Case Study 1: An Evidence-Based Practice Review Report

Theme: School (setting) based intervention for children and young people with special educational needs

How effective are school setting-based cognitive behavioural therapy based programmes delivered in a group format for children between the ages of 7-13 at reducing anxiety symptoms?

Summary

Children and young people (CYP) feel anxious occasionally, and if left unaddressed, this may affect social and emotional wellbeing. Social, emotional and mental health needs (SEMH) is a type of special educational needs in CYP (DfE & DH, 2015). Anxious children may find it challenging to manage their emotions and behaviours, and may struggle to form sustainable social relationships with peers at school. This may impact their wellbeing and ability to engage with learning. With recent urges for schools to provide SEMH support (DfE, 2014; 2016a), this systematic review aims to evaluate seven studies which delivered school-based group Cognitive Behavioural Therapy (CBT) programmes to individuals with elevated anxiety symptoms (AS). Five of the studies used individual programmes and two of the studies used the same programme. Group CBT refers to interventions conducted with children in small groups who all have been identified as individuals displaying mild to moderate AS (Essau, Conradt, Sasagawa & Ollendick, 2012).

A literature search using 3 online databases was conducted. Using Gough's (2007) framework, the seven studies found underwent in-depth analysis to evaluate the effectiveness of group CBT based programmes at reducing anxiety. A mix of evidence was found to support the effectiveness of group

CBT interventions. The review suggests that although group CBT could be a feasible option for schools to provide intervention support, with a number of existing programmes, there is a need to identify the most suitable content for the school pupils. There is also a need for future research to explore the optimal number of sessions for each programme, and the level of expertise required to facilitate the interventions to ensure successful outcomes.

2. Introduction

With an estimated figure of 150,000 CYP with SEMH needs in both mainstream and special provisions in the UK (Camden Council, 2018), anxiety amongst children is common (Essau, Lewinsohn, Lim, Moon-ho, & Rohde, 2018; Teubert & Pinquart, 2011). Anxiety may affect daily functioning, learning and socialising. If left unaddressed, it may also exacerbate these factors into more severe mental health problems in later life (Hammen & Rudolph, 2003; Lehman, Brown & Barlow, 1998; Lewinsohn, Zinbarg, Seeley, Lewinsohn & Sack, 1997).

Within school, the effects of anxiety may not only cause distress to individuals, their teachers or caregivers, but if left untreated it may also hinder academic outcomes or social development which could be detrimental (McLoone, Hudson & Rapee, 2006; Owens, Stevenson, Hadwin & Norgate, 2012). Individuals requiring psychiatric interventions are referred to the Child and Adolescents Mental Health Service (CAMHS), but up to 90% of children with psychological problems are not seen by specialists from CAMHS (Williams, 2005). Therefore, those with AS who do not reach diagnostic level

but might require special support are often left untreated. Barriers such as low socioeconomic backgrounds or social stigma could prevent children from accessing appropriate interventions (Barrett, Farrell, Ollendick & Dadds, 2006).

Transition, 11 plus exams and puberty are all stressors which could cause anxiety for 7-13 year-olds. Therefore, there is a need to ensure that schools are providing effective group-based CBT programmes to support children experiencing high levels of anxiety. School is an excellent cost-effective location for children to access CBT interventions that are led or supervised by trained professionals with knowledge of psychological theories and school systems such as Educational Psychologists (EPs) (Dunsmuir & Hardy, 2016).

2.1 Psychological Basis of Cognitive Behavioural Therapy

Cognitive Behavioural Therapy (CBT) is an evidenced-based talking therapy commonly used to treat AS. It has been found to be effective across ages (Hofmann, Asnaani, Vonk, Sawyer & Fang, 2012). According to Beck's model of Cognitive Therapy (1970), this assumes that emotional distress and behavioural problems derive from persistent non-adaptive negative cognitions such as beliefs about the environment, self, and future which lead to certain automatic thoughts in given situations. Shifting these negative thoughts and perceptions could help improve emotional well-being and change behaviour (Beck, 1970; Hofmann, Asnaani, Vonk, Sawyer & Fang, 2012).

CBT is traditionally delivered in a one-to-one clinical setting with multiple sessions lasting up to an hour. Working collaboratively, the therapist uses therapeutic strategies to explore the relationship between maladaptive cognitions, emotions and behaviour to promote positive change. This process requires the recipient's active participation (Beck, 1970; Hofmann, Asnaani, Vonk, Sawyer & Fang, 2012).

2.2 Group-based Cognitive Behavioural Therapy at Schools

Past research explored the effectiveness of CBT-based interventions delivered via electronic devices or in groups for CYP (Calear, Batterham, Mackinnon, Griffiths & Christensen, 2016; Monga, Rosenbloom, Tanha, Owens & Young, 2015). Previous research found CBT delivered in groups to be as effective as individually delivered CBT for young people (Flannery-Schroder & Kendall, 2000; Silverman, Kurtines, Ginsburg, Weems, Rabin & Serfini, 1999). In the UK Stallard, Skryabina, Taylor, Philips, Daniels, Anderson & Simpson (2014) found that FRIENDS, a classroom-based universal group CBT programme to be effective in schools, although effectiveness is dependent on the facilitator.

Many group CBT-based anxiety prevention programmes for children are adapted to suit schools, whilst maintaining the key features and underlying therapeutic elements of CBT. For example identification and expression of negative thoughts, feelings or physical symptoms; exploration of alternative perspectives in difficulties and problems that cause anxiety; relaxation, and utilising problem solving techniques or physiological, cognitive or behavioural coping strategies for anxious provoking situations; psychoeducation e.g.

learning about feelings, bodily symptoms using homework and in class exercises.

2.3 Rationale for review

With challenges faced by CAMHS to provide SEMH support to CYP which require their service, the Department of Education has in recent years published several advisory documents which highlight the importance and the growing need for schools to offer impactful SEMH support for their pupils at school (DfE, 2014; 2016a).

With the research in the field increasing over recent years, there is still insufficient evidence to suggest that group CBT is effective for students with AS who do not meet the threshold for external support at school (Barrett, & Turner, 2001; Kavanagh, Oliver, Caird, Tucker, Greaves, Harden, Oakley, Lorenc, Thomas, 2009); Ruocco, Gordon & McLean, 2016). There is a need to examine the evidence and effectiveness of these programmes, because this knowledge is valuable to help EPs consider whether certain programmes are evidenced informed, and are suitable for this particular group. Exploring the advantages and disadvantages of each programme may also inform future intervention design.

To the author's knowledge, there has not been a systematic review exploring the effectiveness of group CBT programmes at school for children between ages 7-13 with elevated anxiety levels. Therefore, it is important to focus on this age group because they are approaching a critical transition period

between academic levels, and may be under stress from approaching exams and the onset of puberty resulting in an increase in anxiety levels.

2.4. Review question

How effective are school setting-based CBT programmes delivered in a group format for children between the ages of 7-13 at reducing anxiety symptoms?

3. Critical review of the Evidence Base

3.1 Literature Search

A search using Web of Science, ERIC (Education Resources Information Center) and PsychINFO was conducted between 21-28th January 2018. Table 1 presents the search terms used.

Table 1

Search Terms Used in Database

Intervention	Participants	Context	Outcome
Cogntive behave*[1] therapy	Children	School	Anx*
cogntive behavioural therapy	Students	School-based	Anxiety
cognitive behavior therapy	Young person		
CBT			
Cognitive behaviour therapy			

Note: [1]The asterisk (*) enables the inclusion of terms with varied suffixes, for example 'behav' would include behaviour, behavior, behavioural.

The original search found 592 studies, 80 were removed due to duplications, 512 were screened by title at first. The abstract was screened if the title did not provide sufficient indication of suitability. 29 studies underwent full text screening using the inclusion and exclusion criteria (Table 2), which resulted in six studies. An ancestral search from the reference lists of included studies produced one study. Lastly, seven studies are included (Table 3). Figure 1 displays the literature search process; Appendix A includes excluded studies that underwent full text screening.

Table 2

Inclusion and Exclusion Criteria

	Inclusion Criteria	**Exclusion Criteria**	**Rationale**
1. Type of publication	Peer reviewed journal	Not peer reviewed journal, e.g. articles, books	To ensure quality of research and credibility
2.Participants	Studies where all individuals are between the ages of 7-13, both genders Individuals who display symptoms of anxiety and were identified as requiring the intervention through screening	The study include participants with additional SEND* e.g. autism Studies with no screening and where any individuals from the class or school can take part	The focus of the review is on individuals who are pre-adolescent, who display elevated symptoms of anxiety. The focus of this review is on participants with no other SEND*
3. Type of setting	Intervention that is school-based	Studies conducted in clinics or community centres or hospitals	The aim of this review is to explore the effect of CBT delivered in a school context

	Inclusion Criteria	**Exclusion Criteria**	**Rationale**
4. Type of intervention	CBT-based programmes and interventions that are delivered in groups	Individual CBT or universal CBT	The aim of this review is to explore the effect of CBT-based programmes or interventions delivered in a group format
5. Outcome measure	Studies that include quantitative scales to measure general AS e.g. The Spence Children Anxiety Scale	Studies that did not measure anxiety quantitatively Studies which measured school refusal, test anxiety or separation anxiety Studies which only measured depression	To measure intervention effect to allow quantitative comparison The focus of this review is on general AS
6. Research Design	Empirical studies that used experimental design with pre and post intervention measures	Studies with no pre and post measures, research protocols, or systematic reviews	To evaluate anxiety levels pre and post the intervention
7. Geographic context	Studies from OECD countries, e.g. Canada, UK, Australia	Studies that were not conducted in OECD countries	OECD countries have similar social, educational and financial systems in comparison to countries that are not
8 Language	Studies written in English	Studies not written in English	Reviewer can understand the article

Note: SEND – Special Educational Needs and Disability*

Figure 1. Flowchart of the Literature Search

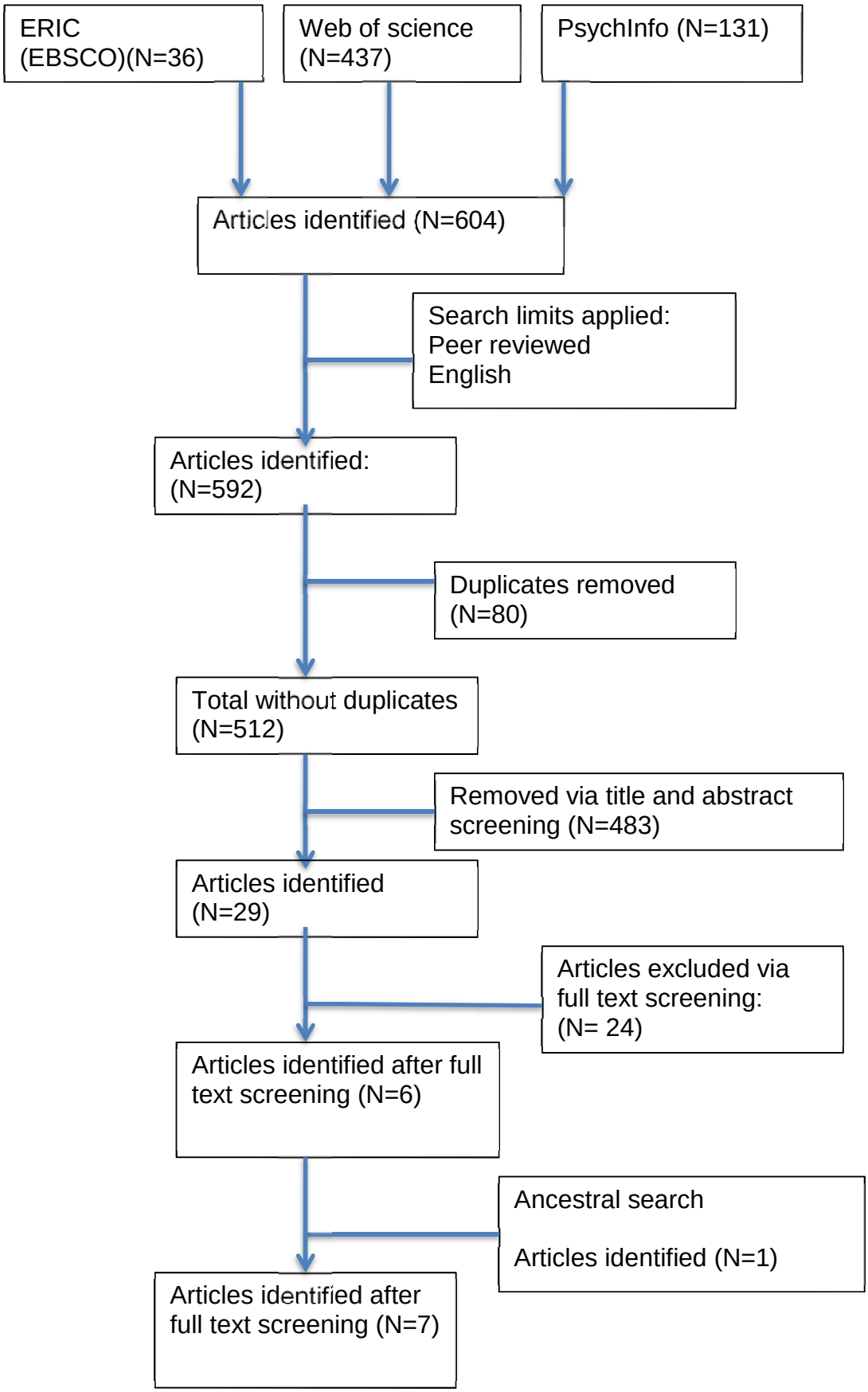

Table 3

Final Studies Included in the Review
Bernstein, G.A., Layne, A.E., Egan, E.A., & Tennison, D.M. (2005). School-Based Interventions for Anxious Children. *Journal of the American Academy of Child and Adolescent Psychiatry, 44*(11), 1118-1127.
Manassis, K., Wilansky-Traynor, P., Farzan, N., Kleiman, V., Parker, K., & Sanford, M. (2010). The feelings club: randomized controlled evaluation of school-based CBT for anxious or depressive symptoms. *Depression and Anxiety, 27*(10), 945-952.
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 & Adolescent Psychiatry*, *44*(10), 996-1004.
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.
Muris, P., Mayer, B., Den Adel, M., Roos, T., & van Wamelen, J. (2008). Predictors of change following cognitive-behavioral treatment of children with anxiety problems: A preliminary investigation on negative automatic thoughts and anxiety control. *Child psychiatry and human development*, *40*(1), 139.
O'Callaghan, P., & Cunningham, E. (2015). Can a targeted, group-based CBT intervention reduce depression and anxiety and improve self-concept in primary-age children?. *Educational Psychology in Practice, 31*(3), 314-326.
Van Starrenburg, M. L., Kuijpers, R. C., Kleinjan, M., Hutschemaekers, G. J., & Engels, R. C. (2016). Effectiveness of a cognitive behavioral therapy-based indicated prevention program for children with elevated anxiety levels: a randomized controlled trial. *Prevention Science, 18*(1), 31-39.

3.2 Mapping the field

Characteristics of final studies included:

1. CBT interventions/programmes delivered in groups;
2. Conducted in a school setting;
3. Both genders who displayed AS;

4. Screening procedure where individuals were identified to benefit from additional programmes;
5. Purpose of programme is to reduce AS.

Most studies were relatively recent, with a mix of Quasi-experimental designs (one group pre-test post-test design) and randomised control trial (RCT) designs from various geographical contexts. Summary of included studies is in Appendix B.

3.3 Critical Review of the Selected Studies

The Gough's (2007) Weight of Evidence (WoE) framework was used to evaluate the studies. This enabled a systematic procedure to evaluate studies by assigning a rating according to three main areas: Weight of Evidence A (WoE A) methodological quality, Weight of Evidence B methodological relevance (WoE B), and Weight of Evidence C topic relevance to the review question (WoE C). WoE B and C are specific to the current review and were used to evaluate the study's level of applicability as a source of evidence in relation to the review question (Gough, 2007). These three main areas will yield a combined value for each study, and the overall score is calculated to determine the quality of evidence in relation to the review question (WoE D). The summary of the weight of evidence scores of the studies are shown in Table 4. Appendix C provides additional information on the individual weight of evidence; Appendix D contains the coding protocols.

Table 4

Overall Weight of Evidence

	Methodological quality (WoE A)	Methodological relevance (WoE B)	Topic Relevance (WoE C)	Overall Quality and Relevance (WoE D)
Bernstein et al. (2005)	1 (Low)	3 (High)	2(Medium)	2 (Medium)
Manassis et al. (2010)	1 (Low)	3 (High)	2(Medium)	2 (Medium)
Mifsud & Rapee (2005)	1 (Low)	3 (High)	1 (Low)	1.67 (Medium)
Miller et al. (2011)	3 (High)	3 (High)	1 (Low)	2.3 (Medium)
Muris et al. (2008)	1 (Low)	2 (Medium)	3 (High)	2 (Medium)
O'Callaghn& Cunningham (2015)	1(Low)	1(Low)	1(Low)	1(Low)
Van Starrenburg et al. (2016)	3 (High)	3 (High)	3 (High)	3 (High)

3.4 Participant Characteristics

Participants from all studies were identified through schools (Bernstein et al. 2005; Manassis et al., 2010; Mifsud & Rapee, 2005; Miller et al., 2011; Muris et al. 2008; O'Callaghan & Cunningham, 2015; van Starrenburg et al. 2016). Participants ranged from 7-13 years old. A total of 662 participants are included in this review, sample size ranged between 9 to 191. All the studies are from the OECD countries, one from the US (Bernstein et al., 2005), two from Netherlands (Muris et al. 2008; van Starrenburg et al., 2016), two from Canada (Manassis et al., 2010; Miller et al. 2011), one from the UK (O'Callaghan & Cunningham, 2015), and one from Australia where participants were from low socioeconomic families (Mifsud & Rapee, 2005).

Since one of the interventions was translated to Dutch and only one study was conducted in the UK, this effects the generalisability of the interventions with pupils within the UK educational context.

All studies provided a clear description of selection procedures for replication. All participants in this review were identified through screening with quantitative measures, and had to score above a certain level to qualify for the intervention.

3.5 Research Design

A summary of the included studies and their design, sample characteristics, number of children per intervention group, outcome measures and follow-up findings can be found in Appendix B.

From the RCT selected, Manassis et al. (2010) and van Starrenburg et al. (2016) conducted randomisation within schools to control for school characteristics. Manassis et al. (2010) did not have enough participants for stratification, and researchers, subjects and school staff were blinded where possible. van Starrenburg et al. (2016) stratified participants according to age groups (7-9 and 10-12 year-olds), reducing the chance of difference due to age in the experimental groups. Also, to prevent expectancy effect, participants and their parents were noted about the assignment of groups upon completion of baseline measures. This study received a ‘high’ rating in WoE B and in the overall WoE D (Table 4).

The other three RCT selected (Bernstein et al. 2005; Miller et al., 2011;Misfud & Rapee, 2005) conducted the randomised assignment at school level. Three schools were randomly assigned to one of three conditions in Bernstein et al.'s (2005) study. It is important to note that this study has three conditions (group CBT for children, group CBT for children plus parent training, and control group). In this review, only two conditions the group CBT for children and control group were taken into consideration. This is because the purpose of this review is to only explore the effectiveness of school setting-based CBT programmes delivered in a group format for children without other external input.

In Miller et al.'s (2011) study, schools were paired by socioeconomic status and were randomly assigned to intervention or attention control. In Misfud and Rapee's (2005) study, nine schools were randomly assigned to either the intervention or waitlist control, where the schools in the intervention group would deliver the intervention at an earlier term. Therefore, as seen in WoE B (Appendix C, Table 3), higher ratings are given for studies with RCT designs because this design reduced the chance of selection bias threatening the study's internal validity (Barker, Pistrang & Elliott, 2016).

The final two studies (Muris et al., 2008; O'Callaghan & Cunningham, 2015) employed quasi experimental one group designs. A critique for using this type of design is the lack of randomisation and the reduced internal validity, and therefore results could be influenced by factors that are outside the intervention, which could affect the post-intervention measure (Barker,

Pistrang & Elliott, 20016). Therefore, these studies received a lower rating in WoE B (Appendix C Table 3).

3.6 Intervention

All interventions aimed to reduce anxiety. The studies contained different group CBT programmes with varying content, delivery personnel and durations. These factors were assessed in WoE C (Appendix C Table 4). Importantly, whilst the group programme does not mirror traditional CBT format, therapeutic techniques such as exploring the relationship between cognition, emotion and behaviour are included in an age appropriate manner.

O'Callaghan and Cunningham (2015) delivered the Cool Connections early intervention programme to the nine participants. This is a 10-session manual-based programme with pictures, games and activities designed to promote positive thinking and coping with anxieties (Seiler, 2008). This intervention was delivered by teachers and teaching assistants, with weekly EP supervision.

Miller et al.'s (2011) programme was delivered by teachers who received training. Teachers were paired with a school counsellor or a trained psychology graduate student. Miller et al. (2011) delivered the FRIENDS programme (Barrett, Lowry-Webster & Turner, 2000), which is a manualised 18 week programme. It aims to teach children to identify AS and bodily symptoms with the FRIENDS acronym: "F, feeling worried; R, relaxed and feel good; I, inner thoughts; E, explore plans of action; N, nice work, reward

yourself; D, don't forget to practice these new skills; and S, smile stay cool and calm" (Barrett, Lowry-Webster & Turner, 2000). Details of training and quality of facilitators were not made explicit and this impacted on the rating of WoE C criterion number 2.

Bernstein et al., (2005) also delivered the FRIENDS programme, but combined the 10 session programme to 9 sessions. The authors justified that no interventions content would be omitted by combining sessions 9 and 10. This study also added new content to the programme, for example adding a component which aims to understand the child's anxiety within the context of his or her familial related relationships, as well as adding handouts and between-session activities. Each group in the intervention had a primary therapist delivering the CBT intervention with graduate student or doctoral-level psychology intern co-therapists. The durations of interventions did not meet the criteria set in criterion number 1 which impacted the study's WoE C rating resulting in a 'medium' rating in this section.

Mifsud and Rapee (2005) delivered the Cool Kids Programme: School Version for eight weeks (Lyneham, Abbott, Wignall & Rapee, 2003). With supported workbooks, the programme includes the learning of anxiety social skills, and gradual exploration of fear-related stimuli. Although this intervention was delivered by registered psychologists and mental health workers, this study received a lower rating in WoE C because it had fewer sessions compared to other studies in this review. Additionally, the facilitators

had varying mental health backgrounds who only received one day of training.

Manassis et al., (2010) who received a ‘medium’ WoE C rating delivered The Feelings Club 12, a sessions manualised programme which guides children to “choose a feeling” instead of identifying frightening feelings. This was delivered by psychologists and psychology graduates supervised by the researchers. This study did not receive a ‘high’ rating because the aim of this study did not solely focus on reducing anxiety symptoms.

The remaining studies received a ‘high’ rating in WoE C due to delivery length and quality of facilitators. For example, in Muris et al., (2008), master’s students delivered the Coping Koala CBT programme which is a manualised programme for 12 sessions supervised by experienced Cognitive Behavioural Therapists or Child Psychologists each week. The programme includes exposure to stimuli, recognising feeling, coping strategies as well as performance evaluation. An Australian adapted version of the Kendall’s Coping Cat programme (Coping Koala) was used (Kendall & Hedtke, 2006). Lastly, van Starrenburg et al., (2016) delivered the Coping Cat prevention programme US group version for 12 weeks. This was adapted and translated to suit the school environment. The programme includes high and low anxiety-provoking situations where participants are encouraged to explore individually, or as a group. This was delivered by experienced child psychologists, having taken part in a two day training with ongoing supervision during delivery.

All the studies except O'Callaghan and Cunningham (2015) and Muris et al. (2008) included post-intervention follow up assessments to examine the possible effect of maintenance. The above would have contributed to a low WoE A because these features are evaluated in WoE A in the coding protocol (Gersten et al.,2005). Bernstein et al. (2005) did not explicitly state that they would conduct follow up research in their paper. However, further literature search reveals that additional research was conducted to examine the long-term effects of Bernstein et al.'s study at a later stage (Lee, Victor, James, Roach & Bernstein, 2016).

3.7 Measures

Gersten et al. (2005) emphasised the importance of reliability measures, as well as the implementation of multiple measures which are key quality indicators according to the protocol. These features are evaluated in WoE A and reviewer ratings (Table 4 & Appendix C)

The seven studies reviewed used a range of measures to evaluate intervention outcomes. Manassis et al. (2010) and Miller et al. (2011) both used the Multidimensional Anxiety Scale for Children (MASC) to measure participant AS. These studies reported that the MASC have a test-retest reliability coefficient ranging from 0.7-0.9 which is between acceptable and good standard (Barker, Pistrang and Elliot's 20016).

Bernstein et al. (2005) used the child and parent version of the MASC, and this study also used the Screen for Child Anxiety Related Emotional

Disorders (SCARED) parent version as an additional outcome measures. The authors provided a brief description of the test-retest reliability for the MASC children version, and SCARED. It was noted that the psychometric properties for MASC parent version were under evaluation, and no reliability outcomes were reported for all three outcome measures which contributed to receiving a 'low' WoE A rating.

Similarly, Muris et al. (2008) used a validated revised version of the Screen for Child Anxiety Related Emotional Disorder (SCARED-R), Children's Automatic Thoughts Scale (CATS), Anxiety Control Questionnaire for Children (ACQC) but did not report any reliability outcomes for these measures which contributed to receiving a 'low' WoE A rating.

Mifsud and Rapee (2005) used the Spence Children Anxiety Scale (SCAS) and the Children's Automatic Thought Scale (CATS). Both of these measures have acceptable psychometric properties with six month test-retest reliability of 0.6 (Spence, 1998) and three months test-retest reliability of 0.68 -0.77 (Schniering & Rapee, 2002) (Barker, Pistrang and Elliot's 20016). Parents also completed the SCAS-Parent version which has comparable psychometric characteristics (Nauta, Scholing, Rapee, Abbott, Spence & Waters, 2004). Similarly, van Starrenburg et al. (2016) used the Dutch version of the SCAS which has a good measure of .88 to .91 for internal consistency across the time points of the study (Barker, Pistrang and Elliot's 20016), a parent version was also used.

O'Callaghan and Cunningham's (2015) study used the Anxiety, Depression and Self-Concept Inventories of the Beck Youth Inventories (second edition). This self-report measure exceeds the 0.80 criterions for test-retest reliability which is of good standard (Barker, Pistrang and Elliot's 20016). No other measure was used and due to this and its research design, this study received a 'low' rating in WoE A and B (Appendix C: Table 2 and Table 3).

3.8 Outcome and Effect Sizes

The objective of this review is to evaluate the effect of group CBT-based programmes in reducing AS. All the studies measured the outcome using quantitative pre-intervention and post-intervention data. Each study used different scales to measure the outcomes. Bernstein et al. (2005), Muris et al. (2008) and van Starrenburg et al. (2016) used additional outcome measures.

As noted above this review only intended to evaluate one of the treatment group from Bernstein et al.'s study. Comparison of the significance difference separating the two treatment groups from the analysis found that when only the group CBT is compared with control group, only the SCARED parent version found a significant effect. However, there was insufficient information to calculate the effect sizes for this measure. The study provided means for each outcome measure and conditions but no standard deviations were included in the paper. Alternative strategies such as using the results from the ANOVA interactions to calculate the effect sizes were explored, but it was concluded that the effect size calculated would be contaminated because the

two treatment groups were collapsed into one group in the original statistical analysis.

The pre-and-post outcomes for the wait-list control / control group / activity control were reported for studies with group-based designs. For the remaining four studies with control groups, the Pre-test Post-test Control Group standardised mean difference (PPC SMD, Morris, 2008) was used to calculate the effect sizes (Manassis et al., 2010; Mifsud & Rapee, 2005; Miller et al., 2011; van Starrenburg et al., 2016). For studies with one group design, the standardised mean difference (SMD) was calculated using the pre-and-post intervention change within the group for the effect size (Muris et al., 2008; O'Callaghan & Cunningham, 2015). Some studies reported follow up outcomes post-intervention at various time points, but for the purpose of this review only pre-and-post intervention effects were calculated and displayed in Table 5 below.

Table 5.

Effect Sizes (PPC SMD and SMD) for Outcomes

Study	Sample Size	Measure	Effect Size with Descriptor (Cohen, 1992)	Effect Size with Descriptor (Cohen, 1992)	WoE D
			Pre-test Post-test Control Group Standardised Mean Difference (PPC SMD)	Standardised Mean Difference (SMD)	
Bernstein et al. (2005)	41	Screen for Child Anxiety Related Emotional Disorders, parent version	*Insufficient information provided to calculate effect size*	*Insufficient information provided to calculate effect size*	2 (Medium)
		Multidimensional Anxiety Scale for Children child version and parent version	*Insufficient information provided to calculate effect size*	*Insufficient information provided to calculate effect size*	
Manassis et al. (2010)	144	Manual for the Multidimensional Anxiety Scale for Children	*d = 0.72* (Medium)	*d=0.62* (Medium)	2 (Medium)
Mifsud & Rapee (2005)	91	Spence Children's Anxiety Scale	*d= -0.11* (Small)	*d = 0.37* (Small)	1.67 (Medium)
		Anxiety Sub-scale of the children's Automatic Thoughts Scale	*d = -0.12* (Small)	*d* = 0.43 (Small)	
Miller et al. (2011)	191	Multidimensional anxiety Scale for Children	*d = 0.21* (Small)	*d = 0.35* (Small)	1.67 (Medium)
Muris et al. (2008)	45	Anxiety Control Questionnaire for Children	/	*d = 0.41* (Small)	2.38 (Medium)

		Screen for Child Anxiety Related Emotional Disorders-revised	/	*d* = .74 (Medium)	
O'Callaghn & Cunningham (2015)	9	Anxiety, Depression and Self-Concept Inventories of the Beck Youth Inventories (second edition)	/	*d* = 1.09 (Large)	1.43 (Weak)
Van Starrenburg et al. (2016)	141	Spence Children's Anxiety Scale (Dutch Version)	*d = 0.15* (Small)	*d = 0.39* (Small)	3 (High)
		Spence Children's Anxiety Scale (Parent Report)	*d = 0.16* (Small)	*d* = 0.43 (Small)	

Note: Cohen's (1992) effect size was used to rate the size study effect: d = 0.2 is small, d = 0.5 is medium, d = 0.8 is large effect. In this review, to be considered a meaningful effect, the effect size should be more than 0.2 (small).

As seen, the SMD effect sizes were larger than the PPC SMD effect sizes. This was anticipated since the PPC SMD represents the size of the effects of control groups/ wait-list controls/ activity control groups, and SMD effect sizes represent the pre-post change in the intervention group. Therefore to explore whether the intervention had an effect and if there is a need for treatment at all, it is thought that a larger effect (reduction of anxiety) should be observed in the intervention condition (SMD) in comparison to groups who did not receive any CBT interventions in order to validate the need for interventions

The PPC SMD effect size from the three studies did not show meaningful effect (Mifsud & Rapee, 2005; Miller et al. 2011; van Starrenburg et al. 2016). However, Manassis et al. (2010) which used the Feelings Club programme found a medium effect (0.72, medium), but this study found no significant difference between the intervention and contrast group, with both groups showing a decrease in anxiety over time. The study received a 'medium' rating from WoE D due to its randomisation design, as well as measures to assess fidelity of intervention sessions. Participants in the active contrast group were engaged in structured supervised after-school activities such as pro-social games. From this, it could be inferred that individuals with anxiety may also benefit from structured sociable activities and therefore a similar effect was found in the comparison group.

The SMD effect sizes ranged from small to large. Miller et al. (2011), Mifsud and Rapee (2005), Muris et al. (2008), O'Callaghan and Cunningham (2015), and van Starrenburg et al. (2016) had significant findings for the intervention effect. Miller et al. (2011), which used the FRIENDS intervention, had the smallest effect size, however, there was no significant intervention effect between children in attention-control group and in the intervention group. The attention-control group in this case was in a storytelling group. The above findings raise the question of whether group CBT is effective in a school environment. These results reflect the inconsistency between the different interventions used in schools. Aside from content, some studies had longer training sessions or were led by trained professionals working in mental

health with EP supervision, whereas others were led by school personnel such as teachers with fewer sessions (Appendix B).

Notably, O'Callaghan and Cunningham (2015) had a sample size of nine participants. Despite a large effect size found, the findings could be subject to bias. This is because to compare the difference between two means with a power of 0.8 at 0.5 significance level, a recommended minimum of 26 participants is required to provide sufficient effect (Cohen, 1992). Studies which are underpowered may lead to unreliable results and conclusions drawn (Maxwell, 2004). The number of participants depends on factors such as resources and participation criteria, thus it could still be difficult to recruit a sufficient sample of children who meet the criteria for the intervention at a large school.

4. Conclusion and Recommendations

The objective of this systematic review is to evaluate the effectiveness of CBT-based programmes delivered in a group format in reducing anxiety for children in a school context. Seven studies meeting the criteria were evaluated using Gough's (2007) weight of evidence framework and effect sizes. This found that there is a mixed body of evidence for the effectiveness of group CBT at reducing AS for children between the ages of 7-13. One study received a 'low' rating (O'Callaghan & Cunningham, 2015), five studies obtained a 'medium' (Bernstein et al. 2005; Manassis et al. 2015; Misfud & Rapee, 2005; Miller et al., 2011; Muris et al. 2008), with one 'high' rating (van Starrenburg et al., 2016).

Miller et al. (2011) and Manassis et al. (2010) both found no significant effect between their respective control groups and intervention groups. Both studies found a pattern of decrease in anxiety levels in both the control and intervention groups in post and follow-up measures. These findings from the control group suggest that children with elevated anxiety levels may benefit from structured activities and reading groups (Manassis et al, 2010; Miller et al. 2011). Alternatively, threats to internal validity could be due to maturation (Campbell & Stanley, 1963), where participants have developed emotionally and socially with age during the course of the intervention or between follow up measures, and are therefore experiencing less anxiety.

van Starrenburg et al. (2016) found a significant effect between the control and intervention group, and the effects were maintained three months post-intervention. This study received the highest WoE D rating due to factors such as research design, intervention length and quality of facilitators. In contrast, the control group in this study received no alternative intervention or activities. This gives a higher confidence to postulate that the decrease in anxiety levels was due to the experimental condition (van Starrenburg et al., 2016).

Bernstein et al. (2005) found that the FRIENDS intervention (Child CBT treatment) was significantly more effective than the control group on the parent SCARED measure. Despite this, this study received a medium WoE D because of its low methodological quality rating in WoE A. Mifsud and Rapee (2005) found a small significant effect in comparison to participants in the

waitlist control group. Similarly, Muris et al. (2008) and O'Callaghan and Cunningham (2015) also found significant intervention effect. However, O'Callaghan and Cunningham's (2015) findings should be viewed with caution because the effect size could be skewed due to the small sample size. Also, its design has little internal validity control (e.g. controlling for sample selection) and no external validity, therefore these findings cannot be generalised.

This review has highlighted the different varieties and inconsistencies between different group-based CBT programmes delivered at schools. With a range of content, duration, facilitators, supervision provided, more research is required to explore how these factors may be modified to achieve more successful outcomes. In the UK, although there is an increasing amount of research focusing on classroom-based CBT, there is a larger focus on universal programmes (Stallard et al., 2014) in comparison to specific group interventions for children who show elevated AS. Universal programmes are designed for any individual from the population, including those who are not identified as anxious (Essau, Conradt, Sasagawa & Ollendick (2012). Therefore, it is recommended that future research should focus on developing effective interventions for specific groups, and evaluate them using rigorous research designs. This could be achieved through ensuring treatment fidelity, adequate reliability of outcome measures, or through the use of RCT which takes into account of internal validity to promote high quality and evidence based practice (Laher, 2016).

With mixed results of effectiveness across studies, and given only one of the studies reviewed was conducted in the UK, recommendations made within the UK educational context based on this review should be made with extra caution. The evidence gathered from this review cannot confidently support the effectiveness of group-based CBT-programmes at reducing anxiety levels for children between the ages of 7-13, especially not in the UK educational context.

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Monga, S., Rosenbloom, B. N., Tanha, A., Owens, M., & Young, A. (2015). Comparison of child–parent and parent-only cognitive-behavioral therapy programs for anxious children aged 5 to 7 years: Short-and long-term outcomes. *Journal of the American Academy of Child & Adolescent*

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Appendices

Appendix A

List of Excluded Studies

Study	Reason for exclusion
Barrett, P., & Turner, C. (2001). Prevention of anxiety symptoms in primary school children: Preliminary results from a universal school-based trial. *British Journal of Clinical Psychology*, *40*(4), 399-410.	4
Bergman, R. L. (2006). They're not just" little adults": Developmental considerations for implementing cognitive-behavioral therapy with anxious youth. *Journal of Cognitive Psychotherapy, 20*(3), 263.	4
Bernstein, G. A., Layne, A. E., Egan, E. A., & Tennison, D. M. (2005). School-based interventions for anxious children. *Journal of the American Academy of Child & Adolescent Psychiatry, 44*(11), 1118-1127.	1
Chiu, A. W. M. (2010). *Modular Cognitive Behavioral Therapy for Youth Anxiety Disorders: A Partial Effectiveness Test in Schools*. University of California, Los Angeles.	3
Chiu, A. W., Langer, D. A., McLeod, B. D., Har, K., Drahota, A., Galla, B. M., ... & Wood, J. J. (2013). Effectiveness of modular CBT for child anxiety in elementary schools. *School psychology quarterly*, *28*(2), 141.	4
Eiraldi, R., Khanna, M. S., Jawad, A. F., Fishman, J., Glick, H. A., Schwartz, B. S., ... & Beidas, R. (2015). A hybrid effectiveness-implementation cluster randomized trial of group CBT for anxiety in urban schools: rationale, design, and methods. *Implementation Science*, *11*(1), 92.	6,2
Eiraldi, R., McCurdy, B., Khanna, M., Mautone, J., Jawad, A. F., Power, T., ... & Sugai, G. (2014). A cluster randomized trial to evaluate external support for the implementation of positive behavioral interventions and supports by school personnel. *Implementation Science*, *9*(1), 12.	4,5

Eiraldi, R., Power, T. J., Schwartz, B. S., Keiffer, J. N., McCurdy, B. L., Mathen, M., & Jawad, A. F. (2016). Examining effectiveness of group cognitive-behavioral therapy for externalizing and internalizing disorders in urban schools. *Behavior modification*, *40*(4), 611-639.	5
Ginsburg, G. S., & Drake, K. L. (2002). School-based treatment for anxious African-American adolescents: A controlled pilot study. *Journal of the American Academy of Child & Adolescent Psychiatry, 41*(7), 768-775.	4,7
Ginsburg, G. S., Becker, K. D., Drazdowski, T. K., & Tein, J. Y. (2012, February). Treating anxiety disorders in inner city schools: Results from a pilot randomized controlled trial comparing CBT and usual care. *Journal of Research and Practice in Children's Services, 41*(1), 1-19.	2,4
Khanna, M. S., & Kendall, P. C. (2010). Computer-assisted cognitive behavioral therapy for child anxiety: results of a randomized clinical trial. *Journal of Consulting and Clinical Psychology*, *78*(5), 737.	4
Lumpkin, P. W., Silverman, W. K., Weems, C. F., Markham, M. R., & Kurtines, W. M. (2002). Treating a heterogeneous set of anxiety disorders in youths with group cognitive behavioral therapy: A partially nonconcurrent multiple-baseline evaluation. *Behavior Therapy*, *33*(1), 163-177.	3
Maric, M., Heyne, D. A., MacKinnon, D. P., Van Widenfelt, B. M., & Westenberg, P. M. (2013). Cognitive mediation of cognitive-behavioural therapy outcomes for anxiety-based school refusal. *Behavioural and Cognitive Psychotherapy*, *41*(5), 549-564.	4,5
Matsumoto, Y., & Shimizu, E. (2016). The FRIENDS Cognitive Behavioral Program in Japanese schools: An examination of the treatment effects. *School Psychology International*, *37*(4), 397-409.	4
Monga, S., Young, A., & Owens, M. (2009). Evaluating a cognitive behavioral therapy group program for anxious five to seven year old children: A pilot study. *Depression and Anxiety*, *26*(3), 243-250.	2,5
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.	6

Osborne, M. S., Kenny, D. T., & Cooksey, J. (2007). Impact of a cognitive-behavioural treatment program on music performance anxiety in secondary school music students: A pilot study. *Musicae Scientiae*, *11*(2), 53-84.	5
Rice, C. L. (2008). *Reducing anxiety in middle school and high school students: A comparison of cognitive-behavioral therapy and relaxation training approaches*. The University of Arizona.	1,2
Ruocco, S., Gordon, J., & McLean, L. A. (2016). Effectiveness of a school-based early intervention CBT group programme for children with anxiety aged 5–7 years. *Advances in School Mental Health Promotion, 9*(1), 29-49.	2
Stallard, P. (2010). Mental health prevention in UK classrooms: The FRIENDS anxiety prevention programme. *Emotional and Behavioural Difficulties*, *15*(1), 23-35.	6,4
Stallard, P., Phillips, R., Montgomery, A. A., Spears, M., Anderson, R., Taylor, J., ... & Georgiou, L. (2013). A cluster randomised controlled trial to determine the clinical effectiveness and cost-effectiveness of classroom-based cognitive-behavioural therapy (CBT) in reducing symptoms of depression in high-risk adolescents. *Health Technology Assessment (Winchester, England)*, *17*(47), 5.	2,5
Stallard, P., Simpson, N., Anderson, S., Carter, T., Osborn, C., & Bush, S. (2005). An evaluation of the FRIENDS programme: a cognitive behaviour therapy intervention to promote emotional resilience. *Archives of Disease in Childhood, 90*(10), 1016-1019.	4,5
Stallard, P., Simpson, N., Anderson, S., Hibbert, S., & Osborn, C. (2007). The FRIENDS emotional health programme: Initial findings from a school-based project. *Child and Adolescent Mental Health, 12*(1), 32-37.	3,4
Shimizu, E. (2016). Effectiveness of a cognitive behavioural therapy-based anxiety prevention programme for children: a preliminary quasi-experimental study in Japan. *Child and adolescent psychiatry and mental health, 10*(1), 4.	3
Waters, A. M., Groth, T. A., Sanders, M., O'Brien, R., & Zimmer-Gembeck, M. J. (2015). Developing partnerships in the provision of youth mental health services and clinical education: a school-based cognitive behavioral intervention targeting anxiety symptoms in children. *Behavior Therapy, 46*(6), 844-855.	2

Weeks, C., Hill, V., & Owen, C. (2017). Changing thoughts, changing practice: examining the delivery of a group CBT-based intervention in a school setting. *Educational Psychology in Practice*, *33*(1), 1-15.	2
Weissman, A. S., Antinoro, D. & Chu, B. C. (2008). *Cognitive-behavioral therapy for anxious youth in school settings.* In M.J. Mayer, R. Van Acker & J.E. Lochman (Eds.), *Cognitive-behavioral interventions for emotional and behavioral disorders: School-based practice* (pp. 173-203). New York, NY: Guilford Press.	1
Yousefabad, M. Z., Borhani, L. G., & Piri, I. (2013). Group Council Effect Regarding to its Cognitive-behavioural-emotional Factors in Decreasing Girl High School Students Anxiety. *Procedia-Social and Behavioral Sciences, 84*, 1059-1062.	4

Code – Studies were excluded for not meeting the criteria for: 1 = type of article; 2= participant; 3= type of setting; 4= type of intervention; 5 = outcome measure; 6= research design; 7 = geographic context; 8 = language

Appendix B

Summary of Included Studies

Study & Country	Sample (Age range) & size	Study Design	Participant Identification/ Screening Procedure	Intervention & Facilitators	Outcome Measure of Anxiety	Primary Study Findings
Bernstein et al., (2007) US	7-11 years old. Sample size: 41.	Cluster randomised control group design.	Screened using the Multidimensional Anxiety Scale for Children and teacher nomination (three most anxious children from their classroom from those with parental consent). Individuals identified were those who had a total anxiety T score that was ≥58, and or if they were nominated by teachers.	FRIENDS programme 8-10 children per group. 9 weekly, 60 minute sessions. Facilitated by a primary experienced CBT therapist, co-therapists were graduate psychology students.	Multidimensional Anxiety Scale for children (MASC) (39 item self-report measure) - child and parent version. Screen for Child Anxiety Related Emotional Disorder (SCARED) 41 item self-report measure -parent version.	The authors originally collapsed two treatment groups and analysed their data using repeated measures ANOVA and MANOVA. Further comparison of the significance difference separating the two treatment groups from the analysis found that when the

	After, parents completed the Anxiety Disorders Interview Schedule (ADIS) for DSM-IV, Child Version, and so did the identified child. Those with features or DSM-IV diagnoses of separation anxiety disorder, generalised anxiety disorder, or social phobia were included in the study.		group CBT is compared with control group, only the Parent SCARED found a significant effect with p<.001 post treatment. No follow up measures.

Study & Country	Sample (Age range) & size	Study Design	Participant Identification/ Screening Procedure	Intervention & Facilitators	Outcome Measure of Anxiety	Primary Study Findings
Mifsud & Rapee , (2005) Australia	8-11 years old Disadvantage populations. Sample size: 91.	RCT with wait list control group. Randomisation at school level.	Children who scored approximately above the 75th percentile on the Revised Children Manifest Anxiety Scale.	Based on the Cool Kids Program: School version. 8 sessions. 8-10 children per group with structured workbook. Facilitated by school counsellors and mental health workers who received one day training beforehand.	Spence Children Anxiety Scale (SCAS) (38 items self-report) and the Children's Automatic Thought Scale (CATS) (40-item measure) was used for pre and post measure. Parents completed the Spence Children's Anxiety Scale -parent version.	Compared to the waitlist group, children in the intervention group showed a significant decrease in anxiety symptoms pre, post and in follow up. Pairwise *t-test* found significant change pre and post intervention ($t49 = 3.00$, $p < .005$), follow up: ($t49 = 5.97$, $p < .001$). No significant effect was found for the control group at any time point. 4 month follow-up.

Study & Country	Sample (Age range) & size	Study Design	Participant Identification/ Screening Procedure	Intervention & Facilitators	Outcome Measure of Anxiety	Primary Study Findings
Miller et al. (2011) Canada	9-12 years Sample Size: 191.	Randomised attention-control school trial- Randomisation at school level.	Used the self-reported anxiety scale for screening. Individuals were invited to participate if their T-score is 56 or higher).	FRIENDS Programme. 18 week intervention. Delivered by trained teachers who were paired with school counsellor or trained psychology graduate students.	Children completed the Multidimensional Anxiety Scale for Children (MASC) (39 items self-report measure).	No intervention effect. A 2-piece linear growth model was used to analyse results. The conditional model found no treatment effect on either initial status or growth rate (1), g001 = -1.193, *p >.05* and g101 = -0.848, *p* > .05. There was not a greater decrease in anxiety symptoms in the intervention group in comparison to the control group, both groups found a decrease in anxiety symptoms over time. 1 year follow-up.

Study & Country	Sample (Age range) & size	Study Design	Participant Identification/ Screening Procedure	Intervention & Facilitators	Outcome Measure of Anxiety	Primary Study Findings
Muris et al. (2008) Netherlands	9-12 years old. Sample Size: 45.	Quasi-experimental design (one group pre-test post-test design).	Revised version of the Screen for Child Anxiety Related Emotional Disorders (SCARED-R). Those who scored in the top 10% in the subscales were selected.	The Coping Koala CBT program. Manualized CBT intervention provided in group format. 12 sessions, each around 30 minutes. Groups of 3-6 children. Facilitated by trained masters students supervised by an experienced Cognitive Behavioural Therapist/ Child Psychologist each week.	Screen for Child Anxiety Related Emotional Disorders (SCARED-R) (69 items self-report measure). Children's Automatic Thoughts Scale (CATS) (40 items self-report). Anxiety Control Questionnaire for Children (ACQC) (13 items shortened version).	Found significant difference between pre and post treatment. The paired sample *t*-test revealed a significant decrease from pre- to post-treatment $t(44)$s ≥ 3.92, $p < .001$; $d = .74$. No follow up.

Study & Country	Sample (Age range) & size	Study Design	Participant Identification/ Screening Procedure	Intervention & Facilitators	Outcome Measure of Anxiety	Primary Study Findings
O'Callaghan & Cunningham (2015) UK	8-11 years old. Sample size: 9	Quasi-experimental design (one group pre-test post-test design).	Identified by teachers or parents as those who presented symptoms of anxiety or depression in school. Screened using the Anxiety, Depression and Self-concept inventories of the Beck Youth Inventories (second edition).	Cool Connections, manual-based programmes with games, illustrations and activities. 10 sessions. Delivered by the primary teacher with 2 teaching assistants, supervised by an Educational Psychologist.	Anxiety, Depression and Self-Concept Inventories of the Beck Youth Inventories (second edition).	Paired sample *t*-test found significant improvement in symptoms of anxiety from pre to post-intervention, $t(8) = -3.29$, $p < 0.017$. No follow up.

Study & Country	Sample (Age range) & size	Study Design	Participant Identification/ Screening Procedure	Intervention & Facilitators	Outcome Measure of Anxiety	Primary Study Findings
van Starrenburg et al. (2016) Netherlands	7-13 years old. Sample size: 141.	RCT- Groups of participants were randomised within schools, and individuals were stratified by age group (7-9 years old and 10-12 years old).	Participants were 1 SD above the standard deviation cut off point on the SCAS.	Coping Cat - 12 weekly one hour session. Groups of 7-9 children / took place after school hours at school. Facilitated by experienced Child Psychologists supported by a Clinical Psychology master's student. Facilitators took part in 2 day training.	Dutch version of Spence Children's Anxiety Scale (SCAS) 44 items self-report measure, and parents report 38 items.	Found significant effect in pre, post and follow up measures. The experimental group showed a greater significant decrease in comparison to the waitlist control group (SCAS total; β= -0.283, p< 0.001). 3 months follow-up.

Appendix C

Weight of Evidence

Weight of Evidence A (WoE A): Methodological quality

The Gersten et al. (2005) coding protocol was used to assess the methodological quality for all of the studies included. Using the protocol, studies were rated using the essential and desirable quality indicators to give studies a 'high', 'medium' or 'low' quality rating. The criteria for each WoE A assignment is displayed in the Table 1, and the summary of WoE A ratings for all the studies included in Table 2.

Table 1

Criteria and Rationale for Weight of Evidence A (WoE A) Gersten et al. (2005)

	WoE A Score	Criteria	Rationale
Gersten et al. (2005) Coding Protocol	3	Achieve a score of ≥ 9 essential criteria and ≥ 4 desirable criteria	Recommended from Gersten et al. (2005)
	2	Achieve a score of ≥ 9 essential criteria and ≥ 2 desirable criteria	
	1	Achieve a score of < 9 essential criteria and < 2 desirable criteria	

Table 2

Summary of Weight of Evidence A (WoE A) Ratings

Study	Essential criteria	Desirable criteria	WoE A
Bernstein et al. (2005)	7	2	1
Manassis et al. (2010)	8	4	1
Mifsud & Rapee (2005)	6	4	1
Miller et al. (2011)	9	6	3
Muris et al. (2008)	4	1	1
O'Callaghn & Cunningham (2015)	5	1	1
van Starrenburg et al. (2016)	9	4	3

Weight of Evidence (WoE B): Methodological Relevance

This section considers the appropriateness of each research design used and its relevance specifically to the current review question.

Rationale and Criteria for WoE B:

1. Randomise design with control group – e.g. this design assumes that groups are equivalent which allows a comparison of intervention effect by exploring the difference between the control group and the intervention group.
2. Valid implementation of intervention – intervention was clearly outlined and implemented as initially designed. (E.g. adaptations were explained with clear rationale).
3. More than one method was used to measure intervention effect on anxiety (E.g. different scale or pre and post anxiety rating measurements by parents or teachers).

A study receiving a 'low' rating (score of 1) would only satisfy one or less of the criteria listed, a study receiving a 'medium' rating (score of 2) would satisfy two out of three criteria listed, and a study receiving a 'high' rating (score of 3) would provide evidence to satisfy all three of the criteria listed. Table 3 below displays the summary of WoE B ratings.

Table 3

Summary of WoE B Ratings

Study	Criterion number			WoE B rating
	1	2	3	
Bernstein et al. 2005	✓	✓	✓	3 (High)
Manassis et al. (2010)	✓	✓	✓	3 (High)
Mifsud & Rapee (2005)	✓	✓	✓	3 (High)
Miller et al. (2011)	✓	✓	✓	3 (High)
Muris et al. (2008)	X	✓	✓	2 (Medium)
O'Callaghn& Cunningham (2015)	X	✓	X	1 (Low)
Van Starrenburg et al. (2016)	✓	✓	✓	3 (High)

Weight of Evidence C (WoE C): Topic Relevance

This section examines how relevant the focus of the studies are in relation to the current review question. The criteria for WoE C is listed below:

1. Since CBT is supposedly an ongoing therapy intervention, the durations of interventions should last longer than 10 sessions for the participants to access the purpose of the intervention fully.
2. Intervention should be delivered by individuals who have experience or sufficient knowledge in the field. Other individuals (school personnel) should have received good quality and sufficient training to ensure the quality of delivery (e.g. a one day workshop would not be sufficient for individuals without prior knowledge of CBT or experience with working with groups of children).
3. Since the focus of this review is on anxiety symptoms a lower rating will be given to studies which include other focuses.

Rationale for WoE C:

1. The number of sessions should be clearly reported and the intervention should be a minimum of 10 sessions. This is because CBT therapy normally contains successive sessions in order for the therapist and client to establish relationships, identify problems and review progress. Too few sessions will mean that there is insufficient time for intervention to implement change especially when working in groups.
2. The intervention should be delivered by psychologists or individuals (e.g. teachers, mental health workers, therapists) who have received sufficient training before delivering the intervention (more than one day). This is because CBT therapists normally require substantial training to acquire therapeutic techniques. Since facilitators come from a variety of backgrounds, this criterion is to ensure the quality of facilitators in their competency with the programme content and their ability to work with and manage groups of anxious children.
3. The study's focus is primarily on using CBT to reduce anxiety symptoms alone.

A study receiving a 'low' rating (score of 1) would only satisfy one or less of the criteria listed, a study receiving a 'medium' rating (score of 2) would satisfy two out of three criteria listed, and a study receiving a 'high' rating (score of 3) would provide evidence to satisfy all three of the criteria listed. Table 4 below displays the summary of WoE C ratings.

Table 4

Summary of WoE C Ratings

Study	Criterion number			WoE C rating
	1	2	3	
Bernstein et al. 2005	X	✓	✓	2(Medium)
Manassis et al. (2010)	✓	✓	X	2(Medium)
Mifsud & Rapee (2005)	X	X	✓	1 (Low)
Miller et al. (2011)	X	X	✓	1 (Low)
Muris et al. (2008)	✓	✓	✓	3 (High)
O'Callaghn & Cunningham (2015)	✓	X	X	1 (Low)
Van Starrenburg et al. (2016)	✓	✓	✓	3 (High)

Weight of Evidence D (WoE D): Overall Rating

The total weighting (WoE D) for each study is the sum of scores from WoE A, B, C together and averaged. The criteria for overall rating is outlined in Table 5 below:

Table 5

Standards for Weight of Evidence A, B and C

Evidence	Score equivalence	Average score
Strong	High	2.5 - 3.0
Promising	Medium	1.5 - 2.4
Weak	Low	1.4 or less
Inadequate to none	Zero	0

Appendix D

Gersten et al., (2005). Quality Indicators for Group Experimental and Quasi-Experimental Research in Special Education
Date: 06.02.18

Full Study Reference: Van Starrenburg, M. L., Kuijpers, R. C., Kleinjan, M., Hutschemaekers, G. J., & Engels, R. C. (2016). Effectiveness of a cognitive behavioral therapy-based indicated prevention program for children with elevated anxiety levels: a randomized controlled trial. *Prevention Science, 18*(1), 31-39.

Intervention Name (description of study): The Coping Cat

Research Design: Randomised control Trial

Type of Publication: Journal Article

Essential Quality Indicators
Describing Participants
Was sufficient information provided to determine/confirm whether the participants demonstrated the disability(ies) or difficulties presented?

☑Yes
No
N/A
Unknown/Unable to Code

Were appropriate procedures used to increase the likelihood that relevant characteristics of participants in the sample were comparable across conditions?

☑ Yes
No
N/A
Unknown/Unable to Code

Was sufficient information given characterising the interventionists or teachers provided? Did it indicate whether they were comparable across conditions?

☑Yes
No
N/A
Unknown/Unable to Code

Implementation of the Intervention and Description of Comparison Conditions
Was the intervention clearly described and specified?

☑ Yes
No
N/A

Unknown/Unable to Code

Was the fidelity of implementation described and assessed?

Yes
☑No
N/A
Unknown/Unable to Code

Was the nature of services provided in comparison conditions described?

☑Yes
No
N/A
Unknown/Unable to Code

Outcome Measures

Were multiple measures used to provide an appropriate balance between measures closely aligned with the intervention and measures of generalised performance?

☑ Yes
No
N/A
Unknown/Unable to Code

Were outcomes for capturing the intervention's measured at the appropriate times?

☑ Yes
No
N/A
Unknown/Unable to Code

Data Analysis

Were the data analysis techniques appropriately linked to key research questions and hypotheses? Were they appropriately linked to the unit of analysis in the study?

☑ Yes
No
N/A
Unknown/Unable to Code

Did the research report include not only inferential statistics but also effect size calculations?
☑ Yes
No
N/A
Unknown/Unable to Code

Desirable Quality Indicators

Was data available on attrition rates among intervention samples? Was severe overall attrition documented? If so, is attrition comparable across samples? Is overall attrition less than 30%?

☑ Yes
No
N/A
Unknown/Unable to Code

Did the study provide not only internal consistency reliability but also test-retest reliability and interrater reliability (when appropriate) for outcome measures? Were data collectors and/or scorers blind to study conditions and equally (un)familiar to examinees across study conditions?

Yes
☑No
N/A
Unknown/Unable to Code

Were outcomes for capturing the intervention's effect measured beyond an immediate post-test?

☑ Yes
No
N/A
Unknown/Unable to Code

Was evidence of the criterion-related validity and construct validity of the measures provided?

☑ Yes
No
N/A
Unknown/Unable to Code

Did the research team assess not only surface features of fidelity implementation (e.g. number of minutes allocated to the intervention or teacher/interventionist following procedures specified), but also examine quality of implementation?

Yes
☑No
N/A
Unknown/Unable to Code

Was any documentation of the nature of instruction or series provided in comparison conditions?

Yes
No
☑N/A
Unknown/Unable to Code

Did the research report include actual audio or videotape excerpts that capture the nature of the intervention?

Yes
☑No
N/A
Unknown/Unable to Code

Were results presented in a clear, coherent fashion?

☑ Yes
No
N/A
Unknown/Unable to Code

Overall Rating of Evidence: ☑3 2 1