and the type of anxiety disorder with the highest severity was classed as the child's primary diagnosis. If two categories of anxiety disorder scored equally in terms of severity, a clinical decision was made as to which would be classed as the primary disorder. Ratings from initial assessment were compared with ratings on the same measures 12 weeks later. The child was deemed to have recovered from their primary anxiety disorder if the anxiety disorder with the highest CSR rating from the first assessment was below 4 at follow-up assessment. A child was deemed to have recovered from all anxiety disorders if all anxiety disorders that scored 4 or above at initial assessment scored under 4 at follow-up assessment.

2.2.2.2 Clinical Change. This study also utilised the Clinical Global Impression – Global Improvement scale (CGI-I). The CGI-I provides a summary of clinical change using a 7-point scale from 1 = very much improved to 7 = very much worse, and is rated using clinical judgement. The CGI-I was completed by trained psychology graduates. Interrater reliability for the CGI-I was checked using the same method as with the ADIS-C/P and was found to be excellent (ICC = 0.96). A child was deemed to have made a

significant improvement in clinical symptoms if they scored ‘much improved’ or ‘very much improved’ on the CGI-I.

2.2.2.3 Observational measures of parenting. In order to gain information regarding parental behaviours the children were invited to take part in three ‘in vivo’ tasks, with their parents’ support. All tasks took place in a research laboratory, with CCTV cameras to record parent-child interactions throughout the tasks. The social task involved the child preparing for, and presenting, a short speech to a video camera manned by a research assistant. The performance task involved completing a ‘tangram’ puzzle which involved putting geometric shapes together to form a larger shape, within a time limit. The physical task required the child to put their hand into four concealed holes of a black box to discover what four “scary” items were inside. The box actually contained four unthreatening toys. Parents were present for all three tasks and were instructed to help their child if needed. Parental behaviour was observed and recorded for each minute of the tasks. The data was coded using scales identical to the coding used by Creswell, et al. (2013) which are based on scales developed by Murray et al. (2012). Ten parental behaviours were coded, consisting of five negative behaviours (expressed anxiety, passivity, promotion of avoidance, overprotection and intrusiveness), three positive parental behaviours (warmth, encouragement and the quality of the relationship between the parent and child) and two behaviours relating to the communication of fear relevant information (threat promotion and vulnerability promotion). All of these variables were rated on a scale of 1-5 (with 1 indicating an absence of the behaviour and 5 indicating that the behaviour was strongly present), other than promotion of avoidance which was rated on a scale of 1-3 (with 1 representing no promotion of avoidance and 3 representing a strong degree of avoidance promotion). A composite score for each of the ten parenting behaviours was calculated using the mean of the scores from each minute of observation across the three tasks.

2.2.3 Design

The study used an experimental, independent groups design. The experiment is exploratory in nature. The independent variables were age, severity of anxiety disorder, primary anxiety disorder, comorbidity, negative parental behaviours (expressed anxiety, passivity, promotion of avoidance, overprotection and intrusiveness), positive parental behaviours (warmth, encouragement and the quality of the relationship between the parent and child), and parental communication of fear relevant information (threat promotion and vulnerability promotion). The dependent variables relate to recovery, which was assessed

in terms of recovery from primary anxiety disorder diagnosis, recovery from all anxiety disorder diagnoses, and clinical global improvement. The measures used to assess recovery were the ADIS-C/P and the CGI-I.

Correlation coefficients were examined for each independent variable against each dependant variables. Logistic regressions were performed to further assess the strength of statistically significant correlations.

2.2.4 Ethics

Ethics approval was granted by Berkshire Research Ethics Committee and the University of Reading Research Ethics Committee and the National Research Ethics Service (Appendix F).

The current research project was designed to meet the BPS requirements for ethical research and has gained ethical approval from Southampton University's Ethics and Research Governance Online (Appendix G).

Assent was gained from the children involved in data collection and informed consent was gained from their parents. Where consent was not granted children were offered treatment as usual within their local CAMHS.

2.3 Results

The data was checked for normality and outliers (Appendix H). Three of the negative parental behaviours (passivity, promotion of avoidance and overprotection) were highly skewed, indicating a bimodal distribution, and were therefore transformed into dichotomous variables representing either the presence or absence of these behaviours. Three other parental variables (intrusiveness, threat promotion and vulnerability promotion) were found to violate the assumption of normality but were not bimodally distributed and so bootstrapping was applied for analyses involving these variables.

Due to the high number of parenting variables studied, the risk of incorrectly identifying a significant association (type I error) was heightened. Testing all the parenting variables separately was deemed essential though, as McLeod et al. (2007) has suggested that investigating broad types of parenting behaviour in previous research may have led to an underestimation of the effect of parenting on childhood anxiety disorders. The use of the Bonferroni Correction was considered in order to adjust for this difficulty, but was deemed inappropriate in this instance for two reasons. Firstly, the Bonferroni Correction assumes that all tests are independent from each other. This is unlikely when considering parenting variables. Secondly, the Bonferroni Correction increases the chances of false negative results (type II error). Two positive parental behaviours, warmth and encouragement, were combined though as they were found to correlate highly, r (58) = 0.58, $p < 0.001$. Quality of relationship was also highly correlated with parental warmth, r (58) = 0.63, $p < 0.001$, however these variables were not combined as the quality of relationship scale represents a two way interaction, rendering it conceptually distinct from all of the other parenting behaviour scales where only the parents behaviour towards the child is observed. All other variables were correlated at $r < 0.5$ (Appendix I).

According to the scoring on the Anxiety Disorders Interview Schedule for DSM –IV (ADIS-C/P), 16 of the 63 children (25.4%) who attended follow-up made a spontaneous recovery from their primary diagnosis and 7 had recovered from all anxiety disorder diagnoses (11.11%). Sixteen (25.4%) were ‘much’ or ‘very much’ improved on the CGI-I. The data for the children who made a spontaneous recovery on each of these instruments will be compared to the data for the children who did not.

The statistical tests were carried out using SPSS software. Tests of correlation were initially used in order to discover the presence of any relationships between the independent and dependant variables (Appendix J). As the dependant measures were categorical, point-biserial correlations were carried out for continuous independent

variables, and chi square was utilised for dichotomous independent variables. Any variables that correlated significantly with outcome were further investigated using regression to assess the strength of each relationship, and to look at the extent of both independent and combined effects of the variables (Appendix K).

2.3.1 Associations with recovery from primary diagnosis.

Correlation coefficients were examined for each independent variable against whether a child recovered from their primary anxiety disorder. As a score of 0 indicated lack of primary diagnosis at follow-up, and a score of 1 indicated presence of the primary diagnosis, negative correlations indicate better outcomes. There was a significant relationship between single vs. comorbid anxiety disorder at assessment and recovery from primary anxiety disorder diagnosis (r_b = 0.27, n = 60, p = 0.04). Out of the 60 children included in this analysis 19 were diagnosed with a single anxiety disorder at initial assessment. 8 (42.11%) of these children had made a spontaneous recovery from that disorder by their follow-up assessment. 41 children were diagnosed with comorbid anxiety disorders at initial assessment. 8 (18.18%) of these children had recovered from their primary anxiety disorder by their follow-up assessment. Parental passivity was significantly associated with recovery from primary anxiety disorder diagnosis (r_φ = 0.27, n = 60, p = 0.04). Parental passivity was present for 26 of the 60 children included in this analysis. 3 of these children (11.54%) had made a spontaneous recovery from that disorder by their follow-up assessment. Parental passivity was not present for 34 children. 12 (38.29%) of these children had recovered from their primary anxiety disorder by their follow-up assessment. No significant correlations were found between any of the other independent variables and recovery from primary diagnosis.

A logistic regression was performed to further assess the strength of each relationship, and to look at the extent of both independent and combined effects of anxiety disorder, comorbidity and parental passivity on the probability of recovery from primary diagnosis from the time of initial assessment to 12 weeks later (Table 8). The full model, containing both of the predictors was significant, x^2 (2, n = 60) = 7.34, p = 0.03, indicating that the model was able to distinguish between participants who did and did not recover from primary diagnosis. The Hosmer-Lemeshow Goodness of Fit Test (p = 0.25) supported the model. The model as a whole explained between 11.5% (Cox and Snell R square) and 17.1% (Nageklkerke R Squared) of the variance in recovery from primary anxiety disorder, and correctly classified 75% of cases. The odds ratio for comorbid anxiety disorders was 2.84, 95% CI [0.80, 10.07] indicating that, when controlling for

passivity, co-morbidity is associated with odds of stability of an anxiety disorder 2.84 greater than for children with only a single disorder. The odds ratio for passivity was 3.44, 95% CI [0.82, 14.40] indicating that, when controlling for comorbidity, parental passivity is associated with odds of stability of an anxiety disorder 3.44 greater than for children whose parents do not display passivity. Separately, neither anxiety disorder comorbidity nor parental passivity made a statistically significant contribution to the model.

Table 9

Logistic Regression Predicting the Likelihood of Recovery from Primary Anxiety Diagnosis

							95% C.I.for Odds ratio	
	B	S.E.	Wald	df	p	Odds ratio	Lower	Upper
Co-morbidity	1.04	.65	2.61	1	.11	2.84	.80	10.07
Parental Passivity	1.24	.73	2.87	1	.09	3.44	.82	14.40
Constant	.03	.50	.003	1	.95	1.03		

2.3.2 Associations with recovery from all anxiety disorder diagnoses.

Correlation coefficients were examined for each independent variable against whether a child recovered from all anxiety disorder diagnoses. There was a significant relationship between threat promotion and recovery from all diagnoses, $r_{pb} = 0.32$, $p < 0.05$ (bootstrapped 95% CI [0.17, 0.47], with lower levels of threat promotion associated with higher rates of recovery from all anxiety disorder diagnoses. No significant correlations were found between any of the other independent variables and recovery from all diagnoses.

A logistic regression was performed to assess the strength of this relationship, and to investigate whether parental threat promotion can be used to predict the probability of recovery from all diagnoses from the time of initial assessment to 12 weeks later (Table 9). The model was significant, x^2 (1, n = 57) = 8.73, $p < 0.01$, indicating that the model was able to distinguish between participants who did, and participants who did not recover from all anxiety disorder diagnoses. The Hosmer-Lemeshow Goodness of Fit Test (p = 0.76) supported the model. The model as a whole explained between 14.2% (Cox and Snell R square) and 29% (Nageklkerke R Squared) of the variance in recovery from all anxiety disorder diagnoses, and correctly classified 89.5% of cases. The odds ratio for threat promotion was 1485.02, 95% CI [1.67, -] indicating that a 1-unit increase in threat

promotion increases the odds for having diagnosis by 1485. The odd's ratio for this model is unusually high, which can suggest multicollinearity, however VIF and tolerance values showed this not to be the case. The high number is therefore likely to be caused by the low rate of threat promotion and the small range of threat promotion within the sample (range of 1.4 units). The results from this analysis must therefore be considered with caution.

Table 10

Logistic Regression Predicting the Likelihood of Recovery from all Anxiety Disorder Diagnoses

	B	*S.E.*	Wald	*df*	*p*	Odds ratio	95% C.I.for Odds ratio	
							Lower	Upper
Threat Promotion	7.30	3.47	4.44	1	.04	1485.02	1.67	-
Constant	-6.61	3.85	2.95	1	.09	0.001		

2.3.3 Associations with clinical global improvement.

Correlation coefficients were examined for each independent variable against CGI-I. There was a significant relationship between threat promotion and CGI-I, $r_{pb} = 0.32$ (bootstrapped 95%CI [0.11, 0.53), with lower levels of threat promotion associated with more improvement according to the CGI-I. A point-biserial correlation also found a relationship between vulnerability promotion and CGI-I, $r = 0.34$ (bootstrapped 95%CI [0.12, 0.54), with lower levels of vulnerability promotion associated with more improvement on the CGI-I. No significant correlations were found between any of the other independent variables and CGI-I.

A logistic regression was performed to assess the impact of parental threat promotion and vulnerability promotion on CGI-I (Table 10). The full model, containing both of the predictors was significant, x^2 (2, $n = 57$) = 15.11, $p < 0.01$, indicating that the model was able to distinguish between participants whose anxiety symptoms made no or minimal improvement and participants whose anxiety symptoms were much or very much improved. The Hosmer-Lemeshow Goodness of Fit Test ($p = 0.84$) supported the model. The model as a whole explained between 23.3% (Cox and Snell R square) and 34.6% (Nageklkerke R Squared) of the variance of change in anxiety symptoms, and correctly classified 80.7% of cases. Threat promotion did not significantly contribute to the model ($p = 0.40$). Vulnerability promotion did significantly contribute to the model ($p = 0.02$). An

odds ratio of <0.01, 95% CI [0.00, 0.12] for vulnerability promotion indicates that for every 1-unit increase in vulnerability promotion increases the odds for improved symptoms decreased by <0.01 therefore having a very small influence, but significantly contributing to the model. It is likely that the low odds ratio is due to a high frequency of scores of 1.00 and 1.07 (28 participants in total) and very low score range (0.8). The results from this analysis must therefore be considered within the restraints of this limitation.

Table 11

Logistic Regression Predicting the Likelihood of Clinical Global Improvement

							95% C.I.for Odds ratio	
	B	S.E.	Wald	df	p	Odds ratio	Lower	Upper
Threat Promotion	-1.21	1.44	0.71	1	.40	.30	.02	4.98
Vulnerability Promotion	-13.20	5.65	5.47	1	.020	.00	.00	.12
Constant	14.65	5.92	6.13	1	.01	2.30		

2.4 Discussion

This paper aimed to investigate whether age, anxiety type or severity, comorbidity, or parental behaviours were significantly associated with spontaneous recovery from childhood anxiety disorders. The predictors in this study were chosen as previous research has found them to be significantly associated with the presence/absence of childhood anxiety, or with treatment outcome. An understanding of the factors associated with spontaneous recovery could reduce the number of children receiving unnecessary intervention, and could also inform prevention and treatment.

2.4.1 Key findings.

Consistent with the findings from Henriksen et al.'s (2014) research into spontaneous recovery from anxiety in adults, this study found a significant association between anxiety disorder comorbidity and recovery from primary diagnosis. Children with a singular anxiety disorder were almost three times more likely to recover from their primary diagnosis than those with co-morbid anxiety disorders. Research has consistently found comorbidity to be an influential factor in the stability of an anxiety disorder and therefore should be an important factor for mental health practitioners to be aware of when intervention planning for children with an anxiety disorder. No significant difference was found between children with a single anxiety disorder diagnosis and children with comorbid diagnosis in recovery from all diagnoses or overall improvement. Child age, severity of anxiety disorder, type of anxiety disorder, and non-anxiety co-morbidity were not associated with spontaneous recovery from anxiety disorders.

Regarding negative parental behaviours, passivity was found to have a significant relationship with spontaneous recovery from the primary anxiety disorder, with children whose parents displayed passivity being 3.44 times more likely to retain their primary anxiety disorder diagnosis after 12 weeks. Passivity was not significantly correlated with recovery from all diagnoses or overall improvement. This finding provides some understanding of the influence that this previously understudied variable has on childhood anxiety. It also highlights that this is a variable that should be included in future research investigating the effects of parenting behaviour on childhood anxiety disorders. The finding that parental passivity reduces the chance of spontaneous remission from childhood anxiety disorders provides support for the use of parenting interventions which may reduce passivity from parents.

Previous research into the association between positive parenting behaviours and the presence/ absence of childhood anxiety have been mixed, with no consistent findings. In this study, none of the positive parental behaviours that were assessed were found to have any influence on a child's chances of spontaneous recovery from primary anxiety disorder, all anxiety disorders or improvement of symptoms.

The presence of parental communication of fear relevant information appeared to be the most influential parental factor, with threat promotion negatively correlated with a child's chances of recovery from all diagnoses and overall improvement of symptoms. Vulnerability promotion was also negatively associated with overall improvement of symptoms. This is consistent with previous findings that parents of children with anxiety disorders are more likely to use this type of language than parents of non-anxiety children (Hosey & Woodruff-Borden, 2012). It is therefore possible that threat heightening and vulnerability promoting language from parents contribute to the maintenance of anxiety disorders in their children. It would be helpful for practitioners working with this group of children to be aware of the potential influence of this type of language, and incorporate this topic into parent interventions for childhood anxiety disorders.

2.4.2 Implications.

This study has shown that anxiety comorbidity, parental passivity and parental communication of fear relevant information may be associated with spontaneous recovery from childhood anxiety disorders. These findings have brought to light some interesting considerations for clinical psychology. The demand for mental health services for children often stretches resources, and providing unnecessary intervention can cause further strain on the service as well as being an unnecessary burden for the child and their family. Interventions should therefore only be provided to those who need it. Assessment of whether the child has multiple anxiety diagnoses, and assessment of parental behaviour in terms of passivity and threat communication, may be used as part of a wider evaluation of whether a child should immediately be offered intervention. If a child has a good chance of spontaneous recovery, a period of monitoring may be appropriate before offering an intervention.

Another consequence of the higher demand for child mental health services is that children frequently have to wait for intervention. It is possible that these parenting behaviours are particularly influential whilst the child is waiting for an intervention, as their parents are likely to be the primary source of support for the child at this time. The assessment stage is rarely used purely for information gathering purposes, as it often

encompasses the first stage of intervention. Being aware that some parental factors may have an effect on a child's chances of recovery from anxiety disorders without intervention could empower parents to help their children, with simple and immediate guidance from therapists. For example, practitioners can assess for passivity during the assessment stage and can encourage parents to take an active role when their child is faced with an anxiety-provoking challenge. Additionally, a therapist should detect any threat or vulnerability promotion from a parent during the assessment. Where this is observed, it may be useful to provide parents with a list of suggested responses to their child's anxiety, which acknowledge the child's anxious feelings whilst avoiding discourse and behaviour that are likely to increase the child's sense of threat and vulnerability. These could be a very simple interim intervention while the parent and child are waiting for full intervention, and would potentially be reassuring to parents who may appreciate immediate practical advice on how to support their child.

The findings relate to the social learning theory (Bandura, 1977). Children may be less likely to recover from their anxiety disorder if appropriate strategies for managing anxiety are not modelled to them (parental passivity) or if parents model a sense of threat and vulnerability through their communication. Children are likely to benefit from someone who is able to model to the child how to make a balanced evaluation of the threat of a situation and their ability to succeed, and from the modelling of appropriate anxiety management strategies. A therapist can either model this to the child within therapy sessions, or can provide the child's parents with anxiety psychoeducation and CBT strategies so that they have the ability to model them to their child themselves.

2.4.3 Limitations.

The findings of this study should be interpreted in the context of several limitations. One difficulty in terms of drawing conclusions from this study is the small sample size. Although the total sample size was 63 children, the numbers who had recovered from their primary diagnosis (16), recovered from all anxiety disorder diagnoses (7) and were 'much' or 'very much' improved on the CGI-I (16) were small. Although the size of the correlations do not suggest that the analysis was lacking power, the sample size did violate the assumption of the Chi square correlations on some occasions as the sample sizes in terms of children who recovered, and children who did not recover, from their anxiety diagnoses was not controllable. This led to uneven sample sizes in each group. One factor that may have contributed to this limitation was that six participants from the original waitlist condition did not complete the assessment at follow-up and therefore were not

included in the study. Two of these children withdrew because they were no longer anxious and three did not provide an explanation. This demonstrates a further limitation to this study design, as losing these children at follow-up may have led to an underestimation of how many children experienced an improvement of symptoms.

Another difficulty with using a waiting list sample is that the length of time between assessment and intervention should be kept to a minimum, preventing longitudinal analyses. It is possible that children who were considered to have spontaneously recovered had in fact only experienced a temporarily subsidence of symptoms rather than the child having actually made a sustained recovery, or that more children may have spontaneously recovered given more time. Future research would benefit from follow-up data from children who had recovered in order to explore if the improvements are maintained.

A further limitation of this study is that parental behaviour was measured in a laboratory setting. The artificial nature of this may mean that the behaviour of the child and parent may not have accurately represented their natural responses, compromising the ecological validity of the study. Alternative options, such as observation in natural settings or using parent recorded measures of their own behaviour, would be resource intensive or unreliable. Another limitation regarding this study was that it only assessed parental behaviour at the time of the initial assessment. It is possible that parental behaviour could have changed since the assessment process. A consideration for future research would be to monitor change in parental behaviour from assessment to follow-up as this could provide further insight into why a quarter of children recover from their anxiety disorders after having only received an assessment of their anxiety.

The frequency and range of some of the parenting behaviours measured were low (threat augmentation and vulnerability promotion). The conclusions that can be drawn from the regression analysis are tentative due to this limitation. It is probable that a measure more sensitive to these parental behaviours, or a larger sample size, would increase the variance and would therefore improve the reliability of the statistical analyses. Three parental behaviours (passivity, promotion of avoidance and overprotection) were transformed into dichotomous variables due to bimodal distribution. Although necessary, an inherent limitation resulting from dichotomising each of these variables is that it limits their variance, and therefore data is much less rich which may have compromised the analysis.

This study has identified variables that are associated with, and can predict, recovery from anxiety disorders in children. It could therefore be hypothesised that these variables promote a context that aids recovery from childhood anxiety, however the nature of the

associations in terms of whether these variables truly help children recover has not been proven. Previous research has found that helpful changes in parent behaviour occur as a response to changes in their child's anxiety symptoms (Wijsbroek, Hale, Raaijmakers & Meeus, 2011; Silverman, Kurtines , Jaccard & Pina, 2009). We do not know the direction of the associations between the parenting variables and spontaneous recovery, so it may be that children who are progressing towards spontaneous recovery elicit different sorts of parental responses than children who are not. Neither do we know if any of the variables interact. Previous research has shown that maternal warmth moderates the role of negative parenting behaviours on anxiety symptoms (Raudino, Murray et al., 2013). It is therefore possible that parenting variables interact in their associations with spontaneous recovery. Future research into both of these factors would provide further insight into the nature of spontaneous recovery from childhood anxiety disorders.

Caution must be applied when considering the generalisability of the findings from this study, due to the characteristics of the sample. As the original study from the dataset was an evaluation of a low-intensity intervention, children whose parents had a diagnosis of an anxiety disorder were excluded from this study. The findings of this study therefore only apply where a child with an anxiety disorder does not have a parent with an anxiety disorder. There is also a lack of diversity in terms of social economic background, with the majority of parents in the 'higher or professional' category (n= 39) and only 2 falling into the 'unemployed' category. Furthermore, the majority of parents involved in the research were mothers. As seen in previous research, the effect of parental behaviour can depend on the gender of the parent (Burstein and Ginsburg, 2010). The results of this research may therefore be most reflective of the effects of maternal behaviour.

Many environmental factors, such as school holidays or even different seasons, could influence the display of a child's anxiety symptoms on a day to day basis thus making the child appear more or less anxious. Further research, using data from children who have been in remission from their anxiety disorder diagnosis over a longer period of time, would confirm whether children who spontaneously recover maintain their progress long-term.

The outcome measures used have many strengths in terms of their reliability and validity, and by being clinician-rated. No variable in this study was found to be associated with all three outcome measures. This demonstrates that each outcome measures provided a unique contribution to our understanding of each child's recovery. Recovery from primary anxiety disorder is likely to reflect changes in disorder specific symptoms. Recovery from all diagnoses is more likely to reflect changes in a transdiagnostic processes, and clinical change is likely to reflect a more generalised positive outcome. For example, parenting variables that measured ccommunication of fear relevant information

were not significantly associated with recovery from primary anxiety disorder, but were significantly associated with recovery from all diagnoses and clinical change in most analyses. This indicates a positive, transdiagnostic, change in wellbeing. Measuring varied forms of recovery is a strength of this study, however it is possible that different outcome measures, such as self-rated scales, may have provided further understanding of spontaneous recovery.

2.4.4 Future directions.

Reviewing the limitations of this study has provided some potential areas for future research, including a similar study with a larger sample size, measuring change in parental behaviour following assessment, long-term follow-up of those who make a spontaneous recovery, and more in-depth investigation into the variables found to correlate with recovery from childhood anxiety disorders and symptoms. This study has also demonstrated the usefulness of information that was initially gathered for the purpose of providing a control group. In-depth investigation of data from waiting list participants is rare, as the focus of studies is usually on intervention. Future research should make use of all available data, including that of waitlist participants, for example by collating waitlist data across multiple trials.

2.4.5 Conclusion.

Bearing in mind the limitations noted, this study has provided evidence that anxiety comorbidity, and parental behaviour in terms of passivity and communication of threat relevant information are associated with the probability of spontaneous recovery from childhood anxiety. This study has therefore provided fresh knowledge, with relevant clinical implications, and has provided new insight into the nature of childhood anxiety disorders.

Appendices

Appendix A Protocol

A.1 Background

The Journal of Child and Adolescent Mental Health requested a review of preventative interventions. There have been previous reviews on universal interventions and on reactive interventions. In order to provide a novel contribution to literature this review will be focused on secondary preventative interventions only.

A.2 Review Objective

The objective of this review is to assess the effectiveness of secondary preventative interventions at reducing anxiety symptoms in children who are assessed as being at risk of developing an anxiety disorder. Whilst answering this question, this review will also investigate moderating factors that may influence the effectiveness of secondary preventative interventions:

- Age of participants
- Gender
- Who the intervention was delivered by
- Type of intervention
- Length of intervention

Inclusion Criteria

- Secondary preventative interventions
- Outcome measured using either a recognised diagnostic tool for a disorder that is recognised in the DSM5 or a validated measure of anxiety symptoms or diagnosis using standardised scores.
- Studies included in a peer reviewed journal
- Randomised Controlled Trials

Exclusion Criteria

- Special population? E.g. primary medical condition
- Non-human studies
- Primary or tertiary interventions
- Papers with qualitative data only
- Papers with no new data (e.g. reviews)

Exclusion criteria added on 21st December 2016

Studies with participants over the age of 21 or with a mean age of 18 years or older.

Appendix A

Studies with no control group

N.B. Studies written in languages other than English will be included where a translation of the required information is available.

A.3 Search Terms

anx* OR panic disorder OR phobi* or worr*

AND

prevent* OR early interve* OR risk* OR at-risk OR vulnerab*

AND

Infant* OR toddler* OR “pre-school”* OR preschool OR adolescen* OR youth OR teen* OR “young person OR young adult* OR “school child* OR kid* OR juvenile* OR child*

AND

placebo* OR random* OR “comparative stud*” OR clinical trial* OR research design OR evaluat* stud* OR prospectiv* stud* OR (singl* OR doubl* OR trebl* OR tripl*)

AND

(blind* OR mask*) OR double-blind OR random* assigned OR control.

Search databases

Psych Info

Pubmed

Web of science Core collection

Embase

Data extraction

All studies will be stored using Endnote software. The studies will be screened by two authors (P.L and S.R) and any discrepancies that will be resolved by a third author (C.C). Authors of any unobtainable or missing data, and of any studies written in a language other than English, will be contacted in attempt to reduce the number of studies excluded for these reasons.

A.4 Quality assessment

QualSyst quantitative study quality tool (Kmet, Lee, & Cook, 2004)

A.5 Data Synthesis

The data will be collated by two authors (S.R. and P.L) and a meta-anaylsis will be completed if possible.

The outcomes of interest will be diagnostic rates and anxiety symptoms.

Appendix B Quality Ratings

	Objective sufficiently described	Design evident and appropriate?	Method of subject selection is described and appropriate.	Subject characteristics or sufficiently described?	Random allocation to treatment group was described?	Interventional and blinding of investigators to intervention is reported?	Interventional and blinding of subjects to intervention was reported?	Outcome measures well defined and robust to measurement bias?	Sample size appropriate?	Analysis described and appropriate?	Some estimate of variance is reported for the main results/outcomes?	Controlled for confounding?	Results reported in sufficient detail?	Do the results support the conclusions?	Total score (%)
Balle & Tortella-Feliu, 2010	2	2	2	2	1	0	N/A	2	2	2	1	2	2	2	82.14
Bar-Haim et al., 2011	2	2	2	2	1	1	1	2	1	2	1	2	2	2	82.14
Berry & Hunt, 2009	2	2	2	2	2	1	N/A	2	1	2	2	2	2	2	89.29
Dobson et al., 2010	2	2	2	2	1	0	0	2	0	2	1	2	2	2	71.43
Ginsburg, 2009	2	2	2	2	1	0	0	2	1	2	2	2	2	2	78.57
Ginsburg et al. (2015)	2	2	2	2	2	2	0	2	2	2	2	2	2	2	92.86

Appendix B

	Objective sufficiently described	Design evident and appropriate?	Method of subject selection is described and appropriate.	Subject characteristics or sufficiently described?	Random allocation to treatment group was described?	Interventional and blinding of investigators to intervention is reported?	Interventional and blinding of subjects to intervention was reported?	Outcome measures well defined and robust to measurement bias?	Sample size appropriate?	Analysis described and appropriate?	Some estimate of variance is reported for the main results/outcomes?	Controlled for confounding?	Results reported in sufficient detail?	Do the results support the conclusions?	Total score (%)
Gutiérrez-Maldonado et al. (2009)	1	2	1	2	1	0	0	2	1	1	1	2	2	2	64.29
Hiebert et al. (1989)	1	2	2	1	1	2	0	2	1	2	1	2	2	2	75
Kosters et al. (2015)	2	2	2	2	N/A	0	N/A	2	2	2	2	2	2	2	85.71
Liddle & Macmillan, (2010)	2	2	2	1	1	0	0	2	1	2	2	2	2	2	75
Mifsud & Rapee (2005)	2	2	2	2	1	0	0	2	2	2	2	2	2	2	82.14
Miller et al. (2011)	2	2	2	2	1	0	0	2	2	2	2	2	2	2	82.14

	Objective sufficiently described	Design evident and appropriate?	Method of subject selection is described and appropriate.	Subject characteristics or sufficiently described?	Random allocation to treatment group was described?	Interventional and blinding of investigators to intervention is reported?	Interventional and blinding of subjects to intervention was reported?	Outcome measures well defined and robust to measurement bias?	Sample size appropriate?	Analysis described and appropriate?	Some estimate of variance is reported for the main results/outcomes?	Controlled for confounding?	Results reported in sufficient detail?	Do the results support the conclusions?	Total score (%)
O'Leary-Barrett (2013)	2	2	2	2	2	1	0	2	2	2	2	2	2	2	89.29
Scholten et al. (2016)	2	2	2	2	1	0	0	2	2	2	2	2	2	2	82.14
Shen (2002)	2	2	2	1	1	0	0	2	1	2	1	2	2	2	71.43
Sui (2007)	2	2	2	2	1	2	0	2	1	2	1	2	2	2	82.14

Appendix C Summary of Studies

Study	N	Age mean (range)	Gender %F	Nature of risk	Prog Type	Cont Type	Sessions (minutes)	Who attends	Format	Dx Tool	Anx Sx Tool	Rater	F/U
Balle & Tortella-Feliu (2010)	92	13.63 (11-17)	61	Anx Sens	CBT (Spanish FRIENDS)	W/L	6 (45)	Y/P	Group	None	Catalan SCAS	Y/P	6
Bar-Haim, et al. (2011)	34	10.1 (10)	71	Anx Sx	ABM	Att	2 (8 blocks of 96 trials) (60)	Y/P	Indiv	None	STAIC	Y/P	None
Berry & Hunt (2009)	46	13.04 (12-15)	0	Anx Sx + bullying victim (BIS)	CBT (CKP)	W/L	8 (60)	Y/P + parents separate groups	Group	None	SCARED	Y/P and parent	3
Dobson et al. (2010)	46	15.26 (13-18)	69.6	Dep Sx	CBT	Att	15 (45)	Y/P	Group	None	BAI (MASQ also used)	Y/P	3 and 6
Ginsburg (2009)	40	8.94 (7-12)	45	Parent Anx Dx	CBT (CAPS)	W/L	6-8 + 3 boosters (60)	All family (parents	Family	ADIS C / P	SCARED	Y/P and parent	6 and 12

Appendix C

Study	N	Age mean (range)	Gender %F	Nature of risk	Prog Type	Cont Type	Sessions (minutes)	Who attends	Format	Dx Tool	Anx Sx Tool	Rater	F/U
								only at first 2)					
Ginsburg et al. (2015)	136	8.69 (6-13)	55.9	Parent Anx Dx	CBT (CAPS)	Inf. mon.	8 + up to 3 boosters	All family (parents only at first 2)	Family	ADIS C / P	ADIS CSR	Y/P and parent	6 and 12
Gutiérrez-Maldonado et al. (2009)	36	11:09 (10-15)	63.9	Anx Sx	VR Exp	W/L	8	Family	Indiv	None	FSSC-R	Y/P	None
Hiebert et al. (1989)	40	15.6 (15-17)	75	Identified by teacher and Anx Sx	PMR	Attor N/C	8	Y/P	Individual	None	STAI	Y/P	None
Kosters et al. (2015)	496	10.6 (8-13)	62.5	Anx Sx	CBT Dutch FRIENDS	W/L	10 + 1 booster	Y/P	Group	None	RCADS	Y/P	6

Study	N	Age mean (range)	Gender %F	Nature of risk	Prog Type	Cont Type	Sessions (minutes)	Who attends	Format	Dx Tool	Anx Sx Tool	Rater	F/U
Liddle & Macmillan (2010)	58	Not reported (8-14)	46.6	Anx Sx / Dep Sx, / low self-est	CBT FRIENDS	W/L	10	Y/P	Group	None	SCAS	Y/P and parent	None
Mifsud & Rapee (2005)	91	9.5 (8-11)	59	Anx Sx and low SES area	CBT Cool Kids	W/L	8 (weekly)	Y/P	Group	None	SCAS	Y/P and parent	4
Miller et al. (2011)	191	10.1 (9-12)	48	Anx Sx	CBT FRIENDS	W/L	9	Y/P	Group	None	MASC	Y/P	12
O'Leary-Barrett et al. (2013)	1024	13.7 (13-14)	42.9	Anx Sens	CBT	N/C	2	Y/P	Group	None	BSI	Y/P	24
Scholten et al. (2016)	138	13.3 (11-15)	65	Anx Sx	Biofeedback video game	video game	6 (in 3 weeks)	Y/P	Indiv	None	SCAS	Y/P	3
Shen (2002)	30	Not reported (8-12)	53.3	Survived earthquake and high	Play therapy	N/C	10	Y/P	Group	None	RCMAS	Parent	None

Appendix C

Study	N	Age mean (range)	Gender %F	Nature of risk	Prog Type	Cont Type	Sessions (minutes)	Who attends	Format	Dx Tool	Anx Sx Tool	Rater	F/U
				risk for maladjustment.									
Sui (2007)	47	8.4 (7-10)	46.8	Int Sx	CBT FRIENDS	W/L	8	Y/P	Group	N/A	CBCL SCARED	Y/P	None

Appendix D Mann-Witney U Test on the differences between those participants who completed follow-up and those who did not, on all continuous variables

		N	Mean	S.D.	z	p
Age (months)	Included	63	118.52	19.78	-0.22	.83
	Excluded	6	117.33	25.73		
Anxiety Severity	Included	63	5.67	0.86	-1.02	.31
	Excluded	6	6.00	0.63		
Expressed Anxiety	Included	58	1.91	0.52	-0.21	.84
	Excluded	6	1.89	0.24		
Intrusiveness	Included	58	1.53	0.38	-0.29	.77
	Excluded	6	1.62	0.65		
Warmth and	Included	58	2.99	0.43	-0.41	.63
encouragement	Excluded	6	3.04	0.45		
Quality of	Included	60	3.30	0.36	-0.08	.94
relationship	Excluded	6	3.27	0.31		
Threat Promotion	Included	57	1.36	0.30	-1.92	.06
	Excluded	6	1.14	0.12		
Vulnerability	Included	60	1.17	0.21	-0.83	.43
promotion	Excluded	6	1.22	0.19		

Appendix E Chi Square statistics on the differences between those participants who completed follow-up and those who did not, on all dichotomous variables.

		Participants who completed follow up	Participants who did not complete follow up	X^2	Sig.	Phi/ Cramers
Single vs. Comorbid Anxiety	Single	31.7%	22.2%	0.35	0.85	-0.07
	Comorbid	68.3%	77.8%			
Presence of non-anxiety mood disorder	Comorbid mood disorder	18.3%	22.2%	0.00	1.00	-0.03
	No comorbid mood disorder	81.7%	77.8%			
Presence of behavioural disorder	Comorbid behavioural disorder	25%	33.3%	0.02	0.90	-0.06
	No behavioural disorder	75%	66.7%			
Type of primary anxiety disorder	Separation anxiety:	25%	0%	4.92	0.17	0.27

Appendix E

		Participants who completed follow up	Participants who did not complete follow up	X^2	Sig.	Phi/ Cramers
	Social phobia:	23.3%	33%			
	Generalised anxiety:	23.3%	11.1%			
	Other:	28.3%	55.6%			
Anxiety severity	Mild-moderate	41.7%	22.2%	0.56	0.45	-0.13
	Severe	58.3%	77.8%			
Parental overprotection	Presence of overprotection	31.7%	55.6%	1.06	0.30	-0.17
	No overprotection	68.3%	44.4%			
Parental Avoidance	Presence of avoidance	31.7%	55.6%	1.06	0.30	-0.17
	No avoidance	68.3%	44.4%			
Parental Passivity	Presence of Passivity	43.3%	55.6%	0.19	0.74	-0.08

		Participants who completed follow up	Participants who did not complete follow up	X^2	Sig.	Phi/ Cramers
	No passivity	56.7%	44.4%			

Appendix F NRES approval for data collection

NHS
National Research Ethics Service
Berkshire Research Ethics Committee
Building L27
University of Reading
London Road
Reading
RG1 5AQ

Telephone: 0118 918 0556
Facsimile: 0118 918 0559

10 December 2007

Professor Peter Cooper
Professor of Psychopathology
University of Reading
School of Psychology
University of Reading
Reading, Berkshire
RG6 6AL

Dear Professor Cooper

Full title of study: **Treatment of child anxiety: Predictors and Outcomes of Treatment. Addendum to REC applications: 07/H0505/156; 07/H0505/157**
REC reference number: **07/H0505/176**

Thank you for your letter of 03 December 2007, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by the Chair.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised.

Ethical review of research sites

The favourable opinion applies to the research sites listed on the attached form.

Conditions of approval

The favourable opinion is given provided that you comply with the conditions set out in the attached document. You are advised to study the conditions carefully.

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

Document	*Version*	*Date*
Application	1	04 October 2007
Investigator CV		02 October 2007
Protocol	1.1	02 October 2007
Covering Letter		04 October 2007
Summary/Synopsis	1.1	02 October 2007

Letter from Sponsor		04 October 2007
Interview Schedules/Topic Guides	1	01 August 2007
Interview Schedules/Topic Guides	1.1	01 October 2007
Questionnaire: Non-validated - Demographic Information	1.1	01 October 2007
Questionnaire: Validated - DASS21T	1.1	01 October 2007
Questionnaire: Validated - Assess parental over-involvement	1.1	01 October 2007
Questionnaire: Validated - Assess anxious thinking styles	1.1	01 October 2007
Questionnaire: Validated - Ambiguous scenarios - parent self report	1.1	01 October 2007
Questionnaire: Validated - Ambiguous scenarios - parent report on child	1.1	01 October 2007
Questionnaire: Validated - Spence Children's Anxiety Scale	1.1	01 October 2007
Questionnaire: Validated - Spence Children's Anxiety Scale- Parent report	1.1	01 October 2007
Questionnaire: Validated - Mattick Social Phobia Scale	1.1	01 October 2007
Questionnaire: Validated - Mattick Social Interaction Assessment scale	1.1	01 October 2007
Questionnaire: Child-friendly EQ-5D measure of outcome - child report	1.1	01 October 2007
Questionnaire: Child-friendly EQ-5D measure of outcome - parent report	1.1	01 October 2007
Questionnaire: Health Utilities Index Mark 2	1.1	01 October 2007
Participant Information Sheet: For ref: 07/H0505/156 - Children	1.3	24 November 2007
Participant Information Sheet: For ref: 07/H0505/156 - Parent/Guardian	1.3	24 November 2007
Participant Information Sheet: Clinical Participants Mothers - Genetic Study	1.3	24 November 2007
Participant Information Sheet: Clinical Participants - Fathers	1.3	24 November 2007
Participant Information Sheet: Non-clinical Participants - Parents	1.3	24 November 2007
Participant Information Sheet: Non-clinical Participants - Head teacher	1.3	24 November 2007
Participant Information Sheet: For ref: 07/H0505/157 - Children	1.3	24 November 2007
Participant Information Sheet: For ref: 07/H0505/157 - Parent/Guardian	1.3	24 November 2007
Participant Information Sheet: Children's	1.3	24 November 2007
Participant Consent Form: Assent form for children	1.3	
Participant Consent Form: Non-clinical Participants	1.3	24 November 2007
Participant Consent Form: For ref: 07/H0505/157 Assent form children	1.3	24 November 2007
Participant Consent Form: For ref: 07/H0505/157	1.3	24 November 2007
Participant Consent Form: For ref: 07/H0505/156 Assent form children	1.3	
Participant Consent Form: For ref: 07/H0505/156	1.3	
Participant Consent Form: Clinical Participants Mothers - Genetic Study	1.3	24 November 2007
Participant Consent Form: Clinical Participants - Fathers including DNA page	1.3	24 November 2007
Response to Request for Further Information		03 December 2007
Statement re: Insurance/ Indemnity		04 October 2007
Letter from funder		23 May 2007
Email re: funding		23 April 2007
Referee's reports		14 March 2007
Peer review - MRC Clinical Scientist Fellowship	2007/2008	

R&D approval

All researchers and research collaborators who will be participating in the research at NHS sites should apply for R&D approval from the relevant care organisation, if they have not yet done so.

R&D approval is required, whether or not the study is exempt from SSA. You should advise researchers and local collaborators accordingly.

Guidance on applying for R&D approval is available from http://www.rdforum.nhs.uk/rdform.htm.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

Now that you have completed the application process please visit the National Research Ethics Website > After Review

Here you will find links to the following

a) Providing feedback. You are invited to give your view of the service that you have received from the National Research Ethics Service on the application procedure. If you wish to make your views known please use the feedback form available on the website.
b) Progress Reports. Please refer to the attached Standard conditions of approval by Research Ethics Committees.
c) Safety Reports. Please refer to the attached Standard conditions of approval by Research Ethics Committees.
d) Amendments. Please refer to the attached Standard conditions of approval by Research Ethics Committees.
e) End of Study/Project. Please refer to the attached Standard conditions of approval by Research Ethics Committees.

We would also like to inform you that we consult regularly with stakeholders to improve our service. If you would like to join our Reference Group please email referencegroup@nationalres.org.uk .

07/H0505/176	**Please quote this number on all correspondence**

With the Committee's best wishes for the success of this project

Yours sincerely

Professor Nigel Wellman
Chair

Email: scsha.berksrec@nhs.net

Enclosures: *Standard approval conditions*
Site approval form

Copy to: Dr Mike Proven, University of Reading

N:\Letters\07 REC Numbers\07.H0505.171 - 180\07.H0505.172 - SL14 - 10.12.07.doc

Appendix G Approval from Southampton University's Ethics and Research Governance Online

Investigating Spontaneous Recovery in Children with Anxiety

Submission ID:13939

Submission Overview | IRGA Form | Attachments | History | Adverse Incident

Amendment History

Original Submission

Current Status

Approved

Category **A** Research.

Click here for more information on research categories

This study ended on 1st December 2012

To apply for an extension for this study please click this link

If anything else is changing in your reseach other than the study dates please use the 'Amend and resubmit' option below

Submission Checklist

IRGA Form	Complete
Ethics Form	Attached
Risk Form	Attached

Comments

Note: NRES approval reference for initial data collection: 07/H0505/176.

Co-ordinators

Sally Rooke

Appendix H Tests for normality and outliers

Variable	Outliers	Normality tests[2]				Conclusion of normality
		5% trimmed mean	Kolmogorov -Smirnov	Histogram	Normal QQ plots	
Severity	1	✓	✗	✓	✓	Normal distribution. 1 outlier, not affecting mean. No adjustments needed.
Age	0	✓	✓	✓	✓	Normal distribution. No outliers. No adjustments needed.
Parental anxiety	1	✓	✓	✗	✓	Normal distribution. Histogram slightly positively skewed. 1 outlier not affecting mean. No adjustments needed.
Passivity	6	✓	✗	✗	✗	Histogram suggests this variable has a bimodal distribution, and will therefore be transformed into dichotomous variables representing either the presence or absence of passivity.
Overprotection	5	✓	✗	✗	✗	Histogram suggests this variable has a bimodal distribution, and will therefore be transformed into dichotomous variables representing either the presence or absence of passivity.

[1] ✓ indication of normality, ✗ indication that assumption of normality has been violated

Appendix H

Variable	Outliers	Normality tests[2]				Conclusion of normality
		5% trimmed mean	Kolmogorov -Smirnov	Histogram	Normal QQ plots	
Promotion of avoidance	3	✓	✗	✗	✗	Histogram suggests this variable has a bimodal distribution, and will therefore be transformed into dichotomous variables representing either the presence or absence of passivity.
Intrusiveness	4	✓	✗	✗	✗	Assumption of normal distribution has been violated but distribution is not bimodal. Outliers not affecting mean. No adjustments needed, but data may need to be bootstrapped.
Encouragement	0	✓	✗	✓	✗	Conclusion: Normal distribution. No outliers. No adjustments needed but data may need to be bootstrapped.
Warmth	2	✓	✓	✓	✓	Conclusion: Normal distribution. Outliers not affecting mean. No adjustments needed.
Quality of relationship	2	✓	✗	✓	✓	Normal distribution. Outliers not affecting mean. No adjustments needed.
Threat promotion	1	✓	✗	✗	✓	Assumption of normal distribution violated. Outlier not affecting mean. No adjustments needed but data may need to be bootstrapped.
Vulnerability promotion	4	✓	✗	✗	✗	Assumption of normal distribution violated. Outliers not affecting mean. No adjustments needed but data may need to be bootstrapped.

Variable	Outliers	Normality tests[2]				Conclusion of normality
		5% trimmed mean	Kolmogorov -Smirnov	Histogram	Normal QQ plots	
Warmth and encouragement	0	✓	✗	✓	✓	Normal distribution. No outliers. No adjustments needed.

Appendix I Correlation between parenting variables

	Parental anxiety	Parental passivity	Parental promotion of avoidance	Parental over-protection	Parental intrusive-ness	Parental encourage-ment	Parental warmth	Quality of parent-child relationship	Parental threat promotion	Parental vulnerability promotion
Parental anxiety		0.07	-0.10	-0.09	0.02	-0.13	0.06	0.08	0.00	0.04
Parental passivity			-0.01	0.20	-0.14	-0.23	-0.15	-0.22	-0.15	0.10
Parental promotion of avoidance				0.10	-0.12	-0.02	0.05	-0.05	-0.15	0.04
Parental over-protection					0.13	-0.10	0.06	-0.07	0.02	-0.10
Parental intrusiveness						-0.16	-0.19	-0.43	0.08	.27
Parental encouragement							0.58	0.45	-0.19	-0.08
Parental warmth								0.63	0.06	-0.06

Appendix I

	Parental anxiety	Parental passivity	Parental promotion of avoidance	Parental over-protection	Parental intrusive-ness	Parental encourage-ment	Parental warmth	Quality of parent-child relationship	Parental threat promotion	Parental vulnerability promotion
Quality of parent-child relationship									0.10	-0.12
Parental threat promotion										0.36
Parental vulnerability promotion										

Appendix J Correlation for all variables on recovery from primary diagnosis, all diagnoses and change in CGI-I.

	Recovery from primary diagnosis [a]	Recovery from all Diagnosis [b]	Change on the CGI-I [c]
Age	r_{pb} = 0.12	r_{pb} = -0.16	r_{pb} = 0.17
Separation anxiety disorder as primary diagnosis	r_{φ} = 0.45	r_{φ} = 0.62	r_{φ} = 0.00
Social phobia disorder as primary diagnosis	r_{φ} = 1.99	r_{φ} = 1.21	r_{φ} = 0.04
Generalised anxiety disorder as primary diagnosis	r_{φ} = 0.00	r_{φ} = 0.83	r_{φ} = 0.00
Other anxiety diagnosis as primary diagnosis	r_{φ} = 1.92	r_{φ} = 0.29	r_{φ} = 0.00
Presence of separation anxiety disorder	r_{φ} = 0.26	r_{φ} = 0.48	r_{φ} = 0.42
Presence of social phobia disorder	r_{φ} = 0.46	r_{φ} = 1.99	r_{φ} = 0.46
Presence of generalised anxiety disorder	r_{φ} = 0.26	r_{φ} = 0.00	r_{φ} = 0.26
Presence of other anxiety disorders	r_{φ} = 0.25	r_{φ} = 1.92	r_{φ} = 0.25
Anxiety severity	r_{φ} = 0.14	r_{φ} = 0.17	r_{φ} = -0.15
Single vs Comorbid anxiety	r_{φ} = 0.27 *	r_{φ} = – 0.13	r_{φ} = -0.06
Comorbid non-anxiety mood disorder	r_{φ} = -0.03	r_{φ} = – 0.01	r_{φ} = 0.09
Comorbid behavioural disorder	r_{φ} = 0.07	r_{φ} = 0.19	r_{φ} = 0.08
Mean maternal anxiety	r_{pb} = -0.05	r_{pb} = 0.05	r_{pb} = 0.17

Appendix J

	Recovery from primary diagnosis [a]	Recovery from all Diagnosis [b]	Change on the CGI-I [c]
Passivity	r_{φ} = 0.27 *	r_{φ} = 0.07	r_{φ} = 0.17
Promotion of avoidance	r_{φ} = 0.14	r_{φ} = 0.08	r_{φ} = 0.00
Overprotection	r_{φ} = -0.05	r_{φ} = -0.03	r_{φ} = 0.13
Warmth and encouragement	r_{pb} = -0.17	r_{pb} = -0.10	r_{pb} = -0.16
Quality of relationship	r_{pb} = -0.16	r_{pb} = -0.192	r_{pb} = -0.05
Bootstrapped variables			
Intrusiveness	r_{pb} = 0.15 [-0.10 – 0.37]	r_{pb} = 0.13 [-0.33 – 0.45]	r_{pb} = 0.03 [-0.27 – 0.38]
Threat promotion	r_{pb} = 0.00 [-0.31 – 0.31]	r_{pb} = 0.32 [0.17 – 0.47] *	r_{pb} = 0.32 [0.11 – 0.53] *
Vulnerability promotion	r_{pb} = 0.20 [-0.08 – 0.45]	r_{pb} = 0.25 [0.14 – 0.36]	r_{pb} = 0.34 [0.12 – 0.54] **

Appendix K Summary of logistic regression models

	Recovery from primary anxiety diagnosis (ADIS)	Recovery from all anxiety diagnoses (ADIS)	Clinical Change (CGI-I)
Comorbid anxiety disorder	Not a significant predictor alone		
Parental passivity	Not a significant predictor alone		
Parental threat promotion		Significant predictor	Not a significant predictor alone
Parental vulnerability promotion			Significant predictor
Full model	Significant: X^2 (2, n = 60) = 7.34, p = 0.03	Significant: X^2 (1, n = 57) = 8.73, p < 0.01	Significant: X^2 (2, n = 57) = 15.11, p < 0.01

List of References

Adler Nevo, G., Kiss A., Mendlowitz, S., Monga, S., Manassis, K., Avery, D. & Fiksenbaum, L. (2014). Eight years later: Outcomes of CBT-treated versus untreated anxious children. *Brain and Behavior, 4*(5), 765-774. doi:10.1002/brb3.274

Ahlen, J., Lenhard, F., & Ghaderi, A. (2015). Universal prevention for anxiety and depressive symptoms in children: A meta-analysis of randomized and cluster-randomized trials. *The Journal of Primary Prevention, 36*(6), 387-403. doi:10.1007/s10935-015-0405-4

Arendt, K., Hougaard, E., & Thastum, M. (2014). Psychometric properties of the child and parent versions of Spence Children's Anxiety Scale in a Danish community and clinical sample. *Journal of Anxiety Disoders, 28*(8), 947-956.

Ashford, J., Smit, F., van Lier, P. A. C., Cuijpers, P., & Koot, H. M. (2008). Early risk indicators of internalizing problems in late childhood: A 9-year longitudinal study. *Journal of Child Psychology and Psychiatry, 49*(7), 774-780. doi:10.1111/j.1469-7610.2008.01889.x

Balle, M., & Tortella-Feliu, M. (2010). Efficacy of a brief school-based program for selective prevention of childhood anxiety. *Anxiety, Stress, Coping, 23*(1), 71-85. doi:10.1080/10615800802590652

Bar-Haim, Y., Morag, I., & Glickman, S. (2011). Training anxious children to disengage attention from threat: A randomized controlled trial. *Journal of Child Psychology and Psychiatry, 52*(8), 861-869. doi:10.1111/j.1469-7610.2011.02368.x

Bandura, A. (1977). *Social learning theory*. Englewood Cliffs, NJ: Prentice Hall.

Barmish, A. J. (2009). Self-disclosure as a predictor of outcomes in cognitive-behavioral therapy for anxious youth. *Dissertation Abstracts International*, *69*, 5011.

Barrett, P. M., Dadds, M. R., & Rapee, R. M. (1996). Family treatment of childhood anxiety: A controlled trial. *Journal of Consulting and Clinical Psychology, 64*(2), 333-342. doi:10.1037/0022-006X.64.2.333

Barrett, P. M., Duffy, A. L., Dadds, M. R., & Rapee, R. M. (2001). Cognitive–behavioral treatment of anxiety disorders in children: Long-term (6-year) follow-up. *Journal of Consulting and Clinical Psychology*, *69*(1), 135-141. doi:10.1037/0022-006X.69.1.135

Barrett, P. M., Rapee, R. M., Dadds, M. M., & Ryan, S. M. (1996). Family enhancement of cognitive style in anxious and aggressive children. *Journal of Abnormal Child Psychology, 24*, 187–203.

Barrett, P. M., & Turner, C. (2000). Friends for children: Group leader's manual. Bowen Hills, Australia: Australian Academic Press.

List of References

Beesdo-Baum, K., & Knappe, S. (2012). Developmental epidemiology of anxiety disorders. *Child and Adolescent Psychiatric Clinics Of North America*, *21*(3), 457-478. doi:10.1016/j.chc.2012.05.001

Berman, S. L., Weems, C. F., Silverman, W. K., & Kurtines, W. M. (2000). Original Research: Predictors of outcome in exposure-based cognitive and behavioral treatments for phobic and anxiety disorders in children. *Behavior Therapy*, *31*713-731. doi:10.1016/S0005-7894(00)80040-4

Berry, K., & Hunt, C. J. (2009). Evaluation of an intervention program for anxious adolescent boys who are bullied at school. *Juornal of Adolescent Health*, *45*(4), 376-382. doi:10.1016/j.jadohealth.2009.04.023

Bethel, C. (2016). Improving outcomes for children and young people with mental health conditions. *Children's and Young People's Mental Health and Wellbeing*, Department of Health. Accessed at http://www.insidegovernment.co.uk/uploads/2016/05/clairebethel.pdf

Bodden D.H.M., Bogels, S.M., Nauta, M.H., De Haan, E., Ringrose, J., Appelboom, C., Brinkman, A.G., Appelboom-Geerts, K. (2008). Child versus family cognitive–behavioral therapy in clinically anxious youth: an efficacy and partial effectiveness study. *Journal of the American Academy of Child and Adolescent Psychiatry,* 47(12), 1384–1394. doi:10.1097/CHI. 0b013e318189148e

Bogels, S., & Tarrier, N. (2004). Unexplored issues and future directions in social phobia research. *Clinical Psychology Review*, *24*(7), 731-736

Burstein, M., & Ginsburg, G. S. (2010). The effect of parental modeling of anxious behaviors and cognitions in school-aged children: An experimental pilot study. *Behaviour Research and Therapy*, *48*506-515. doi:10.1016/j.brat.2010.02.006

Carballo, J., Baca-Garcia, E., Blanco, C., Perez-Rodriguez, M., Jimenez Arriero, M., Artes-Rodriguez, A., & ... Oquendo, M. (2010). Stability of childhood anxiety disorder diagnoses: a follow-up naturalistic study in psychiatric care. *European Child and Adolescent Psychiatry*, *19*(4), 395-403. doi:10.1007/s00787-009-0064-1

Casabianca, R. (2014). Anxieties in children: Dysfunctional interactional patterns and an effective systemic/integrative treatment. *Journal of Family Psychotherapy*, *25*(2), 145-162. doi:10.1080/08975353.2014.910029

Child and Adolescent Mental Health Service Review (2008). Children and Young People in Mind: The Final Report of the National CAMHS Review. London: DfES. Retrieved from http://webarchive.nationalarchives.gov.uk/20081230004520/publications.dcsf.gov.uk/eorderingdownload/camhs-review.pdf

Chronis-Tuscano, A., Rubin, K. H., O'Brien, K. A., Thomas, S. R., Dougherty, L. R., Watts, K., . . . Cheah, C. S. L. (2015). Preliminary evaluation of a multimodal early intervention program for behaviorally inhibited preschoolers. *Journal of Consulting and Clinical Psychology, 83*(3), 534-540. doi:10.1037/a0039043

Clarke, K., Cooper, P., & Creswell, C. (2013). Research report: The Parental Overprotection Scale: Associations with child and parental anxiety. *Journal of Affective Disorders, 151*618-624. doi:10.1016/j.jad.2013.07.007

Cochrane Collaboration (2017). RCT Filters for Different Databases. Retrieved from: www.cochrane.org/rct-filters-different-databases

Compton, S., Peris, T., Almirall, D., Birmaher, B., Sherrill, J., Kendall, P., & ... Albano, A. (2014). Predictors and moderators of treatment response in childhood anxiety disorders: Results from the CAMS trial. *Journal of Consulting and Clinical Psychology, 82(2)*, 212–224. doi:10.1037/a0035458

Cooley-Strickland, M. R., Griffin, R. S., Darney, D., Otte, K., & Ko, J. (2011). Urban African American youth exposed to community violence: A school-based anxiety preventive intervention efficacy study. *Journal of Prevention & Intervention in the Community, 39*(2), 149-166. doi:10.1080/10852352.2011.556573

Cooper, P. J., Gallop, C., Willetts, L., & Creswell, C. (2008). Treatment response in child anxiety is differentially related to the form of maternal anxiety disorder. *Behavioural and Cognitive Psychotherapy, 36*(1), 41-48. doi:10.1017/S1352465807003943

Cooper-Vince, C., Pincus, D., & Comer, J. (2014). Maternal intrusiveness, family financial means, and anxiety across childhood in a large multiphase sample of community youth. *Journal of Abnormal Child Psychology, 42*(3), 429-438. doi:10.1007/s10802-013-9790-4

Crawley, S., Beidas, R., Benjamin, C., Martin, E., & Kendall, P. (2008). Treating socially phobic youth with CBT: Differential outcomes and treatment considerations. *Behavioural and Cognitive Psychotherapy, 36*(4), 379-389. doi:10.1017/S1352465808004542

Creswell, C., Apetroaia, A., Murray, L., & Cooper, P. (2013). Cognitive, affective, and behavioral characteristics of mothers with anxiety disorders in the context of child anxiety disorder. *Journal of Abnormal Psychology, 122*(1), 26-38. doi:10.1037/a0029516

Creswell, C., Schniering, C. A., & Rapee, R. M. (2005). Threat interpretation in anxious children and their mothers: comparison with nonclinical children and the effects of treatment. *Behaviour Research and Therapy, 43*1375-1381. doi:10.1016/j.brat.2004.10.009

Creswell , C., Willetts, L., Murray, L., Singhal, M., & Cooper, P. (2008). Treatment of child anxiety: An exploratory study of the role of maternal anxiety and behaviours in treatment outcome. *Clinical Psychology and Psychotherapy,* 15, 38 – 44 . doi: 10.1002/cpp.559.

List of References

Das-Munshi, J., Goldberg, D., Bebbington, P. E., Bhugra, D. K., Brugha, T. S., Dewey, M. E., . . . Prince, M. (2008). Public health significance of mixed anxiety and depression: Beyond current classification. *The British Journal of Psychiatry, 192*(3), 171-177. doi:10.1192/bjp.bp.107.036707

de Matos, M. G., Barrett, P., Dadds, M., & Shortt, A. (2003). Anxiety, depression, and peer relationships during adolescence: Results from the Portuguese national health behaviour in school-aged children survey. *European Journal of Psychology of Education, 18*(1), 3-14.

de Wilde, A., & Rapee, R. (2008). Do controlling maternal behaviours increase state anxiety in children's responses to a social threat? A pilot study. *Journal of Behavior Therapy and Experimental Psychiatry, 39*(4), 526-537.

di Nardo, P. A., Moras, K., Barlow, D. H., Rapee, R. M., & Brown, T. A. (1993). Reliability of DSM-III—R anxiety disorder categories: Using the Anxiety Disorders Interview Schedule—Revised (ADIS—R). *Archives of General Psychiatry, 50*(4), 251-256. doi:10.1001/archpsyc.1993.01820160009001

Dobson, K. S., Hopkins, J. A., Fata, L., Scherrer, M., & Allan, L. C. (2010). The prevention of depression and anxiety in a sample of high-risk adolescents: A randomized controlled trial. *Canadian Journal of School Psychology, 25*(4), 291-310. doi:10.1177/0829573510386449

Duchesne, S., Vitaro, F., Larose, S., & Tremblay, R. E. (2008). Trajectories of anxiety during elementary-school years and the prediction of high school noncompletion. *Journal of Youth and Adolescence, 37*(9), 1134-1146. doi:10.1007/s10964-007-9224-0

Evans, R., Thirlwall, K., Cooper, P., & Creswell, C. (2016). Using symptom and interference questionnaires to identify recovery among children with anxiety disorders. *Psychological Assessment*. doi:10.1037/pas0000375

Festen, H., Hartman, C. A., Hogendoorn, S., de Haan, E., Prins, P. J., Reichart, C. G., & ... Nauta, M. H. (2013). Temperament and parenting predicting anxiety change in cognitive behavioral therapy: The role of mothers, fathers, and children. *Journal of Anxiety Disorders, 27*289-297. doi:10.1016/j.janxdis.2013.03.001

Fineberg, N. A., Haddad, P. M., Carpenter, L., Gannon, B., Sharpe, R., Young, A. H., . . . Sahakian, B. J. (2013). The size, burden and cost of disorders of the brain in the UK. *Journal of Psychopharmacology, 27*(9), 761-770.

Fisak, B. J., & Grills-Taquechel, A. E. (2007). Parental modeling, reinforcement, and information transfer: Risk factors in the development of child anxiety? *Clinical Child and Family Psychology Review, 10*(3), 213-231.

Fisak, B. J., Richard, D., & Mann, A. (2011). The prevention of child and adolescent anxiety: A meta-analytic review. *Prevention Science, 12*(3), 255-268.

Ginsburg, G. S. (2009). The child anxiety prevention study: Intervention model and primary outcomes. *Journal of Consulting and Clinical Psychology, 77*(3), 580-587. doi:10.1037/a0014486

Ginsburg, G. S., Drake, K. L., Tein, J. Y., Teetsel, R., & Riddle, M. A. (2015). Preventing onset of anxiety disorders in offspring of anxious parents: A randomized controlled trial of a family-based intervention. *American Journal of Psychiatry, 172*(12), 1207-1214. doi:10.1176/appi.ajp.2015.14091178

Ginsburg, G. S, Grover, R. L., Cord, J. J., & Ialongo, N. (2006). Observational measures of parenting in anxious and non-anxious mothers: Does type of task matter? *Journal of Clinical Child and Adolescent Psychology*, 35, 323–328.

Gresham, F. M., Vance, M. J., Chenier, J., & Hunter, K. (2013). Assessment and treatment of deficits in social skills functioning and social anxiety in children engaging in school refusal behaviors. In D. McKay, E. A. Storch (Eds.), Handbook of Assessing Variants and Complications in Anxiety Disorders (pp. 15-28). New York, NY, US: Springer Science + Business Media. doi:10.1007/978-1-4614-6452-5_2

Gutiérrez-Maldonado, J., Magallón-Neri, E., Rus-Calafell, M., & Peñaloza-Salazar, C. (2009). Virtual reality exposure therapy for school phobia. *Anuario de Psicología, 40*(2), 223-236.

Henriksen, C. A., Stein, M. B., Afifi, T. O., Enns, M., Lix, L. M., & Sareen, J. (2014). Identifying factors that predict longitudinal outcomes of untreated common mental disorders. *Psychiatric Services, 66*(2), 163-170. doi:10.1176/appi.ps.201300564

Hiebert, B., Kirby, B., & Jaknavorian, A. (1989). School-based relaxation: Attempting primary prevention. *Canadian Journal of Counselling, 23*(3), 273-287.

Hosey, R. P., & Woodruff-Borden, J. (2012). An examination of the relationship between parent language and child anxiety. *Child and Family Behavior Therapy, 34*(3), 210-230. doi:10.1080/07317107.2012.707089

Hudson, J. L., Keers, R., Roberts, S., Coleman, J. R., Breen, G., Arendt, K., & ... Eley, T. C. (2015). Clinical predictors of response to cognitive-behavioral therapy in pediatric anxiety disorders: The genes for treatment (GxT) study. *Journal of the American Academy of Child and Adolescent Psychiatry*, *54*(6), 454-463. doi:10.1016/j.jaac.2015.03.018

Hudson, J. L., Newall, C., Rapee, R. M., Lyneham, H. J., Schniering, C. C., Wuthrich, V. M., & ... Gar, N. S. (2014). The impact of brief parental anxiety management on child anxiety treatment outcomes: A controlled trial. *Journal of Clinical Child and Adolescent Psychology, 43*(3), 370-380. doi:10.1080/15374416.2013.807734

Izard, C. E., King, K. A., Trentacosta, C. J., Morgan, J. K., Laurenceau, J.-P., Krauthamer-Ewing, E. S., & Finlon, K. J. (2008). Accelerating the development of emotion competence

in Head Start children: Effects on adaptive and maladaptive behavior. *Development and Psychopathology, 20*(1), 369-397. doi:10.1017/S0954579408000175

James, A., James, G., Cowdrey, F., Soler, A., & Choke, A. (2015). Cognitive behavioural therapy for anxiety disorders in children and adolescents. *The Cochrane Database of Systematic Reviews, 2*CD004690. doi:10.1002/14651858.CD004690.pub4

James, A., Soler, A., & Weatherall, R. (2007). Cochrane review: Cognitive behavioural therapy for anxiety disorders in children and adolescents. *Evidence Based Child Health: A Cochrane Review Journal, 2*(4), 1248-1275.

Kendall, P. C., Brady, E. U., & Verduin, T. L. (2001). Comorbidity in childhood anxiety disorders and treatment outcome. *Journal of The American Academy of Child and Adolescent Psychiatry, 40*787-794. doi:10.1097/00004583-200107000-00013

Kendall, P. C., Safford, S. M., Flannery-Schroeder, E.C, & Webb, A. (2004). Child anxiety treatment: Outcomes in adolescence and impact on substance use and depression at 7. 4 year follow-up. *Journal of Consulting and Clinical Psychology, 72*(2), 276-287. doi:10.1037/0022-006X.72.2.276

Kennedy, S. J., Rapee, R. M., & Edwards, S. L. (2009). A selective intervention program for inhibited preschool-aged children of parents with an anxiety disorder: Effects on current anxiety disorders and temperament. *Journal of the American Academy of Child and Adolescent Psychiatry,* 48(6), 602-609.

Kessler, R. C., Berglund, P., Demler, O., Jin, R., Merikangas, K. R., & Walters, E. E. (2005). Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the national comorbidity survey replication. *Archives of General Psychiatry, 62*(6), 593-602. doi:10.1001/archpsyc.62.6.593

Kmet, L. M., Lee, R. C., & Cook, L. S. (2004). Standard Quality Assessment Criteria for Evaluating Primary Research Papers from a Variety of Fields. Alberta Heritage Foundation for Medical Research Edmonton. Retrieved from https://www.biomedcentral.com/content/supplementary/1471-2393-14-52-s2.pdf

Knight, A., McLellan, L., Jones, M., & Hudson, J. (2014). Pre-treatment predictors of outcome in childhood anxiety disorders: A systematic review. *Psychopathology Review, 1,* 77-129. doi: 10.5127/pr.034613

Kosters, M. P., Mai J. M. Chinapaw, M. J. M., Zwaanswijk, M., van der Wal, M. F., & Koot, H. M. (2015). Indicated prevention of childhood anxiety and depression: Results from a practice-based study up to 12 months after intervention. *American Journal of Public Health, 206*(10). doi:10.2105/AJPH.2015.302742)

Lawrence, P. J., Rooke, S., Creswell, C. (in press). Prevention of anxiety among at-risk children: a systematic review and meta-analysis. Manuscript submitted for publication.

Legerstee, J., Dierckx, B., Verhulst, F., Utens, E., Tulen, J., & Treffers, P. (2010). CBT for childhood anxiety disorders: Differential changes in selective attention between treatment responders and non-responders. *Journal of Child Psychology and Psychiatry and Allied Disciplines, 51*(2), 162-172. doi:10.1111/j.1469-7610.2009.02143.x

Liber, J. M., van Widenfelt, B. M., Goedhart, A. W., Utens, E. J., van der Leeden, A. M., Markus, M. T., & Treffers, P. A. (2008). Parenting and parental anxiety and depression as predictors of treatment outcome for childhood anxiety disorders: Has the role of fathers been underestimated? *Journal of Clinical Child and Adolescent Psychology*, *37*(4), 747-758.

Liber, J. M., van Widenfelt, B. M., van der Leeden, A. M., Goedhart, A. W., Utens, E. J., & Treffers, P. A. (2010). The relation of severity and comorbidity to treatment outcome with Cognitive Behavioral Therapy for childhood anxiety disorders. *Journal of Abnormal Child Psychology*, *38*(5), 683-694.

Liddle, I., & Macmillan, S. (2010). Evaluating the FRIENDS programme in a Scottish setting. *Educational Psychology in Practice, 26*(1), 53-67. doi:10.1080/02667360903522785

Lyneham, H. J., Abbott, M. J., & Rapee, R. M. (2007). Interrater reliability of the anxiety disorders interview schedule for DSM-IV: Child and parent version. *Journal of the American Academy of Child and Adolescent Psychiatry*, *46*(6), 731.

Majdandzic, M., Moller, E.L., de Vente, W., Bogels, S., & van den Boom, D.C. (2014). Fathers' challenging parenting behaviour prevents social anxiety development in their 4-year old children: A longitudinal observational study. *Journal of Abnormal Child Psychology,* 42(2), 301-310.

McLeod, B. D., Wood, J. J., & Weisz, J. R. (2007). Review article: Examining the association between parenting and childhood anxiety: A meta-analysis. *Clinical Psychology Review, 27*, 155-172. doi:10.1016/j.cpr.2006.09.002

Mental Health Taskforce. (2016). The Five Year Forward View for Mental Health. A report from the independent Mental Health Taskforce to the NHS in England. Retrieved from https://www.england.nhs.uk/wp-content/uploads/2016/02/Mental-Health-Taskforce-FYFV-final.pdf

Mifsud, C., & Rapee, R. M. (2005). Early intervention for childhood anxiety in a school setting: Outcomes for an economically disadvantaged population. *Journal of the American Academy of Child and Adolescent Psychiatry, 44*(10), 996-1004. doi:10.1097/01.chi.0000173294.13441.87

Miller, L. D., Laye-Gindhu, A., Liu, Y., March, J. S., Thordarson, D. S., & Garland, E. J. (2011). Evaluation of a preventive intervention for child anxiety in two randomized attention-control school trials. *Behaviour Research and Therapy, 49*(5), 315-323. doi:10.1016/j.brat.2011.02.006

Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *Open Medicine, 3(3); 123-130.*

Moore, P. S., Whaley, S. E., & Sigman, M. (2004). Interactions between mothers and children: Impacts of maternal and child anxiety. *Journal of Abnormal Psychology, 113*(3), 471-476. doi:10.1037/0021-843X.113.3.471

Murray, L., De Rosnay, M., Pearson, J., Bergerin, C., Schofield, E., Royal-Lawson, M., & Cooper, P. J. (2008). Intergenerational transmission of social anxiety: The role of social referencing processes in infancy. *Child Development,* 79(4), 1049-1064.

Murray, L., Lau, P. Y., Arteche, A., Creswell, C., Russ, S., Zoppa, L. D., & ... Cooper, P. (2012). Parenting by anxious mothers: Effects of disorder subtype, context and child characteristics. *Journal of Child Psychology and Psychiatry, 53*(2), 188-196.

National Institute for Health and Care Excellence (2013). Social Anxiety Disorder: Recognition, Assessment and treatment. NICE guideline (CG159). Retrieved from https://www.nice.org.uk/guidance/cg159/

National Institute for Health and Care Excellence (2014). Anxiety disorders. NICE guideline (CG53). Retrieved from https://www.nice.org.uk/guidance/qs53

Neil, A. L., & Christensen, H. (2009). Efficacy and effectiveness of school-based prevention and early intervention programs for anxiety. *Clinical Psychology Review, 29*(3), 208-215. doi:10.1016/j.cpr.2009.01.002NHS Benchmarking Network (2013). CAMHS benchmarking report: December 2013. Raising Standards Through Sharing Excellence. NHS Benchworking Network 2013.

Nilsen, T., Eisemann, M., & Kvernmo, S. (2013). Predictors and moderators of outcome in child and adolescent anxiety and depression: A systematic review of psychological treatment studies. *European Child and Adolescent Psychiatry, 22*(2), 69-87. doi:10.1007/s00787-012-0316-3.

Office for National Statistics (2004). News Release: One in ten children has a mental disorder. Available: www.statistics.gov.uk/pdfdir/cmd0805.pdf

Organisation for Economic Co-operation and Development (2014) *Mental Health and Work: United Kingdom*, OECD Publishing, Paris. DOI: http://dx.doi.org/10.1787/9789264204997-en

O'Leary-Barrett, M., Topper, L., Al-Khudhairy, N., Pihl, R. O., Castellanos-Ryan, N., Mackie, C. J., & Conrod, P. J. (2013). Two-year impact of personality-targeted, teacher-delivered interventions on youth internalizing and externalizing problems: a cluster-randomized trial. Journal of the American Academy of Child & Adolescent Psychiatry, *52*(9), 911-920. doi:10.1016/j.jaac.2013.05.020

Polanczyk, G. V., Salum, G. A., Sugaya, L. S., Caye, A., & Rohde, L. A. (2015). Annual research review: A meta-analysis of the worldwide prevalence of mental disorders in children and adolescents. *Journal of Child Psychology and Psychiatry*, *56*(3), 345-365. doi:10.1111/jcpp.12381

Prenoveau, J. M., Craske, M. G., Zinbarg, R. E., Mineka, S., Rose, R. D., & Griffith, J. W. (2011). Are anxiety and depression just as stable as personality during late adolescence? Results from a three-year longitudinal latent variable study. *Journal of Abnormal Psychology*, *120*(4), 832-843. doi:10.1037/a0023939

Rapee, R. M. (2014). Preschool environment and temperament as predictors of social and nonsocial anxiety disorders in middle adolescence. *Journal of the American Academy of Child & Adolescent Psychiatry*, *53*(3), 320-328. doi:http://dx.doi.org/10.1016/j.jaac.2013.11.014

Rapee, R., Lyneham, H., Hudson, J., Kangas, M., Wuthrich, V., & Schniering, C. (2013). Effect of comorbidity on treatment of anxious children and adolescents: Results from a large, combined sample. *Journal of the American Academy of Child and Adolescent Psychiatry*, *52*(1), 47-56. doi:10.1016/j.jaac.2012.10.002

Raudino, A., Fergusson, D. M., & Horwood, L. J. (2013). The quality of parent/child relationships in adolescence is associated with poor adult psychosocial adjustment. *Journal of Adolescence*, *36*(2), 331-340.

Raudino, A., Murray, L., Turner, C., Tsampala, E., Lis, A., De Pascalis, L., & Cooper, P. J. (2013). Child anxiety and parenting in England and Italy: The moderating role of maternal warmth. *Journal of Child Psychology and Psychiatry*, *54*(12), 1318-1326

Reijntjes, A., Thomaes, S., Boelen, P., van der Schoot, M., de Castro, B. O., & Telch, M. J. (2010). Delighted when approved by others, to pieces when rejected: Children's social anxiety magnifies the linkage between self- and other-evaluations. *Journal of Child Psychology and Psychiatry, 52*(7), 774-81. doi: 10.1111/j.1469-7610.2010.02325.x.

Reivich, K., Gillham, J. E., Chaplin, T. M., & Seligman, M. E. P. (2013). From helplessness to optimism: The role of resilience in treating and preventing depression in youth. In S. Goldstein & R. B. Brooks (Eds.), Handbook of resilience in children, 2nd ed. (pp. 201-214). New York, NY, US: Springer Science + Business Media.

Rork, K. E., & Morris, T. L. (2009). Influence of parenting factors on childhood social anxiety: Direct observation of parental warmth and control. *Child and Family Behavior Therapy, 31*(3), 220-235.

Rubin, K. H., Nelson, L. J., Hastings, P., & Asendorpf, J. (1999). The transaction between parent's perceptions of their children's shyness and their parenting styles. *International Journal of Behavioral Development,* 23, 937-957.

Scholten, H., Malmberg, M., Lobel, A., Engels, R. C., & Granic, I. (2016). A randomized controlled trial to test the effectiveness of an immersive 3D video game for anxiety prevention among adolescents. *PLoS One, 11*(1), e0147763. doi:10.1371/journal.pone.0147763

Settipani, C. A., O'Neil, K. A., Podell, J. L., Beidas, R. S., & Kendall, P. C. (2013). Youth anxiety and parent factors over time: Directionality of change among youth treated for anxiety. *Journal of Clinical Child and Adolescent Psychology, 42*(1), 9-21. doi:10.1080/15374416.2012.719459

Shen, Y. (2002). Short-term group play therapy with Chinese earthquake victims: Effects on anxiety, depression and adjustment. *International Journal of Play Therapy, 11*(1), 43-63.

Silk, J. S., Sheeber, L., Tan, P. Z., Ladouceur, C. D., Forbes, E. E., McMakin, D. L., & ... Ryan, N. D. (2013). “You can do it!”: The role of parental encouragement of bravery in child anxiety treatment. *Journal of Anxiety Disorders*, *27*439-446. doi:10.1016/j.janxdis.2013.06.

Silverman, W. K. & Albana, A. M. (1996). The Anxiety Disorders Interview Schedule for Children for DSM-IV: Child and Parent Versions. San Antonio, TX: Psychological Corporation.

Silverman, W. K., Kurtines, W. M., Jaccard, J., & Pina, A. A. (2009). Directionality of change in youth anxiety treatment involving parents: An initial examination. *Journal of Consulting and Clinical Psychology*, 77, 474-485. doi: 10.1037/a0015761

Silverman, W. K., Saavedra, L. M., & Pina, A. A. (2001). Test-retest reliability of anxiety symptoms and diagnoses with the Anxiety Disorders Interview Schedule for DSM-IV: Child and parent versions. *Journal of the American Academy of Child & Adolescent Psychiatry*, *40*, 937-944. doi:10.1097/00004583-200108000-00016

Shortt, A. L., Barrett, P. M., & Fox, T. L. (2001). Evaluating the FRIENDS program: A cognitive-behavioral group treatment for anxious children and their parents. *Journal of Clinical Child Psychology*, *30*(4), 525-535. doi:10.1207/S15374424JCCP3004_09

Southam-Gerow, M. A., Kendall, P. C., & Weersing, V. R. (2001). Examining outcome variability: Correlates of treatment response in a child and adolescent anxiety clinic.

Journal Of Clinical Child Psychology, *30*(3), 422-436. doi:10.1207/S15374424JCCP3003_13

Stallard, P., Skryabina, E., Taylor, G., Phillips, R., Daniels, H., Anderson, R., & Simpson, N. (2014). Classroom-based cognitive behaviour therapy (FRIENDS): A cluster randomised controlled trial to prevent anxiety in children through education in schools (PACES). *The Lancet Psychiatry, 1*, 185-192. doi:10.1016/S2215-0366(14)70244-5

Stansfeld, S., Clark, C., Bebbington, P., King, M., Jenkins, R., Hinchliffe, S. (2016). Common Mental Disorders. Adult Psychiatric morbidity survey 2014. Health and Social Care Information Centre.

Stockings, E. A., Degenhardt, L., Dobbins, T., Lee, Y. Y., Erskine, H. E., Whiteford, H. A., & Patton, G. (2016). Preventing depression and anxiety in young people: A review of the joint efficacy of universal, selective and indicated prevention. *Psychological Medicine, 46*(1), 11-26. doi:10.1017/S0033291715001725

Storch, E. A., Merlo, L. J., Larson, M. J., Geffken, G. R., Lehmkuh, H. D., Jacob, M. L., & ... Goodman, W. K. (2008). Impact of comorbidity on cognitive-behavioral therapy response in pediatric obsessive-compulsive sisorder. *Journal of the American Academy of Child and Adolescent Psychiatry*, *47*(5), 583-592.

Sui, A. F. Y. (2007). Using FRIENDS to combat internalising problemts among primary school children in Hong Kong. *Journal of Cognitive and Behavioral Psychotherapies, 7*(1), 11-26.

Thirlwall, K., Cooper, P., Karalus, J., Willetts, L., Creswell, C. & Voysey, M (2013). Treatment of child anxiety disorders via guided parent-delivered cognitive-behavioural therapy: Randomised controlled trial. *British Journal of Psychiatry*, *203*(6), 436-444. doi:10.1192/bjp.bp.113.126698.

Trzaskowski, M., Zavos, H. S., Haworth, C. A., Plomin, R., & Eley, T. C. (2012). Stable genetic influence on anxiety-related behaviours across middle childhood. *Journal of Abnormal Child Psychology*, *40*(1), 85-94.

Tol, W. A., Komproe, I. H., Jordans, M. J. D., Ndayisaba, A., Ntamutumba, P., Sipsma, H., . . . de Jong, J. T. V. M. (2014). School-based mental health intervention for children in war-affected Burundi: A cluster randomized trial. *BMC Medicine, 12*, 56-56. doi:10.1186/1741-7015-12-56

Victor, A. M., Bernat, D. H., Bernstein, G. A., & Layne, A. E. (2007). Effects of parent and family characteristics on treatment outcome of anxious children. *Journal of anxiety disorders, 21*(6), 835-848. doi:10.1016/j.janxdis.2006.11.005

Villabø, M., Gere, M., Torgersen, S., March, J. S., & Kendall, P. C. (2012). Diagnostic efficiency of the child and parent versions of the Multidimensional Anxiety Scale for Children. *Journal of Clinical Child and Adolescent Psychology,* 41(1), 75-85.

Waters, A. M., Ford, L. A., Wharton, T. A., & Cobham, V. E. (2009). Cognitive-behavioural therapy for young children with anxiety disorders: Comparison of a child + parent condition versus a parent only condition. *Behaviour Research and Therapy*, *47*(8), 654-662. doi:10.1016/j.brat.2009.04.008

Wergeland, G. H., Fjermestad, K. W., Marin, C. E., Haugland, B. S., Bjaastad, J. F., Oeding, K., & ... Heiervang, E. R. (2014). An effectiveness study of individual vs. group cognitive behavioral therapy for anxiety disorders in youth. *Behaviour Research and Therapy*, *57*1-12. doi:10.1016/j.brat.2014.03.007

Wijsbroek, S. A. M., Hale, W. W., Raaijmakers, Q. A. W., & Meeus, W. H. J. (2011). The direction of effects between perceived parental behavioral control and psychological control and adolescents' self-reported GAD and SAD symptoms. *European Child and Adolescent Psychiatry*, *20*, 361-371. doi: 10.1007/s00787-011-0183-3

Wittchen, H., Lieb, R., Pfister, H., & Schuster, P. (2000). The waxing and waning of mental disorders: Evaluating the stability of syndromes of mental disorders in the population. *Comprehensive Psychiatry*, *41*(Supplement 1), 122-132. doi:10.1016/S0010-440X(00)80018-8.

Wood, J. J., Piacentini, J. C., Bergman, R. L., McCracken, J., & Barrios, V. (2002). Concurrent validity of the anxiety disorders section of the Anxiety Disorders Interview Schedule for DSM-IV: Child and Parent Versions. *Journal of Clinical Child and Adolescent Psychology*, *31*(3), 335-342. doi:10.1207/15374420276008259

Wu, Y., Zhao, X., Li, Y., Ding, X., Yang, H., Bi, P., & Sun, Y. (2016). The risk and protective factors in the development of childhood social anxiety symptoms among Chinese children. *Psychiatry Research*, *240*103-109. doi:10.1016/j.psychres.2015.08.046