

Case study 1: An Evidence-based practice review report.

Theme: School/Setting Based Interventions for Social, Emotional and Mental Health.

How effective is the Fun FRIENDS intervention at reducing anxiety outcomes in young children?

Summary

The increasing prevalence of anxiety and depression in children and young people has led to mental health support in schools and settings becoming an area of priority for the UK government, with more money invested in mental health and a particular focus on the importance of early intervention (DHSC & DfE, 2018). As a result, evidence-based early intervention programmes for reducing anxiety are an area of high relevance to educational psychologists (EPs).

This review investigates the effectiveness of one intervention based on principles from cognitive behavioural therapy, which is designed to decrease anxiety and increase resilience in children aged 4-7. It does this by helping children build a toolkit of social and emotional skills to protect them against later difficulties. A systematic literature search yielded seven studies which are reviewed rigorously using a Weight of Evidence Framework (Gough, 2007). Two studies were given high weightings while the other five studies were rated low.

The current evidence suggests Fun FRIENDS (Pahl & Barrett, 2007) is a promising intervention for reducing anxiety in young children cross-culturally, with effect sizes ranging from small to large. However, the majority of

evidence is limited by poor quality methodological designs with a lack of control groups and comparison conditions. Future recommendations and research suggestions are discussed, including the need for more randomised control trial studies and research within the UK.

Introduction

Intervention

The Fun FRIENDS intervention was developed to increase social and emotional competence and reduce anxiety in young children aged 4-7 years old. It is designed to be carried out as a universal preventative programme within schools, to boost children's resilience and help them develop tools to protect against later social, emotional and mental health difficulties (Pahl & Barrett, 2007). As well as being used as a preventative programme, it has also been applied to treating anxiety in clinically anxious children (e.g. Carlyle, 2014).

Fun FRIENDS aims to develop five elements of social-emotional competence: developing a sense of self; social skills; self-regulation; responsibility for self and others; and prosocial behaviour. It should be delivered across 10 sessions, each of 60-90 minutes in length (Pahl & Barrett, 2007). Facilitators must attend a full day of training in order to run the intervention, and follow the structure outlined in the provided leader's manual (Barrett, 2007b). Whilst most of the sessions are carried out with the children themselves, there should also be parent information sessions and parents should be provided with a Family Learning Adventure Workbook to

encourage transfer of the skills taught to the home environment (Barrett, 2007a).

Psychological Basis

The psychological basis of Fun FRIENDS lies predominantly in Resiliency Theory and Cognitive Behavioural Therapy (CBT). Its development was underpinned by the idea that resilience is impacted by protective and risk factors acting at different levels (Werner & Smith, 1982; Werner & Smith, 1992). Fun FRIENDS draws on this by building protective factors at different levels, targeting factors within the child, the family and the school environments (Pahl & Barrett, 2007). It also draws on the theory and evidence that helping young children develop the tools to think flexibly in problem situations, and consider a range of solutions, helps them develop resiliency (Arend et al., 1979; Shure & Spivack, 1982).

CBT principles are also incorporated within the Fun FRIENDS programme, adapted to be developmentally appropriate for younger children, for example through experiential learning and play. Fun FRIENDS builds in cognitive behavioural elements by helping young children recognise their emotions using the idea of 'green thoughts' and 'red thoughts', corresponding to helpful and unhelpful thoughts respectively (Pahl & Barrett, 2007).

While research has suggested that parent-focused CBT is effective in reducing anxiety in children aged 4-7 years (van der Sluis et al., 2012), a more recent study found that CBT-based interventions which incorporate both child and parent elements are even more effective than parent-only interventions (Monga et al., 2015). The fact that Fun FRIENDS has both

child-focused and parent-focused elements could therefore also contribute to it being an effective anxiety intervention.

Rationale and Relevance

Child and adolescent mental health is a current area of priority for the UK government, who are emphasising the importance of early intervention and investing more money in children's mental health services, for example, with the introduction of mental health support teams in schools (DHSC & DfE, 2018). Supporting the social, emotional and mental health of children and young people (CYP) is recognised as an increasingly pertinent aspect of the EP role (DfE, 2019), and an understanding of evidence-based interventions to support mental health is therefore crucial for EPs.

Recent research in the UK suggests that the rate of anxiety disorders increases as children get older. While emotional disorders (including anxiety) are reported to be low for children aged 2 – 4, at around 1% of the population, this increases significantly to 4.1% in children aged 5 – 10, and is nearly 15% by the time young people reach 17 – 19 years old (DHSC, 2017). However, diagnostic methods of identifying anxiety have been criticised for their applicability to very young children, and some studies have suggested the prevalence of anxiety in pre-school aged children and older children is equally high (Egger & Angold, 2006). Higher anxiety levels in children and adolescents is found to be related to poorer school performance and earlier school withdrawal (Mazzone et al., 2007; Van Ameringen et al., 2003), and research is increasingly focused on the importance of early intervention in preventing mental health disorders (McGorry & Mei, 2018). Therefore,

supporting schools and settings to reduce anxiety amongst their CYP at the earliest opportunity is of high relevance to EPs.

Fun FRIENDS was developed based on the already established FRIENDS programme, which uses a cognitive behavioural approach to increase resilience and reduce anxiety in older children aged 7-18 (Barrett, 2004, 2005). Research has suggested Cognitive Behavioural Therapy is an effective approach for reducing anxiety in children and young people (Kendall et al., 2008), and studies using the FRIENDS programme suggest it is an effective programme for preventing and reducing anxiety and depression in this age group (Barrett et al., 2006; Stallard et al., 2008). The FRIENDS programme is also recommended for treating childhood anxiety and depression by the World Health Organisation (WHO, 2004). However, to date there have only been a handful of studies investigating the effectiveness of its younger relative, Fun FRIENDS.

Fun FRIENDS is a relatively low-cost intervention, grounded in psychological theory and developed to be carried out in school settings with small groups of children. If it is effective at reducing anxiety, it could therefore be an ideal early-intervention programme for EPs to recommend and work with schools to deliver, to support children's social, emotional, and mental health.

Review Question

How effective is the Fun FRIENDS intervention at reducing anxiety outcomes in young children?

Critical Review of the Evidence Base

Literature Search

A literature search was conducted on 21st December 2020 across five different online electronic databases. Table 1 shows which databases were searched, the search terms used and the number of studies identified in each search. To ensure no studies were missed, full text searching using the search term “fun friend*” in PsycInfo, and ancestral and citation searches were also completed. However, these did not identify any relevant studies in addition to those found in the database searches described in Table 1.

Table 1

Databases and Search Terms

Database	Search Terms	<i>n</i>
PsycInfo	“fun friend*” AND anxi* AND child*	10
ERIC	“fun friend*” AND child*	2
Web of Science	AB=(“fun friend*” AND anxi* AND child*)	4
Medline	“fun friend*” AND child*	11
Scopus	“fun friend*” AND anxi* AND child*	9

This systematic search yielded 36 studies. At this stage, 11 duplicates were identified and removed. Of the remaining 25 studies, abstract screening excluded 15, and full-text screening excluded a further three (see Appendix A for excluded studies and reasons). Table 2 defines the inclusion and exclusion criteria with rationale. Figure 4 shows a visual summary of the study selection process. Table 3 lists the final seven studies included in the review; further information on these is provided in Appendix B.

Table 2

Inclusion and Exclusion Criteria

Study Feature	Inclusion Criteria	Exclusion Criteria	Rationale
1 Language	Studies published in English	Studies published in languages other than English	Reviewer only understands English and reliable translation services are unavailable
2 Intervention	Studies using the Fun FRIENDS intervention only	Studies not using the Fun FRIENDS intervention, or those using Fun FRIENDS alongside concurrent interventions	This review is looking at the effectiveness of the Fun FRIENDS intervention only and other concurrent interventions may introduce confounding variables
3 Study Design	Studies collecting primary data and pre- and post-intervention measures	Studies not collecting primary data or not collecting pre- and post-measures e.g. Meta-analyses, reviews	This review is looking at the effectiveness of Fun FRIENDS intervention in reducing anxiety therefore measures must be taken from participants before and after the intervention

4 Participants	Participants aged 4-8 years old	Participants aged < 4 years and > 8 years old	The Fun FRIENDS intervention is designed for young children within this age range
5 Outcomes	Studies measuring child anxiety outcomes	No measured outcomes relating to child anxiety	This review is looking at the effectiveness of Fun FRIENDS in reducing anxiety outcomes
6 Publication Type	Published in peer-reviewed journals	Grey literature including those not published in peer reviewed journals and dissertations	To ensure studies are of a high standard and have been scrutinised for quality by independent reviewers

Figure 1

Flow Diagram of Study Selection Process

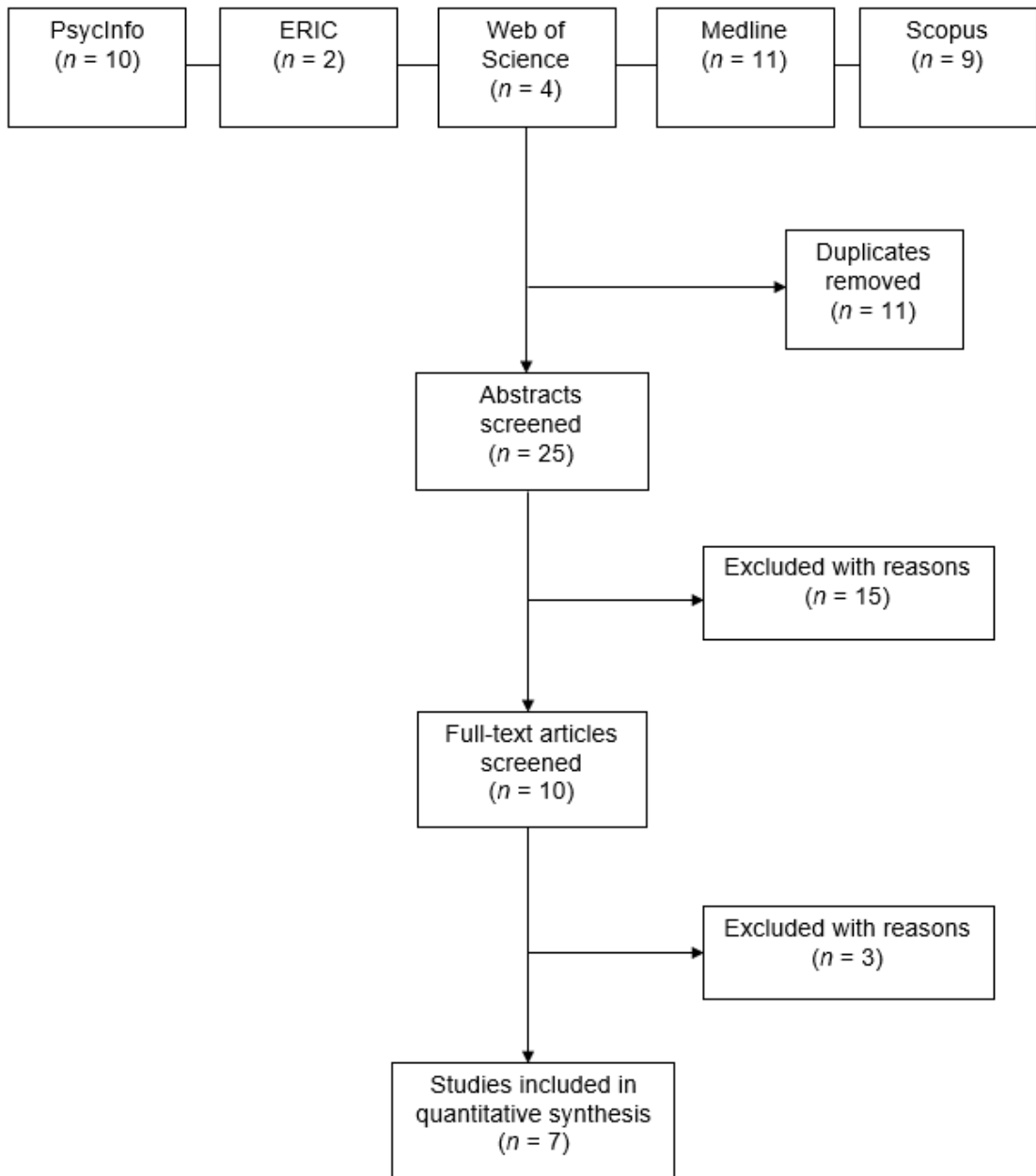


Table 3*Final List of Studies Included*

Reference
Anticich, S. A. J., Barrett, P. M., Silverman, W., Lacherez, P., & Gillies, R. (2013). The prevention of childhood anxiety and promotion of resilience among preschool-aged children: A universal school based trial. <i>Advances in School Mental Health Promotion</i> , 6(2), 93–121.
Barrett, P., Fisak, B., & Cooper, M. (2015). The treatment of anxiety in young children: Results of an open trial of the Fun FRIENDS program. <i>Behaviour Change</i> , 32(4), 231–242.
Carlyle, D. A. (2014). With a little help from FUN FRIENDS young children can overcome anxiety. <i>Community Practitioner: The Journal of the Community Practitioners' & Health Visitors' Association</i> , 87(8), 26–29.
Gallegos-Guajardo, J., Ruvalcaba-Romero, N.A., Chavez-Amavizca, A. & Barrett, P. (2020). Evaluation of the Fun FRIENDS program with a sample of Mexican children. <i>Pensando Psicología</i> , 16(1), 1-21.
Garcia, L. M. R., Toni, C. G. S., Batista, A. P., & Zeggio, L. (2019). Evaluation of the effectiveness of the fun friends program. <i>Trends in Psychology</i> , 27(4), 925–941.
Pahl, K. M., & Barrett, P. M. (2010). Preventing anxiety and promoting social and emotional strength in preschool children: A universal evaluation of the Fun FRIENDS program. <i>Advances in School Mental Health Promotion</i> , 3(3), 14–25.
van der Mheen, M., Legerstee, J. S., Dieleman, G. C., Hillegers, M. H. J., & Utens, E. M. W. J. (2020). Cognitive behavioural therapy for anxiety disorders in young children: A Dutch open trial of the Fun FRIENDS program. <i>Behaviour Change</i> , 37(1), 1–12.

Weight of Evidence

A Weight of Evidence (WoE) framework (Gough, 2007) was used to critically assess each included study for quality and relevance across three dimensions. WoE A measured the methodological quality of each study according to a best practice protocol for that type of design. The Gersten et

al. (2005) coding protocol was used for six of the studies, as this was developed to evaluate group experimental and quasi-experimental designs. This was adapted slightly to make it more applicable to the included studies. Horner et al.'s (2005) criteria were used for the small-N design. WoE B assessed methodological relevance based on best practice recommendations for answering questions regarding effectiveness. WoE C assessed topic relevance to the review question according to criteria developed by the reviewer. An average of WoE A-C was calculated to give an overall Weight of Evidence D (WoE D). Further information on how WoE A, WoE B and WoE C were calculated is found in Appendix C. Table 4 shows WoE A-D for all seven studies.

Table 4

Overall Weight of Evidence Ratings

Study	WoE A	WoE B	WoE C	WoE D
Anticich et al. (2013)	3	3	2	2.67 (High)
Barrett et al. (2015)	1	1	2.25	1.42 (Low)
Carlyle (2014)	1.29	1	2.25	1.51 (Low)
Gallegos-Guajardo et al. (2020)	1	1	2.25	1.42 (Low)
Garcia et al. (2019)	0	1	1.5	0.83 (Low)
Pahl & Barrett (2010)	3	3	2	2.67 (High)

van der Mheen et al. (2020)	1	1	2.25	1.42 (Low)
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Scores < 1.7 (low), 1.7-2.4 (medium) and > 2.4 (high)

Critical Review of Included Studies

Participants

All studies involved participants aged between 4-8 years old and included sufficiently detailed descriptions of the participants. Four of the included studies (Anticich et al., 2013; Gallegos-Guajardo et al., 2020; Garcia et al., 2019; Pahl & Barrett, 2010) had participants from universal populations, whereas the other three had either clinically anxious participants (Barrett et al., 2015; van der Mheen et al., 2020) or children referred for anxiety (Carlyle, 2014). ‘Universal populations’ in this review means the study included all children, regardless of whether they were identified as having anxiety. Universal evaluations may be more likely to miss significant effects, as anxiety levels could be relatively low to start with, therefore universal programmes may require more long-term monitoring and follow-up to assess intervention effectiveness (Neil & Christensen, 2009).

Due to this, while all of the included studies aimed to measure changes in anxiety, the studies with universal populations are considered less relevant to the review question, as many of the participants may have already had low anxiety levels. This review is assessing the effectiveness of the intervention for reducing anxiety, therefore studies involving participants with higher anxiety levels to begin with were considered more relevant and given a higher WoE C.

Only one study (Carlyle, 2014) had participants from the UK, which resulted in a higher WoE C rating, as these results may be more generalisable to the UK population. The purpose of this review is to investigate the intervention's effectiveness so that it can be applied to UK schools and the UK Educational Psychology workforce, therefore studies conducted in the UK are considered more relevant. Studies discussing and accounting for higher attrition rates scored higher in WoE A.

Study Design

Two of the included studies were randomised control trials (RCTs) (Anticich et al., 2013; Pahl & Barrett, 2010), while the other five were quasi-experimental or small-N designs without a control group (Barrett et al., 2015; Carlyle, 2014; Gallegos-Guajardo et al., 2020; Garcia et al., 2019; van der Mheen et al., 2020). The AB design in the small-N study showed a lack of experimental control and threat to internal validity. Furthermore, a baseline phase using repeated measurements was not established, reliable-change indexes were not reported nor was there overt measurement of intervention fidelity. This resulted in a low WoE A rating for Carlyle (2014).

RCTs are considered best evidence for intervention effectiveness (Petticrew & Roberts, 2003) as they allow us to conclude with more certainty that any reduction in anxiety is attributable to the intervention rather than another confounding variable. Therefore, studies without a control group were given lower ratings for both methodological quality (WoE A) and methodological relevance (WoE B). While it is acknowledged that there are ethical issues around withholding interventions from some participants, waitlist control

groups are considered one way of resolving this, and these were utilised successfully in two of the studies (Anticich et al., 2013; Pahl & Barrett, 2010).

Only these two studies received high overall WoE D ratings, and this was largely due to their methodological quality and relevance, which was increased by inclusion of a control group. Studies which took measures beyond an immediate post-test (Anticich et al., 2013; Barrett et al., 2015; Garcia et al., 2019; Pahl & Barrett, 2010) were considered stronger methodological quality, as they assess whether any reductions in anxiety were maintained over time. This is accounted for in WoE A.

Measures

All of the included studies had at least one measure of child anxiety. Five (Anticich et al., 2013; Barrett et al., 2015; Carlyle, 2014; Gallegos-Guajardo et al., 2020; Pahl & Barrett, 2010) used the Preschool Anxiety Scale (PAS) (Spence et al., 2001), which is a 34-item parent-rated scale designed to measure anxiety in preschool aged children. As well as measuring total anxiety it can be split into five subscales: Generalised Anxiety, Social Anxiety, Obsessive Compulsive Disorder, Physical Injury Fears and Separation Anxiety (Spence et al., 2001). One of these studies (Anticich et al., 2013) used the PAS alongside other measures and then carried out a factor analysis to reveal four factors the different measures loaded on. The results for the behavioural inhibition factor are reported here as this is the factor which anxiety measures loaded onto.

There was a discrepancy within one study (Garcia et al., 2019) regarding their use of the Spence Children's Anxiety Scale (SCAS) (Nauta et al., 2004; Spence, 1998). The body of text described using the parent-report version of the SCAS (Nauta et al., 2004), however the corresponding reference in their bibliography was the SCAS self-report version (Spence, 1998). This discrepancy is significant because the children in the study are aged 5-7 and the SCAS self-report version is only validated for children over the age of 8.

Two studies (Garcia et al., 2019; van der Mheen et al., 2020) used the Child Behaviour Checklist (CBCL) (Achenbach & Rescorla, 2001), which has an internalising sub-scale encompassing symptoms of anxiety, as well as an anxiety problems scale. The two studies with clinically anxious participants (Barrett et al., 2015; van der Mheen et al., 2020) used the Anxiety Disorders Interview Schedule for Children (ADIS-C) (Silverman et al., 2001; Silverman & Nelles, 1988) to measure presence of anxiety disorders. The extent to which studies discussed the reliability and validity of the measures used is reflected in WoE A.

Intervention

All studies included followed the Fun FRIENDS intervention as intended, using the leader's manual (Barrett, 2007b), training the interventionalists prior, and involving parents through parent information sessions. Those studies where the intervention was carried out in the school setting by teachers (Anticich et al., 2013; Gallegos-Guajardo et al., 2020) were given a higher WoE C as this is how the intervention is designed to be carried out (Pahl & Barrett, 2007). Although surface fidelity was high in all studies, as

shown in WoE C, only two studies assessed intervention fidelity by requiring interventionalists to complete a weekly checklist to encourage and assess adherence to the manual (Anticich et al., 2013; Pahl & Barrett, 2010). This is reflected in higher WoE A ratings.

Findings and Effect Sizes

Effect sizes are summarised in Table 5. Only three studies (Gallegos-Guajardo et al., 2020; Pahl & Barrett, 2010; van der Mheen et al., 2020) reported effect sizes which is accounted for in WoE A. For within-participant changes, d_{corr} was calculated (Becker, 1988). A small sample bias correction was then applied, and Hedge's g is reported. For the between-participant comparison (Pahl & Barrett, 2010) an online calculator was used to calculate Hedge's g (Wilson, 2021). Where only t-test data was reported (Barrett et al., 2015), d_z was calculated using another online calculator (Lakens, 2019). For one study (Carlyle, 2014), data for calculating effect sizes was not available in the paper or from the author directly. WebPlotDigitizer (Rohatgi, 2020) was used to extract data points from the graph to enable calculation of means, standard deviations and effect sizes. Effect sizes and the data for calculating these were also unavailable in one of the RCTs (Anticich et al., 2013). Partial eta squared was calculated from the F statistic (Lakens, 2019) and then converted to Cohen's d on Psychometrica (Lenhard & Lenhard, 2016). While the resulting effect size was large, it was across three groups at three timepoints therefore one cannot determine from this where significant difference lies. Data points were again extracted in WebPlotDigitizer (Rohatgi, 2020) to allow effect size calculations for pairwise comparisons

between the intervention and waitlist control (Wilson, 2021). These revealed medium-large effect sizes for Fun Friends compared with the waitlist control group.

All of the included studies found some reductions in anxiety following the Fun FRIENDS intervention, with effect sizes ranging from small to large (Cohen, 1988). However, the larger effect sizes are generally in studies with lower weighting of evidence and smaller sample sizes, therefore these should be interpreted with caution. These lower-weighted studies were those that did not use a control group, and the within-participant design used to calculate d_{corr} could have led to an inflation in effect size estimates due to the high correlation between measures (Dunlap et al., 1996). This is further supported by the fact that, in one highly weighted study where a control group was used, (Pahl & Barrett, 2010), the effect size for the between-subjects design was not only much smaller but was in fact negative.

Generally, the studies with clinical populations found larger decreases in anxiety, and two highly weighted studies with universal populations found a higher effect size between pre-intervention and follow-up compared with pre-post intervention (Anticich et al., 2013; Pahl & Barrett, 2010). This supports the need for long-term monitoring and follow-up in studies investigating intervention effectiveness with universal populations. Gallegos-Guajardo et al. (2020) found a significant reduction only in the separation anxiety subscale of the PAS. They considered that the lack of overall reduction in anxiety could be due to the use of a universal participant population with no follow-up timepoint, and argued that separation anxiety may have been the

exception because this is an especially relevant type of anxiety for preschool-aged children (Gallegos-Guajardo et al., 2020).

Table 5

Effect sizes for anxiety outcomes

Study	Outcome Measure	Comparison	Effect Size – Cohen’s <i>d</i> (with correction <i>g</i>)	Descriptor (Cohen, 1988)	WoE D
Anticich et al. (2013) N = 488	Behavioural Inhibition	Interaction between time (3) and group (3)	<i>d</i> = 0.99	Large	High
	Behavioural Inhibition	Treatment vs Waitlist Control post- intervention	<i>g</i> = 0.49	Medium	
	Behavioural Inhibition	Treatment vs Waitlist Control at follow-up	<i>g</i> = 1.03	Large	
Barrett et al. (2015) N = 31	The Preschool Anxiety Scale (PAS)	Repeated measures pre-post intervention	<i>g</i> = 0.80	Large	Low
	Anxiety Disorders Interview Schedule for Children (ADIS-C) – Number of Anxiety Disorders	Repeated measures pre-post intervention	<i>g</i> = 0.70	Medium-Large	

	The Preschool Anxiety Scale (PAS)	Repeated measures pre-intervention and follow-up	$d_z = 1.18$	Large	
	Anxiety Disorders Interview Schedule for Children (ADIS-C) – Number of Anxiety Disorders	Repeated measures pre-intervention and follow-up	$d_z = 1.49$	Large	
Carlyle (2014) N = 6	The Preschool Anxiety Scale (PAS)	Repeated measures pre-post intervention	$g = 0.67$	Medium-Large	Low
Gallegos-Guajardo et al. (2020) N = 49	The Preschool Anxiety Scale (PAS)	Repeated measures pre-post intervention	$g = 0.06$	Small	Low
Garcia et al. (2019) N = 25 pre-post N = 22 pre-follow-up	The Spence Children's Anxiety Scale (SCAS)	Repeated measures pre-post intervention	$g = 0.57$	Medium	Low
	The Child Behaviour Checklist (CBCL) – Internalising Problems	Repeated measures pre-post intervention	$g = 0.32$	Small-Medium	
	The Spence Children's Anxiety Scale (SCAS)	Repeated measures pre-intervention and follow-up	$g = 0.60$	Medium-Large	

	The Child Behaviour Checklist (CBCL) – Internalising Problems	Repeated measures pre-intervention and follow-up	$g = 0.71$	Medium-Large	
Pahl & Barrett (2010)	The Preschool Anxiety Scale (PAS)	Repeated measures pre-post intervention	$g = 0.29$	Small-Medium	High
N = 263	The Preschool Anxiety Scale (PAS)	Repeated measures pre-intervention and follow-up	$g = 0.40$	Small-Medium	
	The Preschool Anxiety Scale (PAS)	Treatment vs WLC Group	$g = -0.03$	Small	
van der Mheen et al. (2020)	Anxiety Disorders Interview Schedule for Children (ADIS-C) – Number of Anxiety Disorders	Repeated measures pre-post intervention	$g = 0.98$	Large	Low
N = 28	Anxiety Disorders Interview Schedule for Children (ADIS-C) – Interference Score	Repeated measures pre-post intervention	$g = 0.74$	Medium-Large	
	The Child Behaviour Checklist (CBCL) – Internalising Problems	Repeated measures pre-post intervention	$g = 0.27$	Small-Medium	

The Child Behaviour Checklist (CBCL) – Anxiety Problems	Repeated measures pre-post intervention	$g = 0.43$	Small-Medium
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Conclusion and Recommendations

This systematic review evaluated the effectiveness of the Fun FRIENDS intervention in reducing anxiety outcomes for young children. Seven studies conducted in five different countries were critically reviewed using a Weight of Evidence framework (Gough, 2007). Two studies received a high weighting while the remaining five had low weightings. All of the studies reviewed found reductions in one or more anxiety outcomes following the Fun FRIENDS programme, with effect sizes ranging from small to large. This suggests that Fun FRIENDS, an early intervention programme drawing on principles from CBT, could be a promising intervention for educational psychologists to recommend in schools and settings, particularly as a targeted intervention for children with or at risk of developing anxiety. These findings have important social implications and relevance in the wider educational context, where we are seeing increasing mental health concerns in children and young people (DHSC & DfE, 2017).

However, while the current evidence for Fun FRIENDS as an intervention to treat anxiety is promising, it is limited by the use of within-participants designs with small sample sizes and lack of control conditions. The ethical issue associated with withholding intervention is acknowledged, especially where participants are recognised as clinically anxious. However, more RCTs with large samples and utilising wait-list control groups would provide stronger evidence for the intervention's effectiveness in reducing anxiety (Petticrew & Roberts, 2003). This is because RCTs control better for confounding variables and allow us to conclude with more confidence that

any reduction in anxiety is due to the intervention rather than another variable.

The small-N design (Carlyle, 2014) was the only study with a UK sample, and this was carried out in a clinical setting. While this study found a reduction in anxiety for each participant following the intervention, the small sample size limits how far these results can be generalised to the wider population.

Larger samples with UK populations and carried out in UK schools would be useful for assessing not only generalisation to the UK population but also the feasibility and practicality of carrying out this intervention within the UK education system.

This small evidence-base is also divided into studies investigating the intervention for all children, as a preventative programme, or those using it with clinical populations as a treatment for anxiety. While both types of study measured reductions in anxiety from pre- to post-intervention, more evidence is needed in both fields to consider the utility of this intervention as a preventative vs treatment programme.

Future research could also focus on longitudinal studies where outcomes are measured beyond a 12-month follow up, to assess whether this early intervention programme is effective at reducing anxiety throughout childhood and into adolescence. Evidence suggests there is a link between anxiety and academic outcomes (Mazzone et al., 2007), therefore it would be interesting for future research to investigate how far the benefits of the Fun FRIENDS intervention extends. In particular, studies could look at whether a reduction

in anxiety as a result of this intervention mediates social and learning outcomes.

It is also recommended that in the future, studies report their effect sizes, as these allow for better comparison across studies, are independent of sample size and will aid future researchers in the field with carrying out power calculations (Lakens, 2013). Finally, it is acknowledged that although efforts were made to maintain objectivity and rigour throughout this review process, there may still be influences of subjectivity and bias in this review. For example, in the selection and application of the WoE A coding protocols to each study, and the development of WoE C criteria. The impact of this was minimised by encouraging complete transparency at each stage of the review process, such that it can be scrutinised and replicated.

In summary, the 'Fun FRIENDS' intervention is a promising early intervention programme for reducing anxiety in young children. However, further research within the UK utilising RCTs and long-term follow-up is required to strengthen the evidence-base and support the use of this intervention in schools and settings.

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Appendices

Appendix A – Excluded Studies

Excluded Studies with Reasons

Reference	Reason (with reference to exclusion criteria)
Horton, J., & Kraftl, P. (2018). Three playgrounds: Researching the multiple geographies of children’s outdoor play. <i>Environment and Planning A</i> , 50(1), 214–235.	2, 3 and 5
Fisak, B., Gallegos-Guajardo, J., Verreynne, M., & Barrett, P. (2018). The results of a targeted open trial of the Fun FRIENDS combined with a concurrent parent-based intervention. <i>Mental Health and Prevention</i> , 10, 35–41.	2 – concurrent intervention
Weist, M. D., & McDaniel, H. (2013). The international emphasis of Advances in School Mental Health Promotion. <i>Advances in School Mental Health Promotion</i> , 6(2), 81–82.	2, 3, 4 and 5
Rosenbaum, P., & Gorter, J. W. (2012). The “F-words” in childhood disability: I swear this is how we should think! <i>Child: Care, Health and Development</i> , 38(4), 457–463.	2, 3, 4 and 5
van der Mheen, M., van Beynum, I. M., Dulfer, K., van der Ende, J., van Galen, E., Duvekot, J., Rots, L. E., van den Adel, T. P. L., Bogers, A. J. J. C., McCusker, C. G., Casey, F. A., Helbing, W. A., & Utens, E. M. W. J. (2018). The CHIP-Family study to improve the psychosocial wellbeing of young children with congenital heart disease and their families: design of a randomized controlled trial. <i>BMC Pediatrics</i> , 18(1), 230.	2 – concurrent intervention
Salguero, A., Gonzalez-Boto, R., Tuero, C., & Marquez, S. (2004). Relationship between perceived physical ability and sport participation motives in young competitive swimmers. <i>The Journal of Sports Medicine and Physical Fitness</i> , 44(3), 294–299.	2, 4 and 5
Gillespie, J, Midmore, C, Hoeflich, J, Ness, C, Ballard, P, & Stewart, L. (2015). Parents as the	2, 3, 4 and 5

<p>start of the solution: A social marketing approach to understanding triggers and barriers to entering a childhood weight management service. <i>Journal of Human Nutrition and Dietetics</i>, 28(S1), 83-92.</p>	
<p>Cross, A., Rosenbaum, P., Grahovac, D., Kay, D., & Gorter, J. W. (2015). Knowledge mobilization to spread awareness of the “F-words” in childhood disability: lessons from a family-researcher partnership. <i>Child: Care, Health and Development</i>, 41(6), 947–953.</p>	2, 3, 4 and 5
<p>Pahl, K. M., & Barrett, P. M. (2010). Interventions for anxiety disorders in children using group cognitive-behavioral therapy with family involvement. <i>Evidence-Based Psychotherapies for Children and Adolescents</i>, 61–79.</p>	2, 3 and 4
<p>Soper, A. K., Cross, A., Rosenbaum, P., & Gorter, J. W. (2019). Exploring the international uptake of the “F-words in childhood disability”: A citation analysis. <i>Child: Care, Health and Development</i>, 45(4), 473–490.</p>	2, 3 and 4
<p>Batra, P. (2013). <i>Evaluation of the Hong Kong FRIENDS Intervention Program for Childhood Anxiety</i>. Alliant International University.</p>	6 - dissertation
<p>Salguero, A., Gonzalez-Boto, R., Tuero, C., & Marquez, S. (2003). Development of a Spanish version of the Participation Motivation Inventory for young competitive swimmers. <i>Perceptual and Motor Skills</i>, 96(2), 637–646.</p>	2, 3, 4 and 5
<p>Graham, D., Paget, S. P., & Wimalasundera, N. (2019). Current thinking in the health care management of children with cerebral palsy. <i>The Medical Journal of Australia</i>, 210(3), 129–135.</p>	2, 3, 4 and 5
<p>Lewis, K. M. (2013). <i>An Ounce of Prevention: Evaluation of the Fun FRIENDS Program for Kindergarteners in a Rural School</i>. Blacksburg: Virginia Polytechnic Institute and State University. ProQuest Dissertation Publishing.</p>	6 - dissertation
<p>Cross, A., Rosenbaum, P., Grahovac, D., Brocklehurst, J., Kay, D., Baptiste, S., & Gorter, J. W. (2018). A Web-Based Knowledge Translation Resource for Families and Service Providers (The “F-Words” in Childhood Disability Knowledge</p>	2, 4 and 5

<p>Hub): Developmental and Pilot Evaluation Study. <i>JMIR Rehabilitation and Assistive Technologies</i>, 5(2), e10439.</p>	
<p>Willis, C. E., Reid, S., Elliott, C., Rosenberg, M., Nyquist, A., Jahnsen, R., & Girdler, S. (2018). A realist evaluation of a physical activity participation intervention for children and youth with disabilities: what works, for whom, in what circumstances, and how? <i>BMC Pediatrics</i>, 18(1), 113.</p>	<p>2, 3, 4 and 5</p>
<p>Kato, S., & Shimizu, E. (2017). A pilot study on the effectiveness of a school-based cognitive-behavioral anxiety intervention for 8- and 9-year-old children: A controlled trial in Japan. <i>Mental Health and Prevention</i>, 8, 32–38.</p>	<p>4</p>
<p>Pahl, K. M., & Barrett, P. M. (2007). The Development of Social-Emotional Competence in Preschool-Aged Children: An Introduction to the Fun FRIENDS Program. <i>Australian Journal of Guidance and Counselling</i>, 17(1), 81–90.</p>	<p>3 – not primary research</p>

Appendix B – Mapping the Field

Table 6

Mapping the field

Author	N	Participants	Location	Design	Interventionalist and Setting	Anxiety Measure	Measures taken
Anticich et al. (2013)	488	Age 4 – 7	Australia	Group Experimental Randomised Control Trial	Teachers in school setting	PAS	Pre-intervention Post-intervention 12-month follow-up
Barrett, Fisak & Cooper (2015)	31	Age 5 – 7 Clinically Anxious	Australia	Quasi-experimental One group pre-test post-test	Clinical Psychologists at community health clinic	ADIS-C PAS	Pre-intervention Post-intervention 12-month follow-up
Carlyle (2014)	6	Age 4 – 7 Referred for Anxiety	UK	Small-N	Non-teaching staff in CAMHS setting	PAS	Pre-intervention Post-intervention

Gallegos-Guajardo, et al. (2020)	49	Age 6 – 7	Mexico	Quasi-experimental One group pre-test post-test	Teachers in school setting	PAS	Pre-intervention Post-intervention
Garcia et al. (2019)	25	Age 5 – 7	Brazil	Quasi-experimental One group pre-test post-test	Non-teaching staff outside of schools setting	SCAS CBCL	Pre-intervention Post-intervention 2-month follow-up
Pahl & Barrett (2010)	263	Age 4 – 6	Australia	Group Experimental Randomised Control Trial	Post-graduate psychology students in school setting	PAS	Pre-intervention Post-intervention 12-month follow up
van der Mheen et al. (2020)	28	Age 4 – 8 Clinically anxious.	Netherlands	Quasi-experimental One group pre-test post-test	Psychologists in Clinical Setting	ADIS-C CBCL	Pre-intervention Post-intervention

Appendix C – Weight of Evidence

Weight of Evidence A – Methodological Quality

Two coding protocols were used (Gersten et al., 2005; Horner et al., 2005). The Gersten et al. (2005) protocol was used to evaluate the six experimental and quasi-experimental designs. This was amended slightly as in Jones (2020) to account for the fact some studies did not use a control group, and some used universal populations while others used clinical populations (See Table 7; Jones, 2020).

Table 7

Amendments and Rationale

Original Indicator	Amended Indicator	Rationale
Was sufficient information provided to determine/confirm the participants demonstrated the disability(ies) or difficulties presented?	Was sufficient information provided to determine/confirm the population of participants to which the results can be generalised?	Some of the studies used clinically anxious populations while others used universal populations.
Were appropriate procedures used to increase the likelihood that relevant characteristics of participants in the sample were comparable across conditions?	Were appropriate procedures used to increase the likelihood that relevant characteristics of participants in the sample were comparable across conditions, if a control group was used?	Not all studies with quasi-experimental designs included a control group.
Was sufficient information given characterizing the interventionists or teachers provided? Did	Was sufficient information given characterizing the interventionists or teachers provided?	Not all studies with quasi-experimental designs included a control group.

it indicate whether they were comparable across conditions?

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?

Did the study provide not only internal consistency reliability but also test-retest reliability and interrater reliability (when appropriate) for outcome measures?

Not all studies with quasi-experimental designs included a control group.

Each study was given a WoE A rating according to the following criteria.

These were adapted from Gersten et al. (2005) to acknowledge where studies may have met slightly fewer essential criteria but met a large number of desirable criteria.

Table 8

Criteria for WoE A using Gersten et al. (2005)

WoE A Rating	Criteria
3 (High)	Study meets at least 9 essential criteria and at least 4 desirable criteria
2 (Medium)	Study meets at least 9 essential criteria and fewer than 4 desirable criteria OR Study meets 7-8 essential criteria and at least 4 desirable criteria
1 (Low)	Study meets 7-8 essential criteria and fewer than 4 desirable criteria OR

Study meets fewer than 7 essential criteria and at least 4 desirable criteria

0
(Very Low) Study meets fewer than 7 essential criteria and fewer than 4 desirable criteria

Ratings assigned based on these criteria are shown in Table 9.

Table 9

WoE A ratings based on Gersten et al. (2005)

Study	Essential Criteria	Desirable Criteria	WoE A
Anticich et al. (2013)	9	5	3
Barrett et al. (2015)	5	6	1
Gallegos-Guajardo et al. (2020)	7	1	1
Garcia et al. (2019)	6	3	0
Pahl & Barrett (2010)	10	4	3
van der Mheen et al. (2020)	7	3	1

The Horner et al. (2005) protocol was used to evaluate the small-N design, assigning a rating between 0 – 3 according to criteria defined in Mills (2019).

These WoE A criteria are displayed in Table 10 (Mills, 2019).

Table 10

Criteria for WoE A using Horner et al. (2005)

Section	Scoring Criteria
A	3 = all criteria are fulfilled 2 = two criteria are fulfilled 1 = one of the criteria is fulfilled 0 = no criteria are fulfilled
B	3 = all criteria are fulfilled 2 = three/four criteria are fulfilled 1 = one/two criteria are fulfilled 0 = no criteria are fulfilled
C	3 = all criteria are fulfilled 2 = two criteria are fulfilled 1 = one of the criteria is fulfilled 0 = no criteria are fulfilled
D	3 = all criteria are fulfilled 2 = two criteria are fulfilled 1 = one of the criteria is fulfilled 0 = no criteria are fulfilled
E	3 = all criteria are fulfilled 2 = two criteria are fulfilled 1 = one of the criteria is fulfilled 0 = no criteria are fulfilled
F	3 = Experimental effects replicated across 3+ participants and in a unique setting 2 = Experimental effects replicated across 3+ participants 1 = Experimental effects are replicated across 2 participants 0 = Experimental effects are replicated with 1 or no participants
G	3 = all criteria are fulfilled 2 = two or three criteria are fulfilled 1 = one of the criteria is fulfilled 0 = no criteria are fulfilled
Total WoE A Rating	Sum of A-G scores divided by 7 (average)

The rating assigned based on these criteria is shown in Table 11.

Table 11

WoA ratings based on Horner et al. (2005)

Study	Dimensions							WoE A
	A	B	C	D	E	F	G	
Carlyle (2014)	1	2	1	1	0	2	2	1.29

A completed example of each coding protocol can be found in Appendix D.

Weight of Evidence B – Methodological Relevance

This review question is assessing the effectiveness of an intervention.

According to Petticrew and Roberts (2003), Randomised Control Trials (RCTs) are the best evidence for answering this kind of question, followed by quasi-experimental designs and cohort studies. Quasi-experimental designs which use a control group are considered preferable to those which do not (Harris et al., 2005). The criteria in Table 12 were developed to assign each study a rating of 0 – 3 accordingly, and these ratings are displayed in Table 13.

Table 12

WoE B Criteria

Rating	Criteria
3 (High)	Randomised control trials 1. Intervention group compared with at least one control group 2. Random assignment to intervention or control group

	3. Measures taken pre-intervention and post-intervention
2 (Medium)	<p>Quasi-experimental designs with control group</p> <ol style="list-style-type: none"> 1. Intervention group compared with at least one control group 2. Non-random assignment to intervention or control. 3. Measures taken pre-intervention and post-intervention
1 (Low)	<p>Quasi-experimental designs, cohort studies, single case experimental designs</p> <ol style="list-style-type: none"> 1. No Control Group 2. Measures taken pre-intervention and post-intervention
0 (Very Low)	Qualitative research, surveys, case control studies, non-experimental evaluations

Table 13

WoE B Ratings

Study	WoE B
Anticich et al. (2013)	3
Barrett et al. (2015)	1
Carlyle (2014)	1
Gallegos-Guajardo et al. (2020)	1
Garcia et al. (2019)	1
Pahl & Barrett (2010)	3
van der Mheen et al. (2020)	1

Weight of Evidence C (WoE C) – Topic Relevance

WoE C ratings are assigned according to topic relevance to the review question. The criteria in Table 14 were developed and each study received a 0 – 3 rating based on their average score across these four criteria. Member countries of the Organisation for Economic Co-operation and Development (OECD, 2020) were considered more similar to the UK therefore studies carried out in OECD countries were giving a higher WoE C. The scores and WoE C ratings are displayed in Table 15.

Table 14

WoE C Criteria

Criteria	Scoring	Rationale
A – Intervention Fidelity:	3 = Study meets all 4 criteria	This review is assessing the effectiveness of the Fun FRIENDS intervention, therefore the studies are more relevant if they carry out the intervention as intended.
<ul style="list-style-type: none"> • Sessions follow the Fun FRIENDS leader’s manual 	2 = Study meets 3 criteria	
<ul style="list-style-type: none"> • Parental involvement 	1 = Study meets 1-2 criteria	
<ul style="list-style-type: none"> • 10 core sessions 1-1.5 hours in length 	0 = Study meets none of the criteria	
<ul style="list-style-type: none"> • Trained facilitators 		
B – Application to School Setting	3 = Delivered in school setting by teaching staff	This review is looking at interventions which can be implemented in schools.
	2 = Delivered in school setting by non-teaching trained interventionalist	
	1 = Delivered outside of school setting by trained interventionalist	

	0 = Delivered outside of school setting by untrained interventionalist	
C – Participants	<p>3 = Clinically anxious children</p> <p>2 = Children referred for concerns around anxiety</p> <p>1 = Universal population (study included both anxious and non-anxious children)</p> <p>0 = No information about participants</p>	This review considers the effectiveness of Fun FRIENDS on reducing anxiety therefore it is more relevant to children with higher anxiety.
D – Location	<p>3 = Conducted in the UK</p> <p>2 = Conducted in another OECD member country</p> <p>1 = Not conducted in an OECD member country</p> <p>0 = No information about study location</p>	To consider how far study findings can be generalised to the UK population and education system.

Table 15

WoE C Ratings

Study	Criteria A	Criteria B	Criteria C	Criteria D	WoE C
Anticich et al. (2013)	2	3	1	2	2
Barrett et al. (2015)	3	1	3	2	2.25
Carlyle (2014)	3	1	2	3	2.25
Gallegos-Guajardo	3	3	1	2	2.25

et al. (2020)					
Garcia et al. (2019)	3	1	1	1	1.5
Pahl & Barrett (2010)	3	2	1	2	2
van der Mheen et al. (2020)	3	1	3	2	2.25

Appendix D – Example Coding Protocols

Coding Protocol: Anticich et al. (2013)

Coding Protocol: Gersten, R., Fuchs, L. S., Compton, D., Coyne, M., Greenwood, C., & Innocenti, M. S. (2005). Quality indicators for group experimental and quasi-experimental research in special education. *Exceptional Children, 71(2)*, 149-164

Name of Coder:

Date: 16.01.21

Full Study Reference: Anticich, S. A. J., Barrett, P. M., Silverman, W., Lacherez, P., & Gillies, R. (2013). The prevention of childhood anxiety and promotion of resilience among preschool-aged children: A universal school based trial. *Advances in School Mental Health Promotion, 6(2)*, 93–121.

Essential Quality Indicators – Quality Indicators for Describing Participants

Was sufficient information provided to determine/confirm the population of participants to which the results can be generalised?

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, if a control group was used?

Yes

No

N/A

Unknown/Unable to Code

Was sufficient information given characterizing the interventionists or teachers provided?

Yes

No

N/A

Unknown/Unable to Code

Essential Quality Indicators – Quality Indicators for 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

Essential Quality Indicators – Quality Indicators for Outcome Measures

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

- Yes
- No
- N/A
- Unknown/Unable to Code

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

- Yes
- No
- N/A
- Unknown/Unable to Code

Essential Quality Indicators – Quality Indicators for 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?

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

	Total	Score
Essential Quality Indicators ≥ 9 = score 2 7-8 = score 1 < 7 = score 0	9	2
Desirable Quality Indicators ≥ 4 = score 1 < 4 = score 0	5	1
Weighting of Evidence A Rating Score for Essential + Desirable		3

Coding Protocol: Carlyle (2014)

Coding Protocol: Horner, R. H., Carr, E. G., Halle, J., McGee, G., Odom, S., & Wolery, M. (2005). The use of single-subject research to identify evidence-based practice in special education, *Exceptional Children*, 71(2), 165-179.

Name of Coder:

Date: 29.12.20

Full Study Reference: Carlyle, D. A. (2014). With a little help from FUN FRIENDS young children can overcome anxiety. *Community Practitioner: The Journal of the Community Practitioners' & Health Visitors' Association*, 87(8), 26–29.

Section A: Description of Participants and Settings

Participants are described with sufficient detail to allow others to select individuals with similar characteristics (e.g., age, gender, disability, diagnosis)

Yes

No

N/A

Unknown/Unable to Code

The process for selecting participants is described with replicable precision

Yes

No

N/A

Unknown/Unable to Code

Critical features of the physical setting are described with sufficient precision to allow replication.

Yes

No

N/A

Unknown/Unable to Code

Section B: Dependent Variable

Dependent variables are described with operational precision

Yes

No

N/A

Unknown/Unable to Code

Each dependent variable is measured with a procedure that generates a quantifiable index.

Yes

No

N/A

Unknown/Unable to Code

Measurement of the dependent variable is valid and described with replicable precision.

Yes

No

N/A

Unknown/Unable to Code

Dependent variables are measured repeatedly over time.

Yes

No

N/A

Unknown/Unable to Code

Data are collected on the reliability or interobserver agreement associated with each dependent variable, and IOA levels meet minimal standards (e.g., IOA = 80%; Kappa = 60%).

Yes

No

N/A

Unknown/Unable to Code

Section C: Independent Variable

Independent variable is described with replicable precision.

Yes

No

N/A

Unknown/Unable to Code

Independent variable is systematically manipulated and under the control of the experimenter.

Yes

No

N/A

Unknown/Unable to Code

Overt measurement of the fidelity of implementation for the independent variable is highly desirable

Yes

No

N/A

Unknown/Unable to Code

Section D: Baseline

Includes a baseline phase that provides repeated measurement of a dependent variable

Yes

No

N/A

Unknown/Unable to Code

Establishes a pattern of responding that can be used to predict the pattern of future performance, if introduction or manipulation of the independent variable did not occur.

Yes

No

N/A

Unknown/Unable to Code

Baseline conditions are described with replicable precision.

Yes

No

N/A

Unknown/Unable to Code

Section E: Experimental Control/Internal Validity

The design provides at least three demonstrations of experimental effect at three different points in time.

Yes

No

N/A

Unknown/Unable to Code

The design controls for common threats to internal validity (e.g., permits elimination of rival hypotheses).

Yes

No

N/A

Unknown/Unable to Code

The results document a pattern that demonstrates experimental control.

Yes

No

N/A

Unknown/Unable to Code

Section F: External Validity

Experimental effects are replicated across participants, settings, or materials to establish external validity.

Yes

No

N/A

Unknown/Unable to Code

Section G: Social Validity

The dependent variable is socially important.

Yes

No

N/A

Unknown/Unable to Code

The magnitude of change in the dependent variable resulting from the intervention is socially important

Yes

No

N/A

Unknown/Unable to Code

Implementation of the independent variable is practical and cost effective.

Yes

No

N/A

Unknown/Unable to Code

Social validity is enhanced by implementation of the independent variable over extended time periods, by typical intervention agents, in typical physical and social contexts.

Yes

No

N/A

Unknown/Unable to Code

Weight of Evidence A Rating	1.29
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