



THE UNIVERSITY *of* EDINBURGH

This thesis has been submitted in fulfilment of the requirements for a postgraduate degree (e.g. PhD, MPhil, DClinPsychol) at the University of Edinburgh. Please note the following terms and conditions of use:

This work is protected by copyright and other intellectual property rights, which are retained by the thesis author, unless otherwise stated.

A copy can be downloaded for personal non-commercial research or study, without prior permission or charge.

This thesis cannot be reproduced or quoted extensively from without first obtaining permission in writing from the author.

The content must not be changed in any way or sold commercially in any format or medium without the formal permission of the author.

When referring to this work, full bibliographic details including the author, title, awarding institution and date of the thesis must be given.



THE UNIVERSITY *of* EDINBURGH

Implementing School-Based Interventions for Mental Health: A Research Portfolio

**Gemma K Brown
Doctorate of Clinical Psychology
University of Edinburgh
August 2018**

DCLinPsychol Declaration of Own Work

Name: Gemma Brown

Title of Work: Implementing School-Based Interventions for Mental Health: A Research Portfolio

I confirm that this work is my own except where indicated, and that I have:

- Read and understood the Plagiarism Rules and Regulations
 - Composed and undertaken the work myself
 - Clearly referenced/listed all sources as appropriate
 - Referenced and put in inverted commas any quoted text of more than three words (from books, web, etc.)
 - Given the sources of all pictures, data etc. that are not my own
 - Not made undue use of essay(s) of any other student(s), either past or present (or where used, this has been referenced appropriately)
 - Not sought or used the help of any external professional agencies for the work (or where used, this has been referenced appropriately)
 - Not submitted the work for any other degree or professional qualification except as specified
 - Acknowledged in appropriate places any help that I have received from others (e.g. fellow students, technicians, statisticians, external sources)
 - Complied with other plagiarism criteria specified in the Programme Handbook
 - I understand that any false claim for this work will be penalised in accordance with the University regulations
 - Received ethical approval from the School of Health in Social Science, University of Edinburgh
- OR
- Received ethical approval from an approved external body and registered this application and confirmation of approval with the School of Health in Social Science's Ethical Committee

Signature

Date

Acknowledgements

I would like to thank everyone who took the time to take part in my thesis. This would not have been possible without you and I hope have reasonably represented your views.

My supervisors have been invaluable sources of support and I would not have been able to do this without them. Professor Matthias Schwannauer, thank you for your guidance, containment and encouragement. Dr Jane Owens, thank you for your thoughtfulness, patience and support with everything throughout this year. I would also like to acknowledge Dr Helen Griffiths for being a source of encouragement throughout training and Cathy Richards for supporting the project.

To the wonderful DClin folk I am delighted to have trained with, you have filled the last few years with so much laughter and fun! I would like to acknowledge Laura for co-rating my papers, Helen for proofreading and to David for navigating stats with me. Max, thank you for introducing me to coffee and making the endless trips to the postgrad room a bit more fun.

To my lovely friends who have helped me along the way, I hope you all know who you are and that I appreciate you. Heather and Anna, you keep me motivated and smiling. Emma, Yvonne and Christina, you have always been wonderful but thank you for filling the longest parts of the last year with colour and putting up with me. I am so grateful for everything over the years.

Finally, to my family - Mum, Dad, Calum, Roy, and Gran - thank you for all you have done and do, believing I would get here when I didn't and for giving me the determination to do so.

Table of Contents

Declaration of Own Work	2
Acknowledgments	3
Research Portfolio Abstract	6
Lay Summary	8
List of Tables	10
List of Figures	11
Chapter 1: Systematic Review	12
<i>Abstract</i>	13
<i>Introduction</i>	14
<i>Method</i>	17
<i>Results</i>	22
<i>Discussion</i>	42
<i>Conclusion</i>	46
<i>References</i>	47
Chapter 2: Empirical Project	56
<i>Abstract</i>	57
<i>Introductions</i>	59
<i>Method</i>	64
<i>Quantitative Data</i>	68
<i>Qualitative Data</i>	72
<i>Results</i>	77
<i>Quantitative Analysis</i>	77
<i>Qualitative Analysis</i>	80
<i>Discussion</i>	108
<i>Conclusion</i>	117
<i>References</i>	118
<i>List of Abbreviations</i>	128
List of Appendices	129
<i>Appendix A: Author Guidelines for Systematic Review</i>	129
<i>Appendix B: Systematic Review Protocol (PROSPERO)</i>	140
<i>Appendix C: Quality Rating Tool</i>	144
<i>Appendix D: Author Guidelines for Empirical Project</i>	147

<i>Appendix E: Ethical Approval</i>	155
<i>Appendix F: Empirical Project Protocol</i>	164
<i>Appendix G: LIAM Referral Guidance Sheet</i>	170
<i>Appendix: H: Coaching Evaluation Questionnaire</i>	171
<i>Appendix I: Information Sheet & Consent Form (Staff Interviews)</i>	173
<i>Appendix J: Information Sheet & Consent Form (Parents & CYP)</i>	175
<i>Appendix K: Interview Schedule</i>	180
<i>Appendix L: Example of coding and analysis</i>	181
<i>Appendix M: Quotes from Coaching Evaluation</i>	183

Research Portfolio Abstract

Background: Difficulties with anxiety among children and young people are common and can impact upon their developmental trajectory leading to adverse outcomes in later life. There is, therefore, a need to increase access to early intervention services. Existing research has indicated that school-based cognitive behavioural interventions are effective for children and young people experiencing difficulties with anxiety, yet there remains a proportion of the population for whom they are not effective. In addition, there is a lack of research on how these may be implemented in real world settings as opposed to a research trial. The present research focuses on the provision of cognitive behavioural school-based interventions in two parts: a systematic review of psychological, interpersonal and social variables as predictors, mediators and moderators of mental health outcomes following a school-based intervention and an empirical mixed methods evaluation of the facilitators and barriers to the implementation of a school-based intervention.

Method: A systematic search of electronic databases for studies examining interpersonal, psychological and social predictors, moderators and mediators of mental health outcome following school-based cognitive behavioural interventions was conducted. Effect sizes for these analyses were calculated and the quality of eligible studies was assessed using a standardised rating tool. Within the empirical project, the implementation of a school-based cognitive behavioural intervention was evaluated through a mixed methods approach. Semi-structured interviews with stakeholders in the intervention were analysed using grounded theory integrated with framework analysis. Quantitative data on the reach of the intervention, practitioner evaluation of training and coaching as well as routine outcome measures from children and young people receiving the intervention was collected.

Results: Within the systematic review, twenty-two studies (N=22) met the predefined eligibility criteria. There was heterogeneity in the variables explored, effect size of these on treatment outcome and the quality of the literature within the included studies. Cognitive style was found to mediate treatment outcome, but there was limited evidence for other predictors, mediators and moderators of treatment outcome within the review.

Quantitative results of the empirical project indicated that the model of the intervention was acceptable to both practitioners and children and young people, and preliminary data indicated a significant improvement in mental health outcomes. Facilitators that emerged from qualitative data included an *enabling context, therapeutic engagement, motivation and congruence, self-efficacy and containment and encouragement*. The *exclusivity of the intervention, a lack of systemic understanding and transparency* as well as *demands and pressure on resources* were barriers to implementation.

Conclusions: Although preliminary evidence for potential predictors, mediators and moderators is presented, further research with improvements in the design and reporting of explanatory variables on treatment outcome is required prior to informing clinical decision-making. The successful implementation of school-based interventions requires multi-agency integration and collaboration as well as on-going support in managing systemic pressures and skill development.

Lay Summary

Background:

Experiencing difficulties with anxiety is common for children and young people (CYP) and can lead to more difficulties in later life. However, it can be difficult for CYP to access treatment and there is a need to improve earlier access to treatment, before difficulties may become worse. Research has shown that support informed by cognitive behavioural therapy in schools can help CYP to manage difficulties with anxiety, but also that there are times when this approach is less effective. This may be related to whether it is the right treatment for the person but also how the treatment is delivered and put into practice. This thesis focuses on learning how we can improve the delivery of school-based cognitive behavioural treatment in two parts:

- 1) A systematic review of the literature that summarises what psychological, social and relationship factors research has considered to date in relation to how or why treatment works and if that differs between groups of people.
- 2) A research project that evaluates putting into practice, or implementing, a cognitive behavioural school-based treatment as well as exploring what factors act as facilitators or barriers to this process.

Main Findings:

- 1) Twenty-two studies were included in the review and there was great variation in what had been explored in these studies. Negative thinking style was the most common factor examined in relation to the way treatment may lead to change in mental health outcomes. No social factors were found to influence treatment outcome. However, the quality of the research also varied, limiting the reliability of conclusions.
- 2) The treatment was delivered by non-mental health professionals in schools. Interviews were completed with managers and those delivering the treatment to CYP. Themes identified as facilitating implementation were practitioners being motivated, encouraged, contained and having belief in their own abilities. An enabling context was also facilitative alongside collaborating with other people in a CYP's life. Not understanding or knowing how others worked as well as not integrating the treatment with other services was a

barrier. Demands and pressure on resources also made implementation more challenging. Data evaluating the form of the treatment found that it was acceptable to both practitioners and CYP. Significant improvements were found on initial data on mental health outcomes for CYP.

Conclusions:

1) Although there is some evidence for how treatment may work in relation to thinking style, there is a need for more research of better quality exploring how or why school-based treatments work as well as on factors that may predict who is more likely to benefit from treatment before it can be used to make clinical recommendations.

2) In order to implement school-based treatments well, different agencies (i.e. health and education) need to work together and consider how they fit with other services that are available. On-going support for those delivering the treatment to CYP helps develop skills and overcome barriers.

List of Tables

Chapter 1: Systematic Review

Table 1.1: Study characteristics of included studies.....	22
Table 1.2: Treatment effect size in comparison to control	28
Table 1.3: Effect sizes of psychological predictors mediators and moderators.	32
Table 1.4: Effect sizes of interpersonal and social predictors, mediators and moderators.	38
Table 1.5: Quality ratings of included studies using a standardised rating tool.	41

Chapter 2: Empirical Project

Table 2.1: Overview of the intervention, Let's Introduce Anxiety Management.....	68
Table 2.2: Intended learning objectives from training	73
Table 2.3: Participants characteristics.	79
Table 2.4: Within subjects t test for pre and post routine outcome measures	80

List of Figures

Chapter 1: Systematic Review

Figure 1.1: PRISMA flowchart of the study selection process.....	21
--	----

Chapter 2: Empirical Project

Figure 2.1: Active framework for implementation.....	61
Figure 2.2: A framework of the key functions of process evaluation and the relationships amongst them	63
Figure 2.3: Diagrammatic representation of mixed methods	65
Figure 2.4: Aims of Let's Introduce Anxiety Management	66
Figure 2.5: Facilitators and barriers to the implementation of LIAM	82
Figure 2.6: Themes and sub-themes as facilitators to implementation across stakeholders	83
Figure 2.7: Themes and sub-themes as barriers to implementation across stakeholders	84

Predictors, mediators and moderators of school-based cognitive behavioural interventions: a systematic review of interpersonal, psychological and social variables.

Gemma Brown^{1,2}, Matthias Schwannauer² and Jane Owens¹

¹Child and Adolescent Mental Health Service, Royal Edinburgh Hospital, NHS Lothian, Edinburgh, UK

²Clinical and Health Psychology, School of Health in Social Science, University of Edinburgh, UK

Corresponding author:

Gemma Brown

Gemma.k.brown@nhslothian.scot.nhs.uk

Telephone: 0131 537 6364

Prepared for submission to *School-Based Mental Health*

See Research Portfolio Appendix A

Word Count: 6515

Abstract

Background: Existing research reviews have explored the effectiveness of school-based cognitive behavioural interventions, yet there remains a proportion of the population for whom they are not effective. To date, reviews have examined a restrictive number of potential moderators, mediators and predictors of treatment outcome. The current article aims to review what psychological, interpersonal and social variables have been explored as possible predictors, mediators and moderators of mental health outcomes following a school-based intervention.

Method: Electronic databases (EMBASE, MEDLINE, ERIC and PsycINFO) were systematically searched for studies examining interpersonal, psychological and social predictors, moderators and mediators of mental health outcome following school-based cognitive behavioural interventions up until June 2018. Effect sizes of analyses were calculated and a standardised rating quality assessment tool was used to appraise the quality of included studies.

Results: Of 3501 studies identified, 22 studies met the eligibility criteria. Results indicated that there was heterogeneity in the variables examined. Cognitive style was the most reported variable and found to be a significant mediator in treatment outcome with a small to large effect size. Additional variables were identified as potential areas for future research. Analysis of predictor variables was of lower quality in comparison to intervention trial design.

Conclusions: Preliminary evidence for potential explanatory variables is presented. Further studies with improved design and reporting of explanatory variables on treatment outcome is required prior to informing clinical decision making.

Keywords: school-based, mental health, predictors, treatment

Word Count: 229

Introduction

It is estimated that between 13 to 22% of children and young people (CYP) experience mental health difficulties in any given year (Merikangas et al. 2010; Polanczyk et al., 2015) and one in three before the age of sixteen (Green et al., 2005). Mental health disorders are associated with a range of adverse outcomes for CYP including: lower academic performance or school dropout (Essau et al., 2000; Hoagwood et al., 2007); suicide & risk associated behaviours (Rajaleid et al. 2015; Stagman & Cooper, 2010); greater developmental difficulties (Bain & Diallo, 2016; Creswell & Cartwright-Hatton, 2007) as well as problems with family and social life (Wood et al., 2008).

It is estimated that 50% of mental health difficulties occur by the age of 14 (Kessler et al., 2005; Kim-Cohen et al., 2003) and, without intervention, these can become chronic (Keller et al., 1992; Ollendick & King, 1994) and lead to adverse consequences in later life (Goodman et al., 2011; Green et al., 2005) as well as being a significant cost for society (Snell et al., 2013). Conversely, the promotion of social and emotional skills among CYP has been found to be associated with improvement in behaviour, academic performance, achievement and attitude (Durlak et al., 2011).

Despite high prevalence and negative outcomes, it is estimated that only 25 to 40 per cent of CYP with mental health difficulties receive input from services at a sufficiently early age or at all (Children's Society, 2008; Green et al., 2005; Gulliver et al. 2010). This has been partly attributed to a lack of prevention and early intervention provision highlighting the need for more services that are accessible to a greater proportion of CYP in universal settings (Division of Clinical Psychology, 2015). Schools offer a natural opportunity for implementing both universal & targeted interventions to promote mental health and can alleviate some barriers to accessing treatment including time, location, cost and stigma (Barrett & Pahl, 2006; Masia-Warner et al., 2006).

The most recent meta-analysis of school-based psychological programs ($N=81$) for anxiety and depression in CYP found a small effect for depression ($g=0.23$) and anxiety ($g=0.20$) as measured by improvements in symptoms when compared to a control (Werner-Seidler et al., 2017). Although this was maintained at initial follow up, the effect was smaller after 12 months ($g=0.11$ and 0.13). The authors note, however, that long term follow up of over 12 months studies were less frequent ($n=14$) and effects may therefore have been lost due to insufficient power. In addition, control conditions were variable

within this review and primarily wait list rather than active. Comparison of control group, however, was not found to significantly impact on treatment effect size in meta-regression. The overall findings from this review in relation to the effectiveness of school-based interventions are comparable to previous reviews. A meta-analysis of cognitive behavioural orientated interventions for aggressive behaviour found a small, positive effect ($d=-0.14$; Barnes et al., 2014) as have reviews of both school and community prevention programs for depression ($d=-0.26$ post-intervention; Merry et al., 2004a & risk difference (RD)= -0.09 post intervention $RD= -0.06$ at 12 month follow-up; Merry et al., 2012), whilst a review of school-based interventions for PTSD symptoms found a moderate to large effect size ($d = 0.68$; Rolfesnes & Idsoe, 2011). Reviews that have focused on cognitive behavioural interventions for anxiety or depression and not conducted a meta-analysis have found the majority of reported studies indicated a significant effect with effect size ranging from small ($d=0.21$ for anxiety, $d=0.11$ for depression) to large ($d=1.41, 1.37$, respectively; Caelear & Christensen, 2010; Neil & Christensen, 2009).

Cognitive behavioural interventions (CBIs) are a treatment of choice for a range of mental health difficulties in CYP (Fonagy et al., 2014; NHS Education Scotland, 2015), including at a prevention and early intervention level. Yet, while reviews indicate the small, positive effect of school-based CBIs, there remains a proportion of individuals for whom such approaches may not be effective. For example, a meta-analysis of cognitive behavioural therapy (CBT) with CYP reported that full recovery (i.e. the absence of all anxiety disorders) varied from 48% to 66% (Warwick et al., 2017).

The need to improve understanding of what works for whom and by which mechanisms is relevant to the delivery of effective and cost-effective interventions in the public sector and promoting positive outcomes for more CYP. Research into predictors, moderators and mediators of outcomes has the potential to further such understanding and improve clinical practice. Such variables are distinguished in the literature as follows: moderators identify subgroups for which there may be differential effects or “who it works for and who it does not”; mediators focus on “how” and “why” an intervention works by examining the process by which change occurs between intervention and outcome, and predictors are baseline variables which impact upon outcome independent of the main effect. While moderators may influence decisions around how an intervention should be targeted or identifying those who may more likely benefit from alternative treatment,

mediators can inform decisions around intervention components to increase efficacy or cost-effectiveness (Baron & Kenny, 1986; Kraemer et al., 2002).

Within the literature on school-based interventions for mental health, there is a paucity of reviews that look at factors that may impact on treatment outcome. However, predictors, moderators and mediators around treatment modality and demographics have initially been explored. School-based interventions may be delivered universally or targeted. That is, delivered to all individuals regardless of risk or presentation (e.g. to everyone in a school year) or by directing interventions towards those who have sub-clinical symptoms or risk factors for difficulties in later life (Werner-Seidler et al. 2017). Larger effect sizes have been found for targeted rather than universal programs for depression (Calear & Christensen, 2010; Merry et al., 2011), whilst the effect size for universal and targeted programs is comparable for anxiety (Werner-Seidler et al., 2017). However, the literature on universal programs is often underpowered.

Comparison of delivery by school staff to external staff (e.g. mental health professionals) has indicated larger effect sizes from external delivery on depression but not anxiety (Calear & Christensen, 2010; Werner-Seidler et al., 2017). Other factors related to the delivery of the intervention are less explored, for example, only half of studies included a recent meta-analysis reporting a measure of intervention fidelity and the impact of parental involvement not established in the literature (Werner-Seidler et al., 2017).

With regards to age of participant, significantly larger effect sizes were found among depression interventions in childhood, than early and older adolescents (Werner-Seidler et al., 2017). However, age was not found to be a significant predictor of outcome in an earlier review of interventions for depression (Calear & Christensen, 2010). Comparison of effect sizes across age groups was non-significant when focusing upon anxiety (Neil & Christensen, 2009; Werner-Seidler et al., 2017). When focusing on teacher delivered interventions only, age did not significantly impact upon mental health outcomes. However, effectiveness was moderated by race, gender and tier of intervention with effect sizes having a positive, significant association with the proportion of Caucasian students in the sample for externalising symptoms, females for internalising symptoms and at a tier 1 (i.e. universal) in comparison to tier 2 or 3 (i.e. targeted or specialist care; Franklin et al., 2017).

To date, existing reviews have examined a restrictive number of potential correlates of intervention effectiveness (i.e. age, gender and treatment delivery). In

addition, many reviews have included heterogeneous interventions based on varying psychological models making it difficult to identify how these variables could differentially impact outcomes across different interventions. The objective of the current review was to identify potential predictors, mediators and moderators of treatment outcome not yet explored in previous reviews, specifically psychological, interpersonal and social factors. The current review will also explore the impact of these variables on mental health outcomes for CYP in school-based CBIs and to what extent by examination and comparison of their effect size.

Method

Protocol and Registration

The review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses protocols (Moher et al., 2015) guidance for conducting a systematic review. The protocol was registered using PROSPERO (CRD42018087396; Appendix B).

Eligibility Criteria

Participants

Eligible studies were those that included CYP enrolled in primary or secondary school. Studies reporting on children attending preschool and prekindergarten were excluded from the current study.

Interventions

Studies eligible for inclusion were those that reported on interventions informed by CBT that aimed to reduce symptoms of mental health difficulties or promote well-being. Studies were considered eligible if the description of the intervention specified use of a CBT approach or treatment components relating to CBT techniques (e.g. cognitive restructuring, exposure). Both universal and targeted interventions were included. Interventions were required to be based in and supported by schools, either as part of the curriculum or

before/after school with delivery of the intervention by other professionals within the school setting or by school staff. Interventions that took place in clinic or at home were excluded.

Types of study

Included studies were limited to quantitative outcome studies that were published or translated to English and published in peer-reviewed journals. Studies were required to have a comparison or control for inclusion. Existing reviews, meta-analysis, case reports and series, editorials and commentary pieces were excluded from the review. As there are no previous reviews in this area, no date limits were set.

Types of Outcome

The primary outcome for inclusion was measures of emotional, social and psychological well-being. Studies were included if an outcome measure relating to general mental health and well-being or mental health presentation (e.g. anxiety, low mood or trauma) were included at least pre and post intervention.

Types of Predictors, Mediators and Moderators

Studies which analysed interpersonal, social and psychological variables as a predictor, moderator or mediator were included in the review. Demographic information, symptom severity and variables relating to treatment delivery were excluded from the review.

Search Strategy

Electronic databases, consisting of EMBASE, MEDLINE, ERIC and PsycINFO, were initially searched up until January 2018 using the following terms: (Predict* OR Moderat* OR Mediat*) AND (School* OR School-based) AND (Intervention* OR program*) AND

(Mental Health OR well-being). Titles and/or abstracts were screened by GB to determine whether they met eligibility criteria. Full texts were then retrieved and assessed for eligibility. The reference lists of included studies and recent reviews were also hand-searched for additional studies. The search was re-run in June 2018 to ensure results were up to date. Figure 1 outlines the systematic review process utilised to identify studies included in the review.

Data Extraction Process & Management

The following data was extracted into a Microsoft Excel spreadsheet: author(s); year of publication; country; participant demographics; details of the intervention; study design; control condition; dependent variables (including details of the outcome measure and intervention outcome); independent variable (i.e. predictor, mediator and moderator including method of measurement); process of analysis and results of analysis. Data extraction was completed by the primary researcher. Authors were contacted for any non-reported data.

Risk of Bias

The quality of all papers that met the inclusion criteria was assessed using a rating checklist (see Appendix C). This tool was adapted from the National Institute for Health Care Excellence (NICE) quality appraisal checklist for quantitative studies and quality appraisal checklist for quantitative studies reporting correlations and associations (NICE, 2012). For quality control, a second reviewer who was a doctoral level peer appraised 45% of the studies ($n=10$). Inter-agreement across 180 items was found to be 'good' ($k=0.67$, $SE=0.05$, $p<0.001$; Sim & Wright, 2005). Consensus was reached through discussion in instances where there was disagreement to finalise quality ratings.

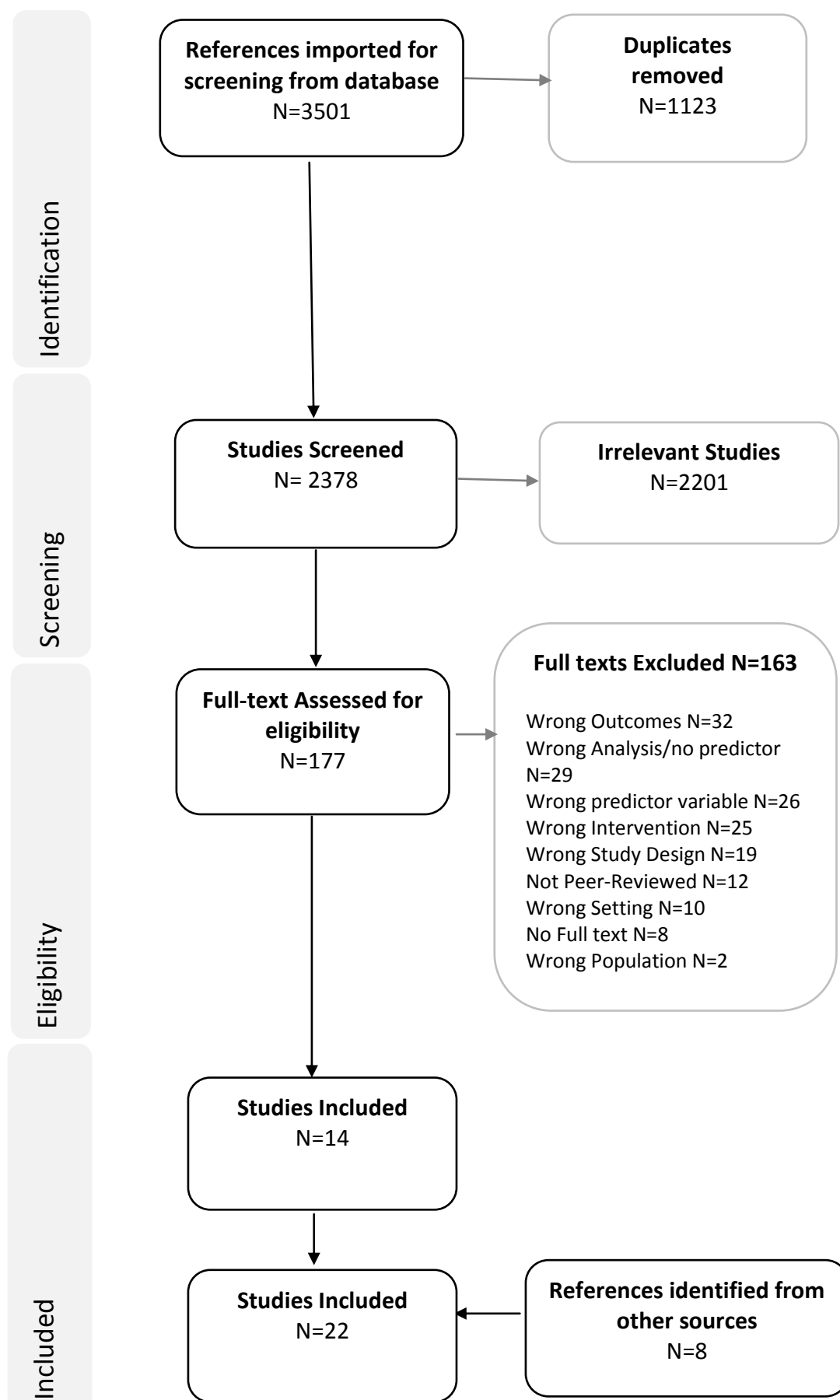
Calculation of Effect Sizes

Effect sizes were calculated to standardise heterogeneity for both main treatment outcome and predictor analysis. Effect sizes were calculated for both significant and non-significant findings and authors were contacted to try to obtain missing information.

Individual study effect sizes for treatment outcomes were calculated using the standardised mean difference (Cohen's *d*) with 95% confidence interval (Bornstein et al., 2011; Higgins & Green, 2011; Wilson, n.d.). To facilitate conversion, the standard error was converted to the standard deviation in one study (Tomyn et al., 2016). The mean and standard deviation of treatment outcome for the intervention and control groups was pooled using the formula recommended by the Cochrane Handbook for Systematic Reviews of Interventions (Higgins & Green, 2011) where it was split by an additional variable (Possel et al., 2005 & Spence et al., 2014). Effect size was calculated for measures of treatment outcome included in the predictor analysis at the relevant time-points. Where the outcome of a treatment trial was reported across multiple articles, the effect size was reported once. Cohen's *d* refers to effect sizes of 0.2, 0.5 and 0.8 as '*small*', '*moderate*' and '*large*,' respectively (Cohen, 1988).

For each predictor, mediator and moderator variable, an effect size expressed as the correlation coefficient, *r*, was calculated. The *r* statistic was calculated from the reported statistical outcomes using an effect size calculator (Wilson, n.d.). Reported beta values were converted using the formula $r = \text{beta} + 0.05 * \text{lambda}$, where lambda is 0 when beta is negative and 1 when beta is positive (Peterson & Brown, 2005). Effect sizes of 0.1, 0.3 and 0.5 are respectively referred to '*small*', '*moderate*' and '*large*,' for *r* (Cohen, 1988).

Fig.1 PRISMA flowchart of the study selection process



Results

Study Selection

A total of 3501 articles were identified and 2378 titles and/or abstracts were screened following de-duplication. Full texts were screened for 177 studies and 163 were excluded as they did not meet the eligibility criteria resulting in 14 studies eligible studies being identified. A further eight studies were identified through hand searching the references of included papers and the most recent meta-analyses. In total, 22 studies were included in the current review (see Figure 1).

Study Characteristics

The characteristics of included studies are summarised alphabetically in Table 1. There were 19 unique studies identified, conducted between 1995 and 2017. One study was reported across three articles (Diab et al., 2015; Eloranta et al., 2017; Quota et al., 2012) and another study was reported across two articles (Gau et al., 2012; Stice et al., 2010). The studies took place across 10 countries primarily in North America, Europe and Australia. Two studies were conducted in South Asia, one in Africa and one in the Middle East.

A total of 12276 CYP (52.6% male) were included across the studies with the sample size ranging from 32 to 5633. Age ranged from 7 to 19 years ($M= 12.55$, $SD = 2.14$). Additional intervention content was included alongside CBI for CYP for six studies including positive psychology (Pluess & Boniwell, 2015), creative expression elements (Tol et al., 2010; 2012; 2014), parent workshops (Dadds et al., 1999) and social problem-solving techniques (Gillham et al., 1995). The number of sessions ranged from 6 to 15 with the length of sessions ranging from 0.75 to 2 hours, although length was not reported in nine studies.

Ten articles reported on randomised control trials (RCTs), six cluster RCTs and six employed a quasi-experimental design. Control conditions included school as usual, wait list control, assessment only, an educational brochure and a community forum only. Three studies included comparison with an alternative intervention including Interpersonal

Adolescent Skills Training and bibliotherapy (Briere et al., 2014; Horowitz et al., 2007; Stice et al., 2010).

Measurement of Treatment Outcome

Treatment outcome was measured post intervention for all studies except one which only included follow-up measurement and was reported across three articles (Diab et al., 2015; Eloranta et al., 2017; Quota et al., 2012). Follow up period was included in 17 unique studies and ranged greatly from 1 to 36 months ($M = 9.38$, $SD = 8.38$). Depressive symptoms were a primary outcome for 11 studies, anxiety symptoms for four studies and post traumatic stress (PTSS) for four studies. One study reported on mental health as a latent variable (Eloranta et al., 2017), two used a general measure of mental health and one used mental health diagnostic severity (Dadds et al., 1999) as treatment outcome. All outcome measures selected were valid and appropriate for the population. Internal consistency was good overall, with a median Cronbach's alpha of 0.84 (Nunnally, 1978). This ranged from 0.30 to 0.95, with only one study reporting an unacceptable level of internal consistency (0.30; Cooley-Strickland et al., 2011).

Main Treatment Effect

The effect of treatment in comparison to control is reported in Table 2. Overall, ten of the included studies demonstrated a significant effect as compared to control at either post intervention, follow-up or across multiple measurement time points.

At post intervention four studies reported significant improvement on outcome measures in comparison to control, of which three measured symptoms of depression (Briere et al., 2014; Gillham et al., 2012; Horowitz et al., 2007) and one overall mental health (Keogh et al., 2006). Two studies reported a non-significant effect post-intervention in comparison to control with one measuring anxiety outcomes (Essau et al., 2012) and another overall mental health (Cooley-Strickland et al., 2011). The effect size ranged from minimal to moderate ($d = 0.05$ to -0.64) across outcomes at post intervention (Table 2).

Two studies reported a significant effect of treatment at follow up (Dadds et al., 1999; Essau et al., 2012) and five a non-significant effect in comparison to treatment (Briere et al., 2014; Gillham et al., 2012; Horowitz et al., 2007; Kindt et al., 2014; Pluess & Boniwell,

2015). The effect size of treatment at follow up across outcomes ranged from no effect to moderate ($d = 0.09$ to -0.59). A significant difference was only reported across multiple measurement time points (i.e. pre, post and follow-up) for an additional three studies, with one being reported across two articles (Gau et al., 2012, Gillham et al., 1995; Possel et al., 2005; Stice et al., 2010).

The effect size of studies using measures of depressive symptoms ($n=13$) ranged from minimal to small at both post intervention and follow up ($d = 0.03$ to -0.41 and $d = 0.09$ to -0.41 , respectively). Small effect sizes were also found across the four studies which measured anxiety post intervention ($d = -0.20$ to 0.26) and minimal to moderate at follow up ($d = -0.07$ to -0.64 ; Cooley-Strickland et al., 2011; Essau et al., 2012; Ginsburg et al., 2012; Tol et al., 2012). Three studies included measures of PTSS post intervention and reported minimal to moderate effect sizes post intervention ($d = 0.02$ and $d = -0.64$; Tol et al., 2010; 2012; 2014). Similar effect sizes were reported at follow up ($d = 0.05$ to -0.59) including one study reported across three articles (Diab et al., 2015; Eloranta et al., 2017 and Quota et al., 2012). Three studies included measures of overall mental health; at post intervention, one study reported a medium effect size ($d = -0.47$; Keogh et al., 2006) and, at follow up, two studies found a small effect size ($d = -0.16$ to 0.22 ; Dadds et al., 1999 and Diab et al., 2015).

Types of Explanatory Variables Included

In total, 47 unique variables were explored across the included studies with the number in each study ranging between one and twelve variables. Variables were classified mediators, moderators and predictors in 34, 18, and 11 reported analyses, respectively, and are presented in Tables 3 & 4. The following variables were reported in multiple studies; cognitive style ($n = 7$), exposure to violence ($n = 4$), displacement ($n = 3$) and coping behaviour ($n = 3$). Over half of the variables ($n = 33$) were included in only one study and 10 were reported by two studies.

In total, 60 different measures of the above correlates were used across the studies. Measurement of predictive variables were valid and reliable measures in 15 studies and constructed locally for the measurement of ten variables. Cronbach alpha was reported for 44 out of 60 measures, ranging from 0.54 to 0.97 with a mean of 0.81 ($SD = 0.11$). Overall, internal consistency was adequate according to Nunnally's (1978) criteria, although

4 studies reported Cronbach Alpha below the acceptable level of 0.70 (Diab et al., 2015; Eloranta et al., 2017; Essau et al., 2012 and Tol et al., 2010).

Ref No.	Author (Year)	Country	Design	Population			Intervention			Control	Measurement Points (months)
				N	Age (Mean, SD, Range) (Years)	% Male	Program	Content	Session No. x Length (Hrs)		
1	Briere et al. (2014)	Canada	RCT	378	M=15.50, SD=NR 13 to 19	32	-	CBT	6 x 1	BT/UC	Pre, Post, 6,
2	Cooley-Strickland et al. (2011)	USA	QE	93	M=9.41, SD=1.16 8 to 12	52	FRIENDS	CBT	13 x 1	WL	Pre, Post
3	Dadds et al. (1999)	Australia	QE	128	M=9.5, SD=1.60 7 to 14	NR	CK	CBT + PW	10 x NR	MG	12, 24
4	^a Diab et al. (2015)	Palestine	cRCT	482	M=11.29, SD=0.68 10 to 13	50.6	TRT	CBT	8 x 2	WL	Pre, 2, 6
5	^a Eloranta et al. (2017)										Pre, 3
16	^a Quota et al. (2012)										Pre, 2, 6
6	Essau et al. (2012)	Germany	QE	638	M=10.91, SD=0.86 9 to 12	54.2	FRIENDS	CBT	10 x NR	WL	Pre, 6, 12
7	^b Gau et al. (2012)	USA	RCT	173	M=15.50, SD=1.20 14 to 19	42	-	CBT	6 x 1	EB	Pre, 6
18	^b Stice et al (2010)			341	M=15.60, SD=1.20 14 to 19	44					BT/AO/SE
8	Gillham et al. (1995)	USA	QE	118	M=11.37, SD=0.64 10 to 12	NR	DPP	CBT + SPS	12 x 1.5	UC	Pre, Post, 6, 12, 18, 24
9	Gillham et al. (2012)	USA	RCT	408	NR 10 to 15	52	PRP	CBT	10-12 x 1.5	P/NP/UC	Pre, Post, 6
10	Ginsburg et al. (2012)	USA	RCT	32	M=10.28, SD=2.57 7 to 17	37.5	-	CBT	12 x NR	UC	Pre, Post, 1
11	Horowitz et al. (2007)	USA	RCT	380	M=14.43, SD=0.70 NR	46	-	CBT	8 x 1.5	IPT-AST /AO	Pre, Post, 6
12	Keogh et al. (2006)	UK	QE	209	M=15.57, SD=0.50	54	SMI	CBT	10 x NR	UC	Pre, Post

15 to 16											
13	Kindt et al. (2014)	Netherlands	cRCT	1343	M=13.42, SD=0.77 11 to 16	47.7	OVK	CBT	16 x NR	UC	Pre, Post, 6, 12
14	Pluess & Boniwell (2015)	UK	QE	363	M=11.40, SD=0.49 11	100	SRP	CBT + PP	12 x 1	C	Pre, Post, 6, 12
15	Possel et al. (2005)	Germany	RCT	347	M=13.82, SD=0.71 13 to 14	52.1	LISA	CBT	10 x 1.5	C	Pre, Post, 3
17	Spence et al. (2014)	Australia	cRCT	5633	M=13.08, SD=0.54 NR	47	BB	CBT	10 x NR	CF	Pre, Post, 12, 24, 36
19	Tol et al. (2010)	Indonesia	cRCT	403	M=9.90, SD=1.20 7 to 15	51.4	-	CBT+CE	15 x NR	WL	Pre, Post, 6
20	Tol et al. (2012)	Sri Lanka	cRCT	399	M=11.03, SD=1.05 9 to 12	61.4	-	CBT+CE	15 x NR	WL	Pre, Post, 3
21	Tol et al. (2014)	Burundi	cRCT	329	M=12.29, SD=1.60 8 to 17	52.2	CBI	CBT+CE	15 x NR	WL	Pre, Post, 3
22	Tomyn et al. (2016)	Australia	QE	252	M=13.62, SD=0.60 13 to 17	60	THW	CBT	6 x 0.75	WL	Pre, Post, 3

Table 1: Study characteristics of included studies.

a = Indicates articles report on the same research trial, b= Indicates articles report on the same research trial AO = Assessment Only, BB = Beyondblues, BP = Blues Program, BT = Bibliotherapy, C = control. CBI = Classroom Based Intervention, CBT = Cognitive Behavioural Therapy, CE = Creative Expression, CF = Community Forum, CK = Coping Koala, cRCT: cluster Randomised Control Trial, DPP = Depression Prevention Program, EB = Educational Brochure, IPT-AST = Interpersonal Therapy – Adolescent Skills Training, LISA = Training the Ease of Handling Social Aspects in Everyday Life, MG = Monitoring Group, NP = No parental involvement, NR = Not Reported, OVK = Op Volk Kracht, P = parental involvement, PP = Positive Psychology, PRP = Penn Resiliency Program, PW = Parental Workshop, QE: Quasi-experimental, RCT: Randomised Control Trial, SE = Supportive Expression, SMI = Stress Management Intervention, SPS = Social Problem Solving SRP = SPARK Resilience Program, THW = Think Health and Well-being, TRT = Teaching Recovery Techniques, UC = usual care, WL = wait-list, M = mean, SD = Standard Deviation

Ref No.	Study	Outcome (DV)	Measure	Cronbach Alpha	Cohen's d (95% Confidence Interval)		Significance over time-points
					Post	Follow-Up (m = months)	
1	Briere et al. (2014)	Depression	K-SADS	0.78	-0.27 (-0.52 to -0.02)*	6m: -0.06 (-0.31 to 0.18) ^{NS}	NR
2	Cooley-Strickland et al. (2011)	Anxiety	RCMAS	0.30	0.26 (-0.15-0.67) ^{NS}	-	-
3	Dadds et al. (1999)	Mental Health	ADIS-P	NR	-	12m: 0.17 (-0.18 to 0.52) ^{NS} 24m: -0.22 (-0.13 to -0.57)**	NR
4,	Diab et al. (2015)	PSWB	MHC-SF	0.82-0.85	-0.18 (-0.36-0.00) ^{NR}	6m: -0.16 (-0.34 to -0.02) ^{NR}	NR
5,	Eloranta et al. (2017)	Depression	DSRS	0.71-0.78	-	6m: -0.30 (-0.50 to -0.10) ^{NR}	NR
16	Quota et al. (2012)	PTSS	CRIES	0.61-0.73	-	6m: -0.30 (-0.50 to -0.10) ^{NR}	NR
6	Essau et al. (2012)	Anxiety	SCAS	0.90	-0.20 (-0.35 to -0.04) ^{NR}	6m: -0.46 (-0.63 to -0.31) ^{NR} 12m: -0.64 (-0.84 to -0.52)**	***
7,	Gau et al. (2012)	Depression	BDI	0.89	-0.17 (-0.47 to 0.13) ^{NR}	6m: -0.41 (-0.72 - -0.11) ^{NR}	***
18	Stice et al. (2010)						
8	Gillham et al. (1995)	Depression	CDI	NR	-0.20 (-0.61 to 0.21) ^{NR}	24m: -0.51 (-0.97 to 0.08) ^{NR}	**
9	Gillham et al. (2012)	Depression,	CDI	NR	-0.26 (-0.52 to -0.01)*	6m: -0.15 (-0.41 to 0.11) ^{NS}	NR
10	Ginsburg et al. (2012)	Anxiety	SCARED	0.84-0.92	0.22 (-0.48 to 0.91) ^{NR}	1m: -0.07 (-0.77 to 0.62) ^{NR}	NS
11	Horowitz et al. (2007)	Depression	CDI, CES-D	0.89; 0.86	-0.41 (-0.66 to -0.17) ** -0.30 (-0.55 to -0.06) ^{NS}	6m: -0.22 (-0.49 to 0.04) ^{NS} 6m: 0.03 (-0.24 to 0.30) ^{NS}	NS
12	Keogh et al. (2006)	Mental Health	GHQ	0.92-0.95	-0.47 (-0.93 to -0.04)**	-	-
13	Kindt et al. (2014)	Depression	CDI	0.85–0.90	0.02 (-0.10 to 0.13) ^{NR}	6m: -0.12 (-0.24 to 0.01) ^{NR} 12m: 0.09 (-0.03 to 0.22) ^{NS}	NR
14	Pluess & Boniwell (2015)	Depression	CES-D	NR	-	12m: -0.15 (-0.39 to 0.08) ^{NS}	-
15	Possel et al. (2005)	Depression	CES-D	0.83	-0.20 (-0.47 to 0.08) ^{NR}	3m: -0.34 (-0.62 to -0.06) ^{NR}	*
17	Spence et al. (2014)	Depression	CES-D	0.90	-	12m: 0.00 (-0.07 to 0.07) ^{NR} 24m: 0.00(-0.07 to 0.07) ^{NR}	NS

19	Tol et al. (2010)	PSTD	CPSS	0.85	-0.64 (-0.88 to -0.47) ^{NR}	6m. -0.59 (-0.82 to -0.41) ^{NR}	NS
20	Tol et al. (2012)	PTSS	CPSS	0.84	0.05 (-0.15 to 0.24) ^{NR}	6m. 0.05 (-0.13 to 0.25) ^{NR}	NS
		Anxiety	SCARED-5	0.52	-0.14 (-0.34 to 0.05) ^{NR}	6m. -0.10 (-0.29 to 0.10) ^{NR}	
21	Tol et al. (2014)	PTSS;	CPSS	0.84	0.02 (-0.22 to 0.26) ^{NR}	6m.-0.17 (-0.41 to 0.07) ^{NR}	NS
		Depression	DSRS	0.72	0.03 (-0.20 to 0.26) ^{NR}	6m. -0.20 (-0.44 to 0.04) ^{NR}	
22	Tomyn et al. (2016)	Depression	SMFQ	0.94-0.95	-0.08 (-0.34 to 0.19) ^{NS}	NC	-

Table 2: Treatment effect size in comparison to control: negative scores suggest a decrease in symptoms.

*p<0.05, **p<0.01, ***p<0.001

ADIS-P = Anxiety Disorders Interview Schedule for Children – Parent Version; BDI = Beck Depression Inventory; CDI = Children’s Depression Inventory; CES-D = Centre for Epidemiological Studies Depression Scale; CPSS = Child Post Traumatic Symptom Disorder Scale; CRIES = Children’s Revised Impact Event Scale; DSRS = Depression Self-rating Scale for Children; GHQ = General Health Questionnaire; K-SADS = Kiddie Schedule for Affective Disorders and Schizophrenia; MHC-SF = Mental Health Continuum Short Form; NA = Not applicable; NC = Not Calculated; NR = Not Reported; NS = Not Significant; PSWB = Psychosocial Well-being; PTSS = Post Traumatic Stress Symptoms; RCMAS = Revised Children’s Manifest Anxiety Scale; SCARED = Screen for Child Anxiety Related Disorders; SCARED-5 = Screen for Child Anxiety Related Disorders (5 Item); SCAS = Spence Children’s Anxiety Scale; SMFQ = Short Moods and Feelings Questionnaire.

Impact on Treatment Outcome

Psychological Variables

Psychological variables were included in 20 studies. Cognitive style was explored by seven studies with more frequent negative cognitions significantly predicting higher levels of anxiety post intervention with a large effect ($r = 0.45, p < .05$), although this reduced at follow up ($r = 0.31, p = .08$; Ginsburg et al., 2012). However, baseline levels of anxiety were not controlled for within this predictor analysis. In studies which reported on depressive symptoms at follow-up, negative cognitions were observed to have a very large effect on treatment outcome by one study when controlling for baseline symptoms ($r = 0.98, p < .001$; Stice et al., 2011), while another reported a significant indirect effect of negative cognitions on treatment outcome but did not report the direct effect of the mediator (Gillham et al., 1995). Post intervention, a small effect size for attributional style to act as a mediator on depressive outcomes was reported ($r = -0.28, p < .001$; Horowitz et al., 2007). Mental health outcomes were also found to be fully mediated by a reduction in dysfunctional cognitions post intervention ($r = 0.71, p < .001$; Keogh et al., 2006). However, negative attributional style and cognitive style did not act as a moderator for treatment outcomes on depressive symptoms (Briere et al., 2014; Possel et al., 2005).

Two studies examined the role of hope in relation to treatment outcome, with one finding that baseline levels of hopelessness had a small significant moderating effect on treatment outcome ($r = 0.10, p < .05$; Gillham et al., 2012). Tol et al., (2012) reported that hope did not mediate the impact of the intervention on PTSS at follow-up. Motivation, included as mediator by two studies, did not mediate depressive symptoms in one study (Gau et al., 2012) although another found motivation during the program to significantly mediate the impact of treatment on depressive symptoms at follow up with a small effect size ($r = -0.12, p < .05$; Kindt et al., 2014). Other significant variables with a small effect included: perfectionism, found to significantly mediate anxiety outcomes post intervention ($r = NR, p < .05$; Essau et al., 2012); sensory-processing sensitivity as a significant predictor of depressive symptoms at treatment follow-up ($r = -0.13, p < .05$; Pluess & Boniwell, 2015) and self-esteem, which predicted change in depression symptoms post intervention ($r = -0.24, p = ns$; Tomy et al., 2016).

Three studies examined the mediating role of coping behaviour on PTSS after receiving the intervention and found no significant effect (Tol et al., 2010; 2012; 2014). Two additional studies examined specific coping strategies (Essau et al., 2012; Horowitz et al., 2007). Problem solving, rational and active coping style, emotion-based coping and assistance seeking were not found to mediate the impact of the intervention on anxiety and depression (Essau et al., 2012; Horowitz et al., 2007). Cognitive avoidance and behavioural avoidance served as mediators of change in anxiety scores post intervention (both $p < .05$) with a decrease in avoidance leading to more improvement in symptoms (Essau et al., 2012). Effect sizes were not calculated due to not reporting sufficient results in these studies.

Self-efficacy was found to have no significant effect on depressive symptoms (Possel et al., 2005) while resilience & body satisfaction had minimal effect predicting depressive symptoms (Tomyn et al., 2016). Achievement orientation had a small non-significant moderating effect on depressive outcomes post intervention ($r = 0.14$, $p = 0.24$; Horowitz et al., 2007) and emotion regulation was not found to significantly mediate mental health change (Eloranta et al., 2017). Peritraumatic dissociation was found to be a non-significant moderator for both genders across low, medium and high classes of dissociation apart from low peritraumatic dissociation in females where a significant medium effect size was reported ($r = -0.41$, $p < .05$; Quota et al., 2012).

Ref	DV	Analysis	IV	IV measure	Cronbach Alpha	Post		Follow-Up	
						R	P Value	R	P Value
<i>Cognitive Style</i>									
1	Dep	ANCOVA	Negative Attributional Style ^a	ACSQ	0.85	-	-	NC	NS
8	Dep	Regression	Explanatory Style ^b	CASQ	NR	-	-	NR	**
10	Anx	partial correlations	Negative Thoughts ^c	CATS	0.91	0.45	*	0.31	0.08
11	Dep	Multiple Regression Analysis	Attributional Style ^b	CASQ-R	0.81	-0.28	***	NR	NR
12	MH	Regression	Dysfunctional Cognitions ^b	DAS	0.89 to 0.92	0.71	***	-	-
18	Dep	Random coefficient unconditional growth model	Negative Cognitions ^b	ATQ	0.93	-	-	0.98	***
15	Dep	ANCOVA/partial correlation	Negative Cognitions ^b	ATQ	0.96	-	-	NC	NS
<i>Other Psychological</i>									
9	Dep	MM ANOVA	Hopelessness ^a	HSC	NR	-	-	0.11	*
19	PTSS	LGCM	Hope ^b	CHS	0.62	-	-	0.00	NS
7	Dep	HLM	Motivation to Reduce Depression ^b	LC	0.93	-	-	0.07	NS
13	Dep	Multivariate regression	Motivation ^b	LC	NR	-	-	-0.12	P<.05
15	Dep	Multiple Regression Analysis	Achievement Orientation ^a	SASC	0.86	CDI: 0.14 CES-D: NR	NS NS	CDI: NR CES-D: NR	NS NS
6	Anx	Sobel test	Perfectionism ^b	CAPS	0.80 – 0.82	NR	*	-	-
5	MH	SEM	Emotional Regulation ^b	ERQ	0.60 to 0.65	-	-	0.03	NS

14	Dep	HLM - LGCA	Sensory-Processing Sensitivity ^c	HSPS	0.74			-0.13	P.03	
22	Dep	Logistic regression analysis	Resilience ^c	RS	0.89 to 0.90	0.07	NS	NR	NS	
			Self esteem ^c	RSES	0.86 to 0.88	-0.24	NS	NR	NS	
			ANOVA	Body satisfaction ^c	BIBCI	0.92 to 0.95	0.04	NS	NR	NS
16	PTSS	X ²	F	Low Peritraumatic Dissociation ^a	PDEQ	0.77	-0.41	*	-0.24	NS
			Med Peritraumatic Dissociation ^a	PDEQ	0.77	-0.09	NS	0.00	NS	
			High Peritraumatic Dissociation ^a	PDEQ	0.77	-0.12	NS	-0.11	NS	
			M	Low Peritraumatic Dissociation ^a	PDEQ	0.77	0.05	NS	-0.17	NS
			Med Peritraumatic Dissociation ^a	PDEQ	0.77	-0.13	NS	-0.20	NS	
			High Peritraumatic Dissociation ^a	PDEQ	0.77	-0.25	NS	-0.36	NS	
<i>Coping behaviour</i>										
6	Anx	Sobel test	Assistance Seeking ^b	CSCY	0.84	NR	NS	-	-	
			Social and adaptive Functioning ^b	CASAFS	0.67	NR	NS	-	-	
			Social Skills ^b	SSQ	0.87 – 0.91	NR	NS	-	-	
			Problem Solving ^b	CSCY	0.84	NR	NS	-	-	
			Cognitive Avoidance ^b	CSCY	0.84	NR	*	-	-	
			Behavioural Avoidance ^b	CSCY	0.84	NR	*	-	-	
11	Dep	Multiple Regression Analysis	Rational and Active Coping Style ^b	COPE	0.86	NR	NS	NR	NS	
			Emotion-based Coping ^b	COPE	0.84	NR	NS	NR	NS	
			Avoidant Coping ^b	COPE	0.70	NR	NS	NR	NS	
18	Dep	Random coefficient unconditional growth model	Pleasant Activities ^b	PES	0.73	-	-	-0.06	***	
19	PTSS	LGCM	Coping Behaviour ^b	Kidcope	NR	-	-	0.00	NS	
20	PTSS	LGCM	Coping Behaviour ^b	Kidcope	0.77	-	-	NC	NS	

	Anx	LGCM	Coping Behaviour ^b	Kidcope	0.77	-	-	NC	NS
21	PTS	LGCM	Coping Behaviour ^b	Kidcope	TRT: 0.75	-	-	NC	NS

Table 3: Effect size of psychological predictors, mediators and moderators

a = moderator; b = mediator; c = predictor NR = Not Reported; NS = Not Significant; NA = Not Calculated (as statistical assumptions not met)

ACSQ = Adolescent Cognitive Style Questionnaire; Anx = Anxiety; ATQ = Automatic Thoughts Questionnaire, BIBCI – Body Image and Body Change Inventory; CASQ-R = Children’s Attributional Style Questionnaire-Revised; CATS = Children’s Automatic Thoughts Questionnaire; CHS = Children’s Hope Scale; COPE = COPE Inventory; Dep = Depression; ERQ = Emotion Regulation Questionnaire; F = Female; HSC = Hopelessness Scale for Children , HSPS = Highly Sensitive Person Scale; LC = Locally Constructed; M = Male; MH = Mental Health; PDEQ = Peritraumatic Dissociative Experiences Questionnaire; PES = Pleasant Events Schedule; PTSS = Post Traumatic Stress Symptoms; SASC = Sociotropy-Achievement Scale for Children

Interpersonal and Social Factors

Interpersonal and social variables were analysed in 21 studies. One study, reported across two articles, examined the role of attachment in treatment outcome. Diab et al., (2015) found that the impact of the intervention on psycho-social well-being post intervention and at follow up was not moderated by maternal willingness to serve as an attachment figure. Avoidant and preoccupied attachment style did not predict treatment outcome at follow-up on mental health as a latent variable, but secure attachment had a large effect on decreased mental health symptoms ($r = 0.50, p < .001$; Eloranta et al., 2017).

Ginsburg et al. (2012) found that neither parental stress nor symptoms acted as a predictor of anxiety symptoms post intervention or at treatment follow up, although a nonsignificant trend was observed for parental stress at follow up ($r = 0.21, p = -0.07$). A significant indirect effect for parental stress predicting mental health outcomes following treatment was reported at 12 months but not 24 months by one study, although the direct effect of the predictor was not reported (Dadds et al., 1999). Family atmosphere and connectedness was not found to moderate psycho-social well-being (Diab et al., 2015) or PTSS (Tol et al., 2010).

Perceived social support was not found to moderate PTSS at follow up (Gau et al., 2012; Tol et al., 2010) or depression post intervention or at follow up (Tomyn et al., 2017). Briere et al. (2014) investigated parent and peer support as moderators of depressive symptoms but preliminary analysis indicated no effect and further analysis was not completed. Low and high family relationship support were found to be significant in relation to depression outcomes at follow up with a small effect (high social support: $r = -0.20, p < .001$; low social support: $r = -0.08, p < .001$; Spence et al., 2014). Tol et al. (2010) analysed eight forms of social support as mediators of PTSS outcomes following treatment of which effect size was minimal ($r = -0.01$ to 0.09), with parental support having the largest effect and only play social support being significant. With regard to the frequency of use of social networks and social network size mediating depression symptoms following intervention, these had a small non-significant effect ($r = 0.11$ to $0.16, p = ns$; Possel et al., 2005). Other social variables analysed, namely sociotropy, social skills, and social and adaptive functioning and social capital, were not found to be significant mediators or moderators of outcome (Essau et al., 2012; Horowitz et al., 2007; Tol et al., 2014).

No significant interaction effect was found for negative life events on depressive symptoms following treatment by one study (Briere et al., 2014), while another found it to be a significant mediator with a small to medium effect ($r = 0.19, p < .05$; Gau et al., 2012). A higher number of urban hassles was a significant predictor of high levels of anxiety following treatment with a medium effect ($r = 0.35, p < .05$; Ginsburg et al., 2012). Exposure to violence, conflict and displacement status was not found to significantly moderate PTSS (Cooley-Strickland et al., 2011; Tol et al., 2010; 2012; 2014). Current exposure to war related stressors significantly moderated treatment effect to a medium to large extent such that children in the intervention condition with low levels of such stressors showed larger improvements on PTSS than children in wait list ($r = -0.41, p < .05$; Tol et al., 2012).

Quality of Included Studies

The overall quality of the included studies was variable (see Table 5). Reporting of the source population and recruitment procedures in schools was well covered. A whole school approach was taken for universal interventions and screening methods across the whole school were used to identify CYP for targeted interventions. A strength of the included studies was the randomisation in allocation to treatment, although only 10 studies reported using random sequence generation methods and six concealment at allocation.

The description of the intervention was rated as 'adequately' to 'well' covered by all studies ($n = 11$ and 11 , respectively). Potential contamination as a source of bias was reduced by six studies through randomisation at the school level using a cluster RCT design. Exposure to treatment (i.e. fidelity, use of supervision and attendance) was addressed in 14 studies, although only six studies reported on the measurement of this.

Overall, the measures used to assess treatment outcome were of high quality. However, those measuring predictor, moderator and mediator variables reduced overall quality ratings of measurement through not being valid and reliable measures. For example, five studies used locally constructed measures and eight reported low levels of internal consistency. Measures were used at a range of follow up periods although two studies did not include measurement at follow up. The shortest period was one month and the longest 36 months. Spence et al. (2014) observed high levels of drop out between end of treatment and follow up, attributing this to their long follow up period of three years.

The theoretical basis of the selection of explanatory variables was well covered by only nine studies, with six studies poorly addressing justification for variable selection. Failure to report a power calculation was a common methodological limitation but, of the eight studies that did, sample size was adequate to detect the desired effect. Analytical methods were adequately covered, although two papers reported on the indirect effect of a predictor and failed to calculate the direct effect on treatment outcome. However, these papers may predate advances in mediation analysis (Kraemer et al., 2002; 2008). Reporting of data to allow for the calculation of effect sizes was insufficient in seven studies.

Ref	DV	Analysis	IV	IV measure	Cronbach Alpha	Post		Follow-Up	
						R	P Value	R	P Value
<i>Attachment and Family</i>									
4	PSWB	Regression	Maternal Attachment ^a (>1 trauma)	WSSB	0.68	0.00	NS	0.01	NS
			Maternal Attachment ^a (<1 trauma)	WSSB	0.68	0.01	NS	0.03	NS
5	MH (lv)	SEM	Attachment Style ^c : (SECURE)	CSQ/SS	0.63	-	-	0.50	***
			Attachment Style ^c (AVOIDANT)	CSQ/SS	0.66	-	-	-0.16	NS
			Attachment Style ^c : (PREOCCUPIED)	CSQ/SS	0.54	-	-	0.32	NS
3	MH	Hierarchical Regression	Parental Anxiety ^c	SADS	NR	-	-	12m NR	*
								24m. NR	NS
10	Anx	Partial Correlations	Parental Symptoms ^c	BSI	0.97	-0.08	NS	0.05	NS
			Parental Stress ^c	PSI	0.93	0.04	NS	0.21	P=0.07
19	PTSS	LGCM	Family Connectedness ^a	LC	NR	-	-	-0.01	NS
4	PSWB	Regression	Family Atmosphere ^a (>1 trauma)	FAS	0.65	-0.01	NS	0.01	NS
			Family Atmosphere ^a (<1 trauma)	FAS	0.65	-0.01	NS	0.01	NS
<i>Social Support</i>									
1	Dep	ANCOVA	Parent Support ^a	NRI	0.89	-	-	NC	NS
			Peer Support ^a	NRI	0.88	-	-	NC	NS
7	Dep	HLM	Perceived Social Support ^b	NRI	0.83	-	-	0.08	NS
11	Dep	Multiple Regression Analysis	Sociotropy ^a	SASC	0.90	CDI: 0.15	NS	CDI NR	NS
						CES-D: NR	NS	CES-D NR	NR
17	Dep	ANCOVA	Family Relationship Support ^a low	MSPSS	0.79	-	-	-0.20	***
			Family Relationship Support ^a high	MSPSS	0.79	-	-	-0.08	***
19	PTSS	LGCM	Material Social Support ^b		NR	-	-	-0.02	NS

			Guidance Social Support ^b	SSIS	NR	-	-	0.06	NS
			Parental Social Support ^b		NR	-	-	0.09	NS
			Sibling Social Support ^b		NR	-	-	0.05	NS
			Extended Family Social Support ^b		NR	-	-	0.06	NS
			Social Support from Others ^b		NR	-	-	-0.01	NS
			Peer Social Support ^b		NR	-	-	0.05	NS
			Play Social Support ^b		NR	-	-	0.05	*
21	PTSS	LGCM	Social Capital ^a		NR	-	-	-0.03	NS
	Dep		Social Capital ^a	SASCAT	NR	-	-	0.06	NS
22	Dep	Logistic regression analysis	Perceived Social Support ^c	MSPSS	0.91 to 0.93	0.03	NS	NR	NS
15			Frequency of Use of Network ^{B hse}	FESU-F	0.81	-	-	0.11	NS
	Dep	ANCOVA / partial correlation	Frequency of Use of Network ^B	FESU-F	0.81	-	-	0.16	NS
			Social Network Size ^{B hse}	FESU-N	0.83	-	-	0.13	NS
			Social Network Size ^B	FESU-N	0.83	-	-	-0.04	NS
<i>Life Stressors</i>									
1	Dep	ANCOVA	1. Negative Life Events ^a	MLE	0.78	-	-	NC	NS
2	Anx	ANCOVA	1. Exposure to Violence ^a	CREV	0.88-0.90	NR	NS		
7	Dep	HLM	1. Negative Life Events ^b	MLE	NR	-	-	0.19	*
10	Anx	Partial Correlations	1. Urban Hassles ^c	UHI	0.82	0.35	*	0.20	NS
15	Dep	Multiple Regression Analysis	1. Conflict ^b	CBQ	0.88	NR	NS	NR	NS
19	PTSS	LGCM	1. Displacement ^a	Demo	NA	-	-	0.13	NS
20	PTSS	LGCM	1. Past Exposure to Violence ^a	LC	NR	-	-	0.05	NS
			2. Current Experience of War-Related Stressors ^a	LC	NR	-	-	0.29	**
	Anx		3. Past Exposure to Violence ^a	LC	NR	-	-	-0.05	NS

			4. Current Experience of War-Related Stressors ^a	LC	NR	-	-	0.12	**
21	PTSS	LGCM	1. Displacement Status ^a	LC	NR	-	-	0.12	NS
			2. Exposure to Violence ^a	LC	NR	-	-	-0.02	NS
	Dep	LGCM	3. Displacement Status ^a	LC	NR	-	-	0.07	NS
			4. Exposure to Violence ^a	LC	NR	-	-	0.06	NS

Table 4: Effect sizes of interpersonal and social predictors, mediators and moderators

a = moderator; b = mediator; c = predictor NR = Not Reported; NS = Not Significant; NA = Not Calculated (as statistical assumptions not met)

Anx = Anxiety; BSI = Brief Symptom Inventory; CBQ = Conflict Behavioural Questionnaire; CREV = Children's Report of Exposure to Violence; CSQ = Coping Strategies Questionnaire; Demo = Demographic; Dep = Depression; FAS = Family Ambience Scale; FESU-F = Questionnaire of Social Support (frequency); FESU-N = Questionnaire of Social Support (network size); hse = high self-efficacy as measured by general self-efficacy scale; LC = Locally Constructed; lse = low self-efficacy as measured by general self-efficacy scale; MH = Mental Health; MLE = Major Life Events Scale; MSPSS = Multidimensional Scale of Perceived Social Support; NRI = Network of Relationships Inventory; PSI = Parenting Stress Index – Short Form; PTSS = Post Traumatic Stress Symptoms; SADS = Stress, Anxiety and Depression Schedule; SASC = Sociotropy-Achievement Scale for Children; SASCAT = Short Adapted Social Capital Assessment Tool; SS = Security Scale; SSIS = Social Skills Improvement System; UHI = Urban Hassles Inventory; WSSB = Willingness to Serve as a Secure Base Scale.

Ref No.	Study	Population			Method of Allocation to Intervention or Comparison								Outcomes					Analyses			
		1.1	1.2	1.3	2.1	2.2	2.3	2.4	2.5	2.6	3.1	3.2	3.3	3.4	3.5	4.1	4.2	4.3	4.4		
1	Briere et al. (2014)	+	++	++	+	+	NR	++	+	+	++	+	++	++	++	NR	NR	+	++		
2	Cooley-Strickland et al. (2011)	++	++	++	++	++	NR	NR	NR	NR	++	++	++	-	+	++	NR	+	-		
3	Dadds et al. (1999)	++	++	++	+	++	NR	++	NR	++	+	+	++	++	-	NR	NR	-	+		
4	Diab et al. (2015)	+	+	+	++	++	NR	+	+	+	-	-	++	++	-	-	NR	+	+		
5	Eloranta et al. (2017)	++	+	+	NR	+	NR	NR	++	++	-	-	++	++	++	++	NR	+	-		
6	Essau et al (2012)	+	+	+	+	++	NR	NR	++	++	++	++	++	++	++	-	NR	++	-		
7	Gau et al. (2011)	+	++	-	++	+	++	++	NR	+	+	+	++	+	+	++	NR	++	++		
8	Gillham et al. (1995)	+	-	-	+	+	-	-	NR	++	-	++	++	++	-	++	NR	-	+		
9	Gillham et al. (2012)	+	+	-	++	++	++	NR	+	+	+	++	++	+	-	+	++	++	+		
10	Ginsburg et al. (2012)	+	+	++	++	+	NR	++	++	+	++	++	++	-	-	+	NR	+	+		
11	Horowitz et al. (2007)	+	+	++	++	++	+	+	+	+	++	++	++	++	+	++	++	++	-		
12	Keogh et al. (2006)	+	NR	-	+	++	NR	NR	-	-	++	++	+	NA	++	-	NR	+	+		
13	Kindt et al. (2014)	++	++	++	++	+	++	+	++	++	-	+	++	++	+	+	++	++	++		
14	Pluess & Boniwell (2015)	++	-	++	-	+	-	NR	NR	+	+	++	-	++	++	++	NR	+	+		
15	Possel et al. (2005)	+	++	+	+	++	-	NR	NR	+	+	++	++	-	++	NR	++	++	+		
16	Quota et al. (2012)	+	+	NR	++	++	NR	+	+	+	+	++	++	++	++	-	NR	+	+		
17	Spence et al. (2014)	++	+	++	++	++	++	NR	+	+	+	+	+	-	++	-	++	++	++		
18	Stice et al. (2010)	+	++	-	++	+	++	++	++	+	++	+	++	+	+	++	NR	+	+		
19	Tol et al. (2010)	++	++	+	++	++	++	-	++	++	-	+	++	++	++	-	NR	++	++		
20	Tol et al. (2012)	++	+	+	+	+	NR	+	NR	++	-	++	+	++	+	++	++	++	++		
21	Tol et al. (2014)	++	-	+	+	+	NR	NR	NR	++	-	+	++	+	+	-	++	+	++		
22	Tomyn et al. (2016)	+	+	+	+	++	-	NR	NR	++	+	+	+	-	-	+	+	+	-		

Table 5: Quality ratings of included studies using a standardised rating tool (see Appendix C)

++ = design of study minimises risk of bias; + = unclear or not all sources of potential bias addressed; - = Significant source of bias persists; NR = Not reported; NA = Not applicable

Discussion

The aim of this study was to explore what psychological, interpersonal and social variables have been explored as a mediators, moderators and predictors in cognitive behavioural school-based interventions for mental health and evaluate their effect size.

Main Findings

Across the 22 included studies, 47 different variables were included as predictors, mediators or moderators of treatment outcome. A range of different interpersonal, psychological and social variables were identified but there was little overlap between them. Effect sizes of the intervention on primary outcomes ranged from minimal to moderate and were comparable to previous reviews (e.g. Neil & Christensen, 2009; Werner-Seidler et al., 2017).

Overall, limited conclusions on the correlates of treatment outcome in school-based CBT interventions can be drawn due to methodological heterogeneity and low powered studies. A high level of heterogeneity across the included studies was observed in treatment outcome, measures used, time point of measurement and analytical method. Power was not reported by over half of the included studies. Furthermore, variables were primarily only included by one study and, for those included in multiple studies, small numbers and heterogeneity in outcome prevented meta-analysis. This limits the generalisability of findings and the extent to which conclusions can be drawn.

Variables relating to cognitive style were most commonly included and found to be have a small to large mediating effect on a range of primary outcomes (anxiety, depression and mental health) but not found to act as a moderator. Overall, sources of potential bias were not observed during quality ratings of trial design and analysis although power calculations were only reported by three of seven studies. In addition, the follow-up period was limited and below six months for two studies. This suggests that cognition may be one of the important mechanisms by which change occurs in school-based CBIs, consistent with previous literature on CBT in CYP (e.g. Chu & Harrison, 2007; Muris et al., 2008). However, how this occurs temporally within treatment is not examined within the included studies. In addition, given the focus of CBT interventions, change in cognitive style would be expected

alongside mental health outcomes leading to potential tautology in the finding that cognitive style mediates treatment outcome.

Other psychological variables had a small effect size, although the magnitude of these is considered in relation to the quality of the studies and limited literature for comparison exists. Sensory processing sensitivity was found to have a small effect predicting treatment outcome but this may have been impacted by methodological limitations including differences in the treatment of intervention and control groups. Motivation was included as a mediator by two studies which reported adequately to well-designed trials but used measures of motivation without good psychometric properties. These methodological issues were also applicable to two studies including hope that found contrasting results. No effect and a small effect size was found for hope mediating treatment outcome.

Perfectionism significantly mediated treatment outcome in one study but effect sizes were not calculated due to insufficient reporting and consequently inferences on the size of this effect cannot be drawn. Coping style was not found to act as a mediator across different mental health presentations. However, while few sources of methodological bias were observed in trial design, overall reporting in studies was poor with regard to power and for calculation of effect size. Previous research has found that improvements in coping efficacy mediates treatment gain in CBT with CYP (Kendall et al. 2016) and an increase in coping strategies precedes a decrease in symptoms (Hogendoorn et al., 2013). It is possible that these factors have a role in mediating outcomes from school-based CBIs that was not observed within the included studies. Previous studies have noted the clinical implications of coping behaviours on parental involvement in treatment (Simpson et al., 2018).

While having a secure attachment was found to have a large effect by one study, the measure of attachment style was of low quality and power was not reported (Eloranta et al., 2017). One additional article examined attachment, but within the same population in a separate article with similar methodological caveats (Diab et al., 2015). Previous literature with adults is mixed around the moderating role of attachment on CBT outcomes but there are potential implications for treatment selection (McBride et al., 2006; Neilsen et al., 2018; Newman et al., 2015). Conclusions cannot be drawn in relation to outcomes of school-based CBIs for CYP without further evidence.

Parental mental health has been shown to contribute to the maintenance of mental health difficulties in CYP and impact on CBT outcomes in specialist mental health

services (Breinholz et al., 2012). Within the current review, only two studies were found to examine parental mental health as a predictor of treatment outcome. Within one study the direct effect of parental mental health on treatment outcome was not examined and, while the indirect effect was significant, power was not reported (Dadds et al., 1997). A small effect size with a trend towards significance was observed in another study at follow-up, although was potentially underpowered to detect an effect as this was not reported. Similar limitations in methodology were observed in relation to family atmosphere and connectedness where no effect was found alongside poor measurement of the moderating variable.

Overall, social support emerged as having a minimal effect as a mediator, moderator or predictor but the quality of the studies was limited. Several studies reported well-designed trials but not power, and for those studies which included a power calculation, allocation and exposure to the intervention was not reported. However, one study found a small effect size in relation to social network size and use with few sources of possible bias observed in quality ratings (Possel et al., 2005). In addition, on-going stress i.e. current exposure to war related stressors and negative life events was found to potentially play a role in relation to treatment outcome across symptomology.

Limitations

The current review has limitations however. While the search strategy employed was aimed to be comprehensive, it is possible that studies were missed and therefore not included in the current review. For example, by not including specific presentations (such as anxiety, depression and trauma) as search terms, studies may have been omitted. Hand searching of reference lists may have helped balance this limitation. In addition, the search strategy may have subjected the review to publication bias by reporting on RCTs and quasi-experimental trials, rather than unpublished or grey literature and cultural bias by excluding non-English studies.

With regards to eligibility criteria, the current review includes both universal and targeted interventions, similarly to previous reviews where these have been merged in the literature yet there is some evidence to suggest that these may have different effects (Werner-Seidler et al., 2017). The review also does not take into account whether the practitioner delivering the intervention was a mental health or school professional.

Methodological design for examining treatment outcome was of higher quality than exploring predictor, moderator and mediator analysis. Low quality ratings stemmed from a tendency to not report details of the randomisation method. It is therefore likely that the trial design of included studies was of adequate quality and did not affect treatment outcome. Cluster randomisation, used by several studies, can protect trials from contamination between research groups. A number of methodological issues including not adjusting for multiple predictors or grounding the selection of the variable in a sound theoretical basis emerged across studies. Over half of studies did not report a power calculation (n=14) in relation to detecting an effect despite it being good practice to report this irrespective of reaching adequate power. Methodological and statistical design also did not account for the time point in which change may occur.

Implications for clinical and research

The current review included a broad range of variables and outcomes in order to provide a comprehensive overview and effect sizes were calculated where possible for all results. However, the heterogeneity and low quality of the literature restricts the extent to which conclusions are drawn. Limited data exists around each explanatory variable and additional evidence which addresses methodological limitations is required to establish the effect of these variables. There is a need for improvement in the rigour and quality of the research undertaken in this area, and in the reporting of study methodology and outcome.

The review does highlight areas for future consideration. For example, cognition was identified as a mediator on treatment outcome, offering evidence that it could be an important component to target in treatment. Additional variables which have been shown to have a preliminary effect also warrant further exploration (e.g. on-going life stressors, parental mental health and attachment) in relation to contextual factors which may influence decisions around treatment planning. Social support was not found to mediate, moderate or predict treatment outcome but would benefit from additional research and replication.

An a priori rationale, where psychological theory underpins the selection of an explanatory construct, is pertinent, particularly when aiming to inform decisions around treatment planning and possible areas that can be targeted for change. Furthermore, while they are not included in this review, there is little literature to date on how therapeutic

variables and baseline symptoms may influence treatment outcome, which would be of interest to further research and reviews. Measurement of educational outcomes was lacking in the included studies but of interest given the school setting of the intervention.

Future research which addresses these methodological caveats will continue to contribute to the evidence-base and offer increasing opportunity to answer more specific questions around predictors of intervention outcome and investigate how to improve intervention effects for CYP with poorer outcomes. This, in turn, may inform decision-making around the provision of school-based early interventions and their long-term implications.

Conclusion

School-based interventions aim to be accessible to a wide audience, yet variance in treatment outcome remains unaccounted for. The identification of predictors, mediators and moderators of treatment outcome is an important goal for improving the effectiveness and cost-effectiveness of an intervention, as well as finding alternatives for non-responders. While this evidence is growing, the current state of the literature does not provide sufficient evidence to inform clinical decision-making about who does and does not benefit from school-based cognitive behavioural interventions, or the mechanisms around how and why change occurs. Before recommendations towards clinical practice can be made, future research of greater consistency, which replicates findings and is grounded in theory is needed, in addition to improving the transparency in the reporting of study details.

References

Bains, R. M., & Diallo, A. F. (2016). Mental health services in school-based health centers: systematic review. *The Journal of School Nursing, 32*(1), 8-19.

Barnes, T. N., Smith, S. W., & Miller, M. D. (2014). School-based cognitive-behavioral interventions in the treatment of aggression in the United States: A meta-analysis. *Aggression and violent behavior, 19*(4), 311-321.

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of personality and social psychology, 51*(6), 1173.

Barrett, P. M., & Pahl, K. M. (2006). School-based intervention: Examining a universal approach to anxiety management. *Journal of Psychologists and Counsellors in Schools, 16*(1), 55-75.

Borenstein, M., Hedges, L. V., Higgins, J. P., & Rothstein, H. R. (2011). *Introduction to meta-analysis*. John Wiley & Sons.

Breinholst, S., Esbjørn, B. H., Reinholdt-Dunne, M. L., & Stallard, P. (2012). CBT for the treatment of child anxiety disorders: A review of why parental involvement has not enhanced outcomes. *Journal of Anxiety Disorders, 26*(3), 416-424.

Chu, B. C., & Harrison, T. L. (2007). Disorder-specific effects of CBT for anxious and depressed youth: A meta-analysis of candidate mediators of change. *Clinical Child and Family Psychology Review, 10*(4), 352-372.

Division of Clinical Psychology, British Psychological Society (2017) What Good looks like in services for schools and colleges *The Child and Family Clinical Psychology Review 5* Summer 2017

Division of Clinical Psychology, British Psychological Society (2015) What Good looks like in services for children, young people and their families *The Child and Family Clinical Psychology Review 3* Summer 2015

Brière, F. N., Rohde, P., Shaw, H., & Stice, E. (2014). Moderators of two indicated cognitive-behavioral depression prevention approaches for adolescents in a school-based effectiveness trial. *Behaviour research and therapy*, *53*, 55-62.

Calear, A. L., & Christensen, H. (2010). Systematic review of school-based prevention and early intervention programs for depression. *Journal of adolescence*, *33*(3), 429-438.

Children's Society (2008). *The Good Childhood Inquiry: Health research evidence*. London: Children's Society

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. 2nd.

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

Creswell, C., & Cartwright-Hatton, S. (2007). Family treatment of child anxiety: Outcomes, limitations and future directions. *Clinical child and family psychology review*, *10*(3), 232-252.

Dadds, M. R., Holland, D. E., Laurens, K. R., Mullins, M., Barrett, P. M., & Spence, S. H. (1999). Early intervention and prevention of anxiety disorders in children: Results at 2-year follow-up. *Journal of consulting and clinical psychology*, *67*(1), 145.

Diab, M., Peltonen, K., Qouta, S. R., Palosaari, E., & Punamäki, R. L. (2015). Effectiveness of psychosocial intervention enhancing resilience among war-affected children and the moderating role of family factors. *Child abuse & neglect*, *40*, 24-35.

Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child development*, *82*(1), 405-432.

Eloranta, S. J., Peltonen, K., Palosaari, E., Qouta, S. R., & Punamäki, R. L. (2017). The role of attachment and emotion regulation in the psychosocial intervention among war-affected children. *Journal of Child & Adolescent Trauma*, *10*(4), 301-314.

Essau, C. A., Conradt, J., & Petermann, F. (2000). Frequency, comorbidity, and psychosocial impairment of anxiety disorders in German adolescents. *Journal of anxiety disorders*, *14*(3), 263-279.

Essau, C. A., Conradt, J., Sasagawa, S., & Ollendick, T. H. (2012). Prevention of anxiety symptoms in children: Results from a universal school-based trial. *Behavior therapy, 43*(2), 450-464.

Fonagy et al., 2016,

Fonagy, P., Cottrell, D., Phillips, J., Bevington, D., Glaser, D., & Allison, E. (2014). *What works for whom?: a critical review of treatments for children and adolescents*. Guilford Publications..

Franklin, C., Kim, J. S., Beretvas, T. S., Zhang, A., Guz, S., Park, S., ... & Maynard, B. R. (2017). The effectiveness of psychosocial interventions delivered by teachers in schools: A systematic review and meta-analysis. *Clinical child and family psychology review, 20*(3), 333-350.

Gau, J. M., Stice, E., Rohde, P., & Seeley, J. R. (2012). Negative life events and substance use moderate cognitive behavioral adolescent depression prevention intervention. *Cognitive behaviour therapy, 41*(3), 241-250.

Gillham, J. E., Reivich, K. J., Jaycox, L. H., & Seligman, M. E. (1995). Prevention of depressive symptoms in schoolchildren: Two-year follow-up. *Psychological science, 6*(6), 343-351.

Gillham, J. E., Reivich, K. J., Brunwasser, S. M., Freres, D. R., Chajon, N. D., Kash-MacDonald, V. M., ... & Seligman, M. E. (2012). Evaluation of a group cognitive-behavioral depression prevention program for young adolescents: A randomized effectiveness trial. *Journal of Clinical Child & Adolescent Psychology, 41*(5), 621-639.

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. In *Child & youth care forum* (Vol. 41, No. 1, pp. 1-19). Springer US.

Goodman, A., Joyce, R., & Smith, J. P. (2011). The long shadow cast by childhood physical and mental problems on adult life. *Proceedings of the National Academy of Sciences, 201016970*.

Gulliver, A., Griffiths, K. M., & Christensen, H. (2010). Perceived barriers and facilitators to mental health help-seeking in young people: a systematic review. *BMC psychiatry, 10*(1), 113.

Green, H., McGinnity, Á., Meltzer, H., Ford, T., & Goodman, R. (2005). Mental health of children and young people in Great Britain, 2004.

Hetrick, S. E., Cox, G. R., & Merry, S. N. (2015). Where to go from here? An exploratory meta-analysis of the most promising approaches to depression prevention programs for children and adolescents. *International journal of environmental research and public health*, *12*(5), 4758-4795.

Hetrick, S. E., Robinson, J., Spittal, M. J., & Carter, G. (2016). Effective psychological and psychosocial approaches to reduce repetition of self-harm: a systematic review, meta-analysis and meta-regression. *BMJ open*, *6*(9), e011024.

Higgins JPT, Green S (editors). *Cochrane Handbook for Systematic Reviews of Interventions* Version 5.1.0 [updated March 2011]. The Cochrane Collaboration, 2011. Available from <http://handbook.cochrane.org>.

Hoagwood, K. E., Serene Olin, S., Kerker, B. D., Kratochwill, T. R., Crowe, M., & Saka, N. (2007). Empirically based school interventions targeted at academic and mental health functioning. *Journal of emotional and behavioral disorders*, *15*(2), 66-92.

Hogendoorn, S. M., Prins, P. J., Boer, F., Vervoort, L., Wolters, L. H., Moorlag, H., & de Haan, E. (2014). Mediators of cognitive behavioral therapy for anxiety-disordered children and adolescents: Cognition, perceived control, and coping. *Journal of Clinical Child & Adolescent Psychology*, *43*(3), 486-500.

Horowitz, J. L., Garber, J., Ciesla, J. A., Young, J. F., & Mufson, L. (2007). Prevention of depressive symptoms in adolescents: A randomized trial of cognitive-behavioral and interpersonal prevention programs. *Journal of Consulting and Clinical Psychology*, *75*(5), 693.

Kraemer, H. C., Wilson, G. T., Fairburn, C. G., & Agras, W. S. (2002). Mediators and moderators of treatment effects in randomized clinical trials. *Archives of general psychiatry*, *59*(10), 877-883.

Keller, M. B., Lavori, P. W., Wunder, J., Beardslee, W. R., Schwartz, C. E., & Roth, J. (1992). Chronic course of anxiety disorders in children and adolescents. *Journal of the American Academy of Child & Adolescent Psychiatry*, *31*(4), 595-599.

Kendall, P. C., Cummings, C. M., Villabø, M. A., Narayanan, M. K., Treadwell, K., Birmaher, B., ... & Gosch, E. (2016). Mediators of change in the Child/Adolescent Anxiety Multimodal Treatment Study. *Journal of consulting and clinical psychology*, *84*(1), 1.

Keogh, E., Bond, F. W., & Flaxman, P. E. (2006). Improving academic performance and mental health through a stress management intervention: Outcomes and mediators of change. *Behaviour research and therapy*, *44*(3), 339-357.

Kessler, R. C., Berglund, P., Demler, O., Jin, R., Merikangas, K. R., & Walters, E. E. (2005). Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of general psychiatry*, *62*(6), 593-602.

Kim-Cohen, J., Caspi, A., Moffitt, T. E., Harrington, H., Milne, B. J., & Poulton, R. (2003). Prior juvenile diagnoses in adults with mental disorder: developmental follow-back of a prospective-longitudinal cohort. *Archives of general psychiatry*, *60*(7), 709-717.

Kindt, K., Kleinjan, M., Janssens, J. M., & Scholte, R. H. (2014). Evaluation of a school-based depression prevention program among adolescents from low-income areas: A randomized controlled effectiveness trial. *International journal of environmental research and public health*, *11*(5), 5273-5293.

Masia-Warner, C., Nangle, D. W., & Hansen, D. J. (2006). Bringing evidence-based child mental health services to the schools: General issues and specific populations. *Education and Treatment of Children*, *29*(2), 165-172.

McBride, C., Atkinson, L., Quilty, L. C., & Bagby, R. M. (2006). Attachment as moderator of treatment outcome in major depression: A randomized control trial of interpersonal psychotherapy versus cognitive behavior therapy. *Journal of consulting and clinical psychology*, *74*(6), 1041.

Merikangas, K. R., He, J. P., Burstein, M., Swanson, S. A., Avenevoli, S., Cui, L., ... & Swendsen, J. (2010). Lifetime prevalence of mental disorders in US adolescents: results from the National Comorbidity Survey Replication–Adolescent Supplement (NCS-A). *Journal of the American Academy of Child & Adolescent Psychiatry*, *49*(10), 980-989.

Merry, S., McDowell, H., Hetrick, S., Bir, J., & Muller, N. (2004). Psychological and/or educational interventions for the prevention of depression in children and adolescents. *Cochrane Database Syst Rev*, *1*(1).

Merry, S. N., Hetrick, S. E., Cox, G. R., Brudevold-Iversen, T., Bir, J. J., & McDowell, H. (2012). Cochrane Review: Psychological and educational interventions for preventing depression in children and adolescents. *Evidence-Based Child Health: A Cochrane Review Journal*, *7*(5), 1409-1685.

Moher, D., Shamseer, L., Clarke, M., Gherzi, D., Liberati, A., Petticrew, M., ... & Stewart, L. A. (2015). Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement. *Systematic reviews*, 4(1), 1.

Muñoz, R. F., Cuijpers, P., Smit, F., Barrera, A. Z., & Leykin, Y. (2010). Prevention of major depression. *Annual review of clinical psychology*, 6, 181-212.

Muris, P., Mayer, B., Den Adel, M., Roos, T., & van Wamelen, J. (2009). 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.

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.

National Institute for Health and Clinical Excellence (2012) *Methods for the development of NICE public health guidance (third edition) Appendix F Quality appraisal checklist – quantitative intervention studies*

National Institute for Health and Clinical Excellence (2012) *Methods for the development of NICE public health guidance (third edition) Appendix G – quantitative studies reporting correlations and associations*

NES (2015) *The Matrix (2015) A Guide to Delivering Evidence-Based Psychological Therapies in Scotland*. NHS Education Scotland

Newman, M. G., Castonguay, L. G., Jacobson, N. C., & Moore, G. A. (2015). Adult attachment as a moderator of treatment outcome for generalized anxiety disorder: Comparison between cognitive-behavioral therapy (CBT) plus supportive listening and CBT plus interpersonal and emotional processing therapy. *Journal of consulting and clinical psychology*, 83(5), 915.

Nielsen, S. K. K., Hageman, I., Petersen, A., Daniel, S. I. F., Lau, M., Winding, C., ... & Vangkilde, S. (2018). Do emotion regulation, attentional control, and attachment style predict response to cognitive behavioral therapy for anxiety disorders?—an investigation in clinical settings. *Psychotherapy Research*, 1-11.

Nunnally, J.C. (1978)—*Psychometric Theory*, 2d ed., New York: McGraw-Hill.

Ollendick, T. H., & King, N. J. (1994). Diagnosis, assessment, and treatment of internalizing problems in children: The role of longitudinal data. *Journal of Consulting and Clinical Psychology*, 62(5), 918.

Peterson, R. A., & Brown, S. P. (2005). On the use of beta coefficients in meta-analysis. *Journal of Applied Psychology*, 90(1), 175.

Pluess, M., & Boniwell, I. (2015). Sensory-processing sensitivity predicts treatment response to a school-based depression prevention program: Evidence of vantage sensitivity. *Personality and Individual Differences*, 82, 40-45.

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

Pössel, P., Baldus, C., Horn, A. B., Groen, G., & Hautzinger, M. (2005). Influence of general self-efficacy on the effects of a school-based universal primary prevention program of depressive symptoms in adolescents: a randomized and controlled follow-up study. *Journal of Child Psychology and Psychiatry*, 46(9), 982-994.

Qouta, S. R., Palosaari, E., Diab, M., & Punamäki, R. L. (2012). Intervention effectiveness among war-affected children: A cluster randomized controlled trial on improving mental health. *Journal of Traumatic Stress*, 25(3), 288-298.

Rajaleid, K., Nummi, T., Westerlund, H., Virtanen, P., Gustafsson, P. E., & Hammarström, A. (2015). Social adversities in adolescence predict unfavourable trajectories of internalized mental health symptoms until middle age: results from the Northern Swedish Cohort. *The European Journal of Public Health*, 26(1), 23-29.

Rolfesnes, E. S., & Idsoe, T. (2011). School-based intervention programs for PTSD symptoms: A review and meta-analysis. *Journal of Traumatic Stress*, 24(2), 155-165.

Rosenthal, R., & Rosnow, R. L. (1984). Applying Hamlet's question to the ethical conduct of research: A conceptual addendum. *American Psychologist*, 39(5), 561.

Shirk, Stephen R.; Kaplinski, Heather; Gudmundsen, Gretchen School-Based Cognitive-Behavioral Therapy for Adolescent Depression: A Benchmarking Study *Journal of Emotional and Behavioral Disorders* 01/01/ 2009;17(2):106-117

Sim, J., & Wright, C. C. (2005). The kappa statistic in reliability studies: use, interpretation, and sample size requirements. *Physical therapy*, 85(3), 257-268.

Simpson, D., Suarez, L., Cox, L., & Connolly, S. (2018). The Role of Coping Strategies in Understanding the Relationship Between Parental Support and Psychological Outcomes in Anxious Youth. *Child and Adolescent Social Work Journal*, 1-15.

Snell, T., Knapp, M., Healey, A., Guglani, S., Evans-Lacko, S., Fernandez, J. L., ... & Ford, T. (2013). Economic impact of childhood psychiatric disorder on public sector services in Britain: estimates from national survey data. *Journal of child psychology and psychiatry*, 54(9), 977-985.

Spence S.H.; Sawyer M.G.; Sheffield J.; Patton G.; Bond L.; Graetz B.; Kay D. (2014) Does the absence of a supportive family environment influence the outcome of a universal intervention for the prevention of depression? *International Journal of Environmental Research and Public Health* 11(5):5113-5132

Stagman, S. M., & Cooper, J. L. (2010). Children's mental health: What every policymaker should know.

Stice, E., Rohde, P., Gau, J. M., & Wade, E. (2010). Efficacy trial of a brief cognitive-behavioral depression prevention program for high-risk adolescents: Effects at 1-and 2-year follow-up. *Journal of Consulting and Clinical Psychology*, 78(6), 856.

Tol, W. A., Komproe, I. H., Jordans, M. J., Gross, A. L., Susanty, D., Macy, R. D., & de Jong, J. T. (2010). Mediators and moderators of a psychosocial intervention for children affected by political violence. *Journal of consulting and clinical psychology*, 78(6), 818.

Tol, W. A., Komproe, I. H., Jordans, M. J., Vallipuram, A., Sipsma, H., Sivayokan, S., & De Jong, J. T. (2012). Outcomes and moderators of a preventive school-based mental health intervention for children affected by war in Sri Lanka: a cluster randomized trial. *World Psychiatry*, 11(2), 114-122.

Tol, W. A., Komproe, I. H., Jordans, M. J., Ndayisaba, A., Ntamutumba, P., Sipsma, H. & de Jong, J. T. (2014). School-based mental health intervention for children in war-affected Burundi: a cluster randomized trial. *BMC medicine*, 12(1), 56.

Tomyn, J. D., Fuller-Tyszkiewicz, M., Richardson, B., & Colla, L. (2016). A comprehensive evaluation of a universal school-based depression prevention program for adolescents. *Journal of abnormal child psychology*, 44(8), 1621-1633.

Warwick, H., Reardon, T., Cooper, P., Murayama, K., Reynolds, S., Wilson, C., & Creswell, C. (2017). Complete recovery from anxiety disorders following Cognitive Behavior Therapy in children and adolescents: A meta-analysis. *Clinical psychology review*, 52, 77-91.

Werner-Seidler, A., Perry, Y., CEAR, A. L., Newby, J. M., & Christensen, H. (2017). School-based depression and anxiety prevention programs for young people: A systematic review and meta-analysis. *Clinical psychology review*, 51, 30-47.

Wilson, D.B., Ph.D. (n.d.). Practical Meta-Analysis Effect Size Calculator [Online calculator]. Retrieved August 12th, 2018, from <https://www.campbellcollaboration.org/research-resources/research-for-resources/effect-size-calculator.html>

Wood, J. J., McLeod, B. D., Hiruma, L. S., & Phan, A. Q. (2008). *Child anxiety disorders: A family-based treatment manual for practitioners*. WW Norton & Co.

Wyn, J., Cahill, H., Holdsworth, R., Rowling, L., & Carson, S. (2000). MindMatters, a whole-school approach promoting mental health and wellbeing. *Australian & New Zealand Journal of Psychiatry*, 34(4), 594-601.

Evaluating the implementation of a school-based cognitive behavioural intervention for anxiety: a mixed methods study.

***Gemma Brown,^{1,2}** gemma.k.brown@nhslothian.scot.nhs.uk
Matthias Schwannauer,² matthias.schwannauer@ed.ac.uk
Jane Owens,¹ jane.owens@nhslothian.scot.nhs.uk

¹Child and Adolescent Mental Health Service, Royal Edinburgh Hospital, NHS Lothian, Edinburgh, UK

²Section of Clinical and Health Psychology, School of Health in Social Science, University of Edinburgh, UK

*Corresponding Author

Prepared for submission to *BMC Public Health*
See Research Portfolio Appendix D

Abstract

Background: Difficulties with anxiety are common in children and young people and there is a need for increased access to evidence-based early intervention. Research suggests that school-based cognitive behavioural interventions for anxiety can be effective, but there is a lack of research on how these are implemented in real world settings. The current study aims to explore the facilitators and barriers to the implementation of a school-based intervention for anxiety through a mixed methods process evaluation.

Method: Evaluation of the installation and initial implementation of Let's Introduce Anxiety Management (LIAM), a six session school-based cognitive behavioural intervention, was conducted. LIAM was implemented by non-mental health professionals who received training and coaching on the model. Qualitative data consisting of semi-structured interviews from stakeholders in LIAM was analysed with grounded theory integrated with framework analysis. Quantitative data was collected on the reach of LIAM, practitioner evaluation of training and coaching as well as routine outcome measures from children and young people receiving the intervention.

Results: Forty-one practitioners attended training and coaching on LIAM, with thirty-five children and young people receiving the intervention within the initial implementation period. Quantitative evaluation of training and coaching indicated sustained skill development by practitioners and that the model of LIAM was acceptable to both practitioners and those receiving the intervention. Preliminary analysis of routine outcome data indicated that LIAM was implemented and effective. Themes emerging from interviews included *systemic collaboration, an enabling context, therapeutic engagement, motivation and congruence, self-efficacy* and *containment and encouragement* which facilitated implementation. The *exclusivity of LIAM, a lack of systemic understanding and transparency* as well as *demands and pressure on resources* were barriers to implementation.

Conclusions: Implementing school-based interventions is complex and requires the involvement of multiple stakeholders. Progress of the implementation in relation to facilitators and barriers is discussed.

Key Words: school-based, implementation, process evaluation, cognitive behavioural, anxiety

Word Count: 296

1. Introduction

Half of lifelong mental health difficulties are thought to present in individuals before the age of 14 years (1, 2), yet up to 75 per cent of children with mental health disorders are not in contact with mental health services at a sufficiently early age or at all (3, 4, 5). This has been partly attributed to a lack of resources in the system including psychological health promotion, prevention or early intervention provision and recognition of mental health problems (6).

In order to tackle some of these barriers within Scotland, there is a need for increased provision of early intervention services using a multi-agency, whole system approach (7) and this is supported by national policy (8). This sets out the need to up skill the workforce in universal settings and increase the availability of low-intensity community based interventions in order to enable early access to services for children and young people (CYP). The relationship between social and emotional well-being and enhanced academic achievement is also recognised (9, 10) with a focus placed upon well-being as a means to raise attainment within Scotland (11).

Schools are well positioned to promote the health and well-being of CYP through school-based interventions (7, 12, 13). Rones and Hoagwood (14) defined school-based interventions as any program or intervention delivered in a school setting aimed at improving students behavioural, emotional or social functioning. These may overcome typical barriers to accessing treatment, such as time, location and cost (15, 16) as utilising the school system provides a natural and accessible way to reach CYP. Additionally, as a place of learning, school-based interventions have the potential to support CYP to develop skills or strategies in relation to promoting mental health and well-being (7).

Anxiety is one of the most common mental health difficulties for CYP (4) with prevalence found to range between 6.5% to 31.9% (17, 18, 19) and is a key target for early intervention due to it preceding more complex mental health problems (1). These are associated with adverse outcomes including lower educational attainment, peer relationships and overall family quality of life as well as social, health and educational outcomes in later life (20, 21, 22, 23).

The current evidence-base for low intensity anxiety management is primarily for cognitive behavioural therapy (CBT) informed interventions (24, 25) although other interventions (e.g. interpersonal therapy (IPT) and mindfulness) have a growing evidence base (26, 27). Studies have shown that the delivery of these interventions within the school setting are effective for promoting mental health and well-being. A recent meta-analysis of eighty-one studies examined manualised school-based programmes for the prevention of anxiety and depression in CYP and found a small, positive effect post intervention (28). Within this review, 84 per cent of interventions were based on CBT with other studies using IPT, mindfulness and psychoeducation. Larger effects were found for targeted rather than universally delivered programmes for depression but were comparable for anxiety. These findings are similar to previous meta-analyses (29, 30), although there was heterogeneity in the design of included studies. For example, a range of professionals including mental health and non-mental health practitioners delivered interventions.

Although CBT informed school-based interventions have modest, positive effects post treatment, the culture in which evidence-based interventions are delivered in real-world settings differs to that of an experimental trial. It is due to the recognition of the impact of participant and contextual characteristics on intervention outcomes that Randomised Control Trials (RCTs) aim to control for confounding variables with randomisation (31). Implementing interventions is acknowledged to be a complex process and documentation of intervention and policy failures (33) has demonstrated that interventions are not self-implementing, highlighting ‘a science to service gap’ and quality chasm (34). The association between the quality of implementation with positive outcomes as well as the importance of considering how interventions are implemented to bridge this gap has been evidenced leading to rapid growth in the field of implementation science (35, 36) and process evaluation. While multiple models of these processes exist (e.g. the active implementation framework (37, 39, 40) and process evaluation (31)), taken together both are broadly concerned with “how an intervention is put into practice, how it operates to achieve its intended outcomes, and the factors that influence these processes” (p9, 43)

Overall, the implementation of evidence-based interventions in schools is thought to be low (45) and , it is widely recognised within the existing literature that although training in

the knowledge and skill of an intervention is necessary, it is not sufficient to drive implementation alone (37). In order to sustain an intervention, access to on-going expertise and support, resources and a supportive organisational context including policy are required. Without this, degradation in implementation can occur (46). In addition, there is limited empirical evidence around the later stages of implementation such as embedding in routine practice and adaption and evolution (47).

Literature on the implementation of interventions within the school setting has reported on factors relating to the characteristics of the intervention, client, individual implementer and system alongside the importance of preplanning prior to implementation and an on-going support system in line with implementation frameworks (37, 43). A review of health promotion programmes in UK schools acknowledged the complexity of this process and that these factors do not occur in isolation. (47) Intervention specific factors included training and performance feedback as well as the acceptability of the intervention. Individual factors included self-efficacy, professional burnout and professional support alongside skill, attitude, and beliefs but may be separated into professional characteristics, perceptions and attitudes regarding the intervention and their psychological characteristics (43, 48). Organisational factors include the attitudes, beliefs and behaviours of managers, administrators and other stakeholders as well as policy and procedures (49, 50).

There is limited literature on how these factors occur in relation to CBT school-based interventions but previous studies have echoed the structure of implementation frameworks (51, 52). Greater organisational structure, peer support and administrative support allowed sites to overcome barriers to implementation of a trauma-focused intervention (51), whilst complex difficulties were a barrier to implementation of an intervention for anxiety (52).

1.1. Rationale

Despite the growing demand for school-based mental health interventions, there is limited literature focusing on their implementation and how they may be scaled up with fidelity in real world settings. Previous studies on school-based interventions for mental health and well-being are primarily restricted to effectiveness and efficacy research trials

which do not report on implementation (53) despite variability in implementation being noted in the literature (43) and impacting upon outcome (49; 54). Existing literature on school-based implementation has primarily focused on a broad range of health promotion programs and there is paucity in the literature on what processes are involved in bringing mental health interventions to a wider audience, how this may be sustained over time and the factors that affect this process (43). In addition, existing literature often focuses on the assessment of implementation factors that have previously been identified in the general literature (46) and it is possible that 'hidden mechanisms' are not identified and results are thus skewed (47).

The aim of the current study is to explore the potential barriers and facilitators to the implementation of a CBT informed school-based intervention for anxiety. The 'installation' and 'initial implementation' phases of implementation are focused upon within the current study, as defined by Fixsen et al. (37) with a mixed methods design. Through qualitative interviews with stakeholders, barriers and facilitators to the implementation will be examined through themes which emerge from the data whilst acknowledging the existing framework of the intervention. The context to the implementation in which facilitators and barriers sit will be examined through quantitative data on the reach of the intervention and intervention outcomes for CYP. Quantitative data on the evaluation of the training and coaching model will contribute to the exploration of facilitators and barriers to implementation within these components of the intervention model. Analysis will consider how data interacts. It is hoped that through the identification of these factors that the current study will inform and improve the implementation of future school-based mental health interventions.

2. Method

2.1. Design

A mixed method design was employed in which quantitative and qualitative datasets were collected and analysed concurrently with a complimentary function to explore the overall implementation of the intervention. Greater emphasis was placed upon qualitative data than quantitative. This is represented diagrammatically in Figure 3.

Process evaluation aims to capture real-world practice and mixed method design is particularly suitable for research on implementation as it allows the study to capture

multiple viewpoints, outcomes and causal pathways (31, 55). Due to the complexity of real-world settings, process evaluation research places emphasis on understanding context as well as the interactive, dynamic nature of processes to which qualitative methods are well suited (55-57). Quantitative data is more suited to examining intervention and implementation outcomes rather than process and may relate to multiple dimensions. For example, intervention fidelity, dosage, quality, reach, adaptations or participant responsiveness (43). Within the current study qualitative data consisted of individuals interviews and quantitative data was composed of implementation outcomes including the evaluation of the training and coaching model and reach of the intervention as well as intervention outcomes for CYP including acceptability.

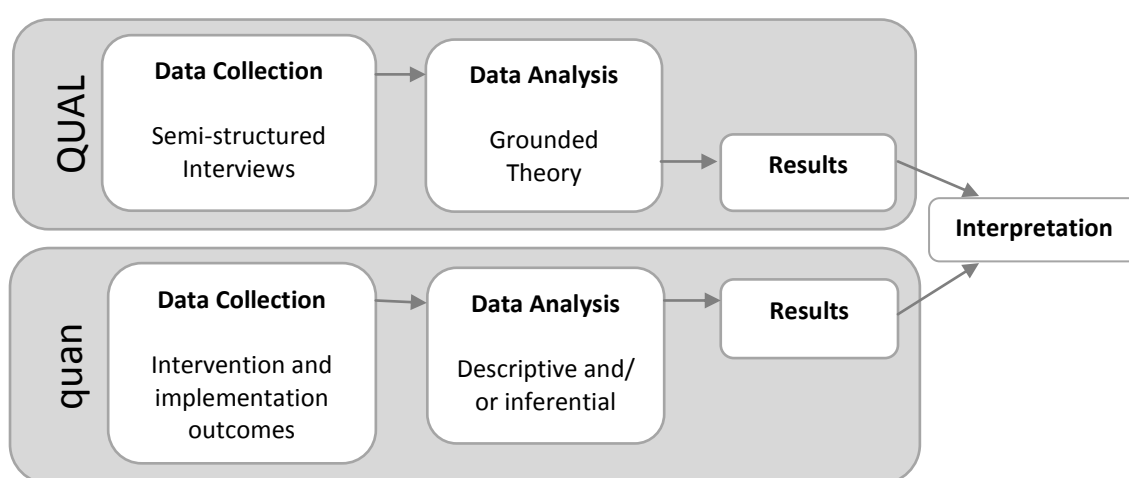


Figure 3: Diagrammatic representation of mixed methods

2.2 Ethics

Approval was sought from the Quality Improvement Team within the Child and Adolescent Mental Health Service as well as Caldicott approval from the local NHS health board. Ethical approval was obtained from a local authority and The University of Edinburgh, School of Health in Social Science (see Appendix E).

2.3. Context and Aims

Let's Introduce Anxiety Management (LIAM) was developed by NHS Education Scotland (NES, 58) in response to the national need for increased provision of evidence-based, early intervention services set out in national policy (8). School Nurses (SN) were identified as potential practitioners due to the refocusing of their role to nine priority areas

which address public health concerns including a focus on mental health and well-being (59). Adjacent to this within the local area, recognition of the relationship between difficulties with social and emotional well-being and the poverty related attainment gap led to local authority development of a Pupil Support Officer (PSO) role within education. This role focuses on emotional well-being and is funded in relation to the Scottish Attainment Challenge (11). PSOs, along with other staff in education, were also identified as potential LIAM practitioners. The current study reports on the multi-agency installation and initial implementation of the intervention during the school year 2017 to 2018. The aims of the project are displayed in Figure 4.

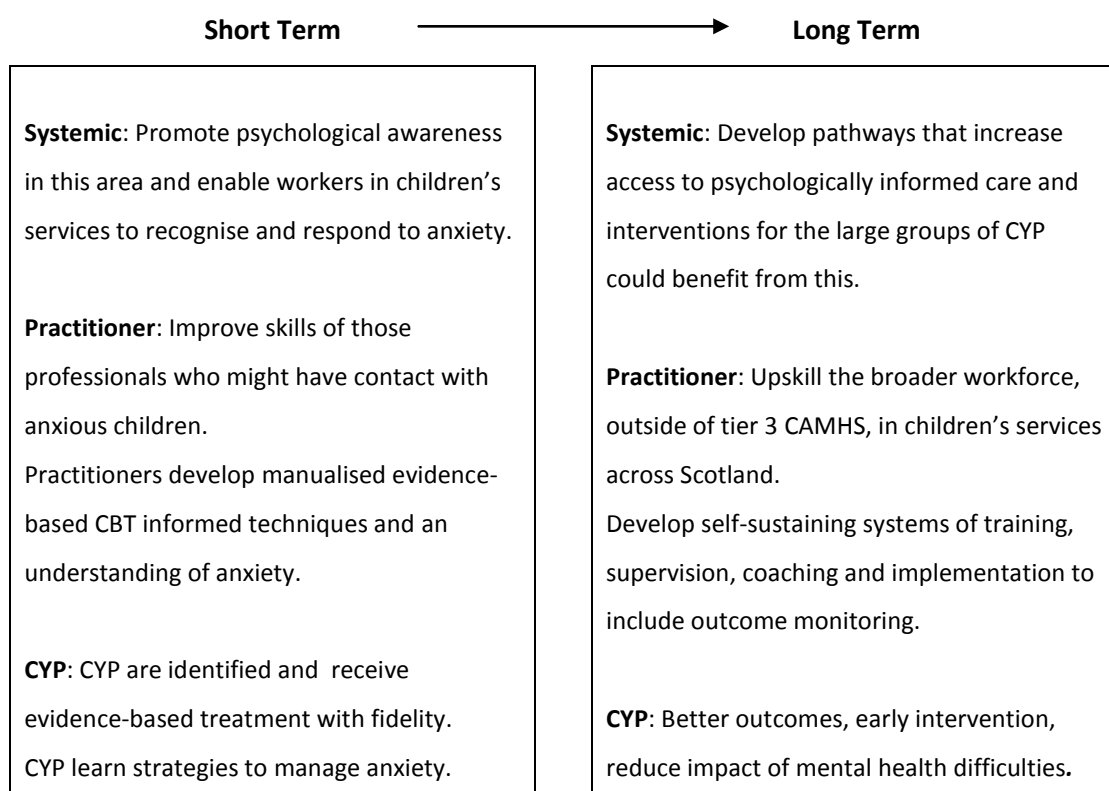


Figure 4: Aims of Let’s Introduce Anxiety Management

2.4. Let’s Introduce Anxiety Management (LIAM)

LIAM is a manualised, CBT informed intervention designed for CYP (aged Primary 5 to Secondary 6) experiencing mild to moderate difficulties with anxiety. The intervention consists of six modules and is described in Table 1. The intervention was developed in conjunction with the author of ‘Think Good, Feel Good’ (60) and incorporates these

resources. Individual sessions, within the school-setting are expected to last between 30 to 60 minutes. Inclusion criteria was mild levels of anxiety and exclusion criteria was moderate to severe anxiety or low mood, past or current self-harm or suicidal ideation, diagnosis of ASD and not attending school (see Appendix G).

The sample of practitioners ($n = 41$) consisted of 58.5% School Nurses, 34.1% Pupil Support Officers, 7.3% Other Education Staff. All identified practitioners were new to LIAM although they had varying backgrounds, qualifications and previous experience. Prior to LIAM delivery, practitioners attended a two day training event between October 2017 and January 2018 led by a Clinical Psychologist on raising awareness about anxiety and CBT based techniques. This was supported by an e-learning component. Following training, on-going group coaching sessions facilitated by a Clinical Psychologist from the Child and Adolescent Mental Health Service (CAMHS) were attended fortnightly by practitioners to promote skill development and fidelity. Groups generally consisted of two to four LIAM practitioners. A minimum caseload of two to three cases was requested to be held at a time in order to enhance skill development and implementation of the intervention was guided by the Active Implementation Framework (37). LIAM coaches estimated prior to implementation that, given the number of practitioners identified ($n = 41$) holding two to three cases each for a six week intervention, around 135 CYP would receive LIAM within the initial implementation period.

Module	Content
1.Psycho-education	Normalisation, fight or flight, avoidance trap
2.Self-monitoring	Link between thoughts feelings behaviours, Feelings diaries and thermometer
3.Emotional Awareness & Management	Physiological response to anxiety, relaxation, distraction
4.Coping Thoughts	Unhelpful thoughts, thinking styles and helpful thoughts
5. Exposure	Graded exposure through fear ladder and thermometer
6.Reinforcement	Rewards, Record of Achievement, Maintaining Progress

Table 1: Overview of the intervention, Let’s Introduce Anxiety Management. Adapted from the session guide in LIAM Trainer’s Manual (NES, 58)

2.5. Quantitative Data

2.5.1. Reach of Intervention

Data was collected on the number of practitioners trained, attending coaching and delivering LIAM as well as the number of CYP being seen to understand the proportion of practitioners who had implemented the intervention as well as the extent to which CYP had come into contact with the intervention (31). This provided context to the facilitators and barriers of implementation.

2.5.2. Training and Coaching Evaluation

Training was delivered in October 2017, December 2017 and January 2018. Prior to training practitioners were asked to rate their current confidence on a scale of 1 to 10 (10 highest) in their knowledge and skills on six Intended Learning Outcomes (ILOs; see table 2). Following training, participants ($n = 34$; 82.92% response rate) re-rated the ILOs to capture knowledge gain. In June 2018, six to eight months after training, ILOs were re-rated by practitioners ($n = 15$; 36.59% response rate) along with questions relating to their experience of coaching (Appendix H).

2.5.3. CYP Outcomes

2.5.3.1. Participants

Participants included in analysis of Routine Outcome Measures (ROMs) were CYP ($n = 23$) who had received LIAM in Lothian, Scotland aged between 9 and 16 years old (Primary 5 to Secondary 6; 68% female). Schools involved in the pilot were either the base of the PSO or identified as appropriate for piloting LIAM by their allocated SN. All CYP who received LIAM and completed ROMs were included in the study. For those CYP where the LIAM was on-going ($n = 8$), data was not returned by practitioners and included in analysis.

2.5.3.2. Procedure

Referrals to LIAM were made to the practitioners and discussed for suitability during coaching sessions. Guidance for referrals including inclusion and exclusion criteria is detailed in Appendix G. In addition, the pilot focused on targeting the transition to secondary school (CYP between Primary 5 and Secondary 2) although older ages were also included.

CYP and/or their parents received a treatment information sheet and written consent to use anonymised data for research and evaluation purposes was obtained (see Appendix J). Measures for intervention outcomes were selected by NES as part of the national LIAM pilot and administered by LIAM practitioners. The Strengths and Difficulties Questionnaire - Parents Version (SDQ; 61) and Revised Children's Anxiety and Depression Scale (RCADS; 62) were completed prior to the intervention and at the final session. The Young Person-Core (YP-Core; 63) and Goal Based Outcomes (GBOs; 64) were completed during every session. In addition, the Experience Service Questionnaire (ESQ; 65) was completed by CYP following LIAM. Anonymised data was returned to a central database for scoring and analysis.

2.5.3.3. Measures

2.5.3.3.1. Revised Children's Anxiety and Depression Scale (RCADS)

The RCADS is a 47 item self-rating questionnaire for young people aged 8 to 18 years that measures DSM-IV relevant symptoms of anxiety and depression. Separate anxiety and depression scores are obtained as well as sub-scales for generalised anxiety, separation anxiety, social anxiety, obsessive compulsive behaviour and panic disorder. Items are rated on a 4 point scale (0=never, 1=sometimes, 2=often and 3=always). The RCADS has been shown to have good reliability, internal consistency and validity (66, 67). This was completed by all CYP receiving LIAM.

2.5.3.3.2. Young Person-Core (YP-Core)

The YP-Core is a 10 item self-report measure for use with CYP aged 11 to 16 years. It has been found to have good psychometric properties and to detect small to medium effect size (68). This was completed by CYP who were 11 years and above only.

2.5.3.3.3. Strengths and Difficulties Questionnaire (SDQ); parent version.

The Strengths and Difficulties Questionnaire (SDQ) Parent-report including impact supplement was completed by parents of primary school aged children only. The questionnaire has 5 items for each of the 5 subscales; emotional symptoms, conduct problems, hyperactivity, peer relationship problems and pro-social behaviour. It has been shown to have moderate test-retest reliability (69), good concurrent and discriminant validity (71, 72) and varying between 0.73 and 0.81 for internal consistency (69, 72).

2.5.3.3.4. Goal Based Outcomes (GBOs)

GBOs are a way to evaluate progress towards goals in clinical work with CYP and their families or carers at each session. Individuals are asked to rate their progression towards their individualised goal since the beginning of the intervention using a scale of 0-10 (10 being closest to meeting the goal). GBOs has been shown to have strong clinical utility (73) and progression towards goals has been found to positively correlate with symptom improvement (74). There is no current evidence on GBO psychometric properties. GBOs were completed by all CYP receiving LIAM.

2.5.3.3.5. Experience of Service Questionnaire (ESQ)

The ESQ is a measure of service satisfaction with CAMHS. It consists of 12 items rated on a 3 point scale and 3 items with room for open comment on what they liked about the service, what needed improved and any other comments. Two underlying constructs have been indicated: Satisfaction with Care and Satisfaction with Environment (75). Due to the questions relating to Satisfaction with Environment not being relevant to the nature of the school-based intervention, only the 9 items on the Satisfaction with Care scale were analysed in the current study. This was completed by all CYP receiving LIAM.

2.5.3.4. Analysis

Analysis of the quantitative data on the reach of the intervention and the evaluation of coaching was descriptive. Open questions relating to the facilitators and barriers were included and used for triangulation of qualitative interviews.

Analysis of ILOs was inferential using comparison between multiple groups, yet exploratory. It was hypothesised that training would lead to an increase in confidence as rated on ILOs in comparison to pre training ratings and that, at follow up, levels of confidence would be maintained or continue to increase from post training ratings.

Inferential analysis of ROMs was preliminary due to the anticipated small sample size. It was hypothesised that LIAM would lead to a significant reduction in symptoms of anxiety and mental health, as measured by pre and post ROMs. To test this a paired sample t-tests was conducted comparing pre and post ROMs and Cohen's *d* calculated (76). Analysis of the ESQ was descriptive.

A priori power calculations were not completed as it was not appropriate for this design to recruit a larger sample for statistical analysis due to process evaluation being responsive to the stage of implementation and not reliant on or driven by statistical analysis. Access to the full sample of routinely collected data was available for analysis and reflective of the progress of the implementation.

2.6. Qualitative Data

2.6.1. Design

As prior constructs and knowledge were imposed on the data through the predefined model of LIAM training and coaching, grounded theory (77) was used in conjunction with framework analysis (78). This allowed for both a priori issues and emergent themes grounded in data to simultaneously guide analysis. Drawing on an explicit framework is recommended when conducting a process evaluation in order to guide understanding of new insights into the interactions between different processes and the systems in which they occur (31).

A Social Constructivist version of Grounded Theory (77) was used to analyse the interviews; a reflective stance was taken in relation to the gathering and interpretation of the data whilst acknowledging the role of the researcher as an active participant in meaning making and interpretation. A 'critical realist' epistemological stance was adopted in line with constructivism (77).

Other qualitative methodologies were considered. The planned heterogeneity in the sample (i.e. varying stakeholders and different time points) and possible large number of interviews would conflict with the core idiographic nature of Interpretative Phenomenological Analysis (IPA). Accordingly, IPA was thought to be unsuitable for the current study. Discourse analysis was also not thought to be appropriate as the study seeks to understand people's experiences rather than constructing meaning through language.

2.6.2. Participants

Stakeholders, including managers or LIAM practitioners, were eligible and invited to take part in individual interviews. A total of 15 participants took part in the study consisting of SNs ($n = 7$), education staff ($n = 5$) and managers ($n = 3$). Education staff included PSOs ($n = 4$), and an additional support for learning teacher ($n = 1$), while managers included an Educational Psychologist ($n = 1$), SN Manager ($n = 1$) and Clinical Psychologist ($n = 1$). Demographics for participants are summarised in Table 3 but not fully specified by profession to protect participant anonymity.

Sampling was purposive and directed to capture a range of experiences across the stages of implementation, the number of CYP seen for LIAM and different perspectives between professionals in order to gather rich data (77). Of those approached, two PSOs declined to take part. Theoretical sampling was used (79) to guide data collection and refine the emerging categories from initial coding and analysis (80, 81).

Participant	Profession	Months post initial training	Implementing	Interview Length (mins)
1	School Nurse	0	No	55
2	School Nurse	1	No	34
3	School Nurse	2	No	33
4	School Nurse	2	No	63
5	School Nurse	4	No	52
6	Manager	4	N/A	51
7	Manager	5	N/A	63
8	Education Staff	5	No	50
9	Manager	6	N/A	47
10	Education Staff	6	Yes	47
11	Education Staff	6	Yes	44
12	Education Staff	6	Yes	80
13	School Nurse	7	Yes	38
14	School Nurse	7	Yes	36
15	Education Staff	7	Yes	69

Table 3: Participant characteristics

2.6.3. Procedure

Potential participants were made aware of the current study during LIAM training or the subsequent coaching sessions via the lead researcher (GB) or LIAM coach (JO). Those who expressed an interest in participating in the study following invitation, were contacted to arrange a time to meet with the lead researcher (GB). The purpose of the study and an

information sheet were provided. Written consent was obtained prior to the interview (see Appendix I).

2.6.4. Interviews

Prior to the initial interview, a pilot interview was conducted by the lead researcher with a Pupil Support Worker who they knew personally from outside the health board. This allowed the researcher to become familiar with the interview technique and for reflection within supervision with JO and MS on this process and any difficulties encountered.

Interviews were conducted over an eight month period following the initial training workshop. The interviews followed an open, in-depth format and flexible administration in response to the participant's concerns. Initial questions were around the participant's role, their perception of CYP's needs and how LIAM would be alongside this (see Appendix K). This was used to create a discussion led by the participants concerns rather than specific questions around barriers and facilitators to implementation. Interviews evolved throughout sampling as themes emerged through initial coding, use of memos and reflective discussion within supervision. These were used to inform questions for subsequent interviews. Probes were used when appropriate, for example, 'you mentioned X, can you tell me more about that', 'how did you feel?' and 'what was that like?' Participants were encouraged to share autobiographical memories through use of probes such as 'Do you have any examples of that?' in order to gain rich data (77).

Interviews ranged from 33 to 80 minutes ($M = 50.8$; $SD = 13.52$) and were audio recorded then transcribed verbatim from a digital file. Data was anonymised at the point of transcription and stored and analysed using NVivo 11.

2.6.5. Quality

Consideration of the validity of qualitative research is recognised as pertinent to best practice and good quality research (82). The current study considered the following core principles presented in the framework by Yardley (83, 84): sensitivity and context; commitment and rigor; coherence and transparency and impact and importance.

Memos were used to throughout the research process to ensure transparency and sensitivity to the context of the research process. Memos documented emerging

themes and highlighted any potential biases from the researcher (77) while discussion and review of coding within supervision ensured interpretation was not confined to a single perspective. An audit trail of the research process was kept linking the data to final analysis.

The researcher's role as an active agent in the collection and interpretation of the data was considered (77) in analysis. The lead researcher was aware of their own preconceptions such as knowledge of existing implementation frameworks and CBT based interventions for CYP. In addition, the researcher had involvement in the implementation of LIAM outside the research process (e.g. delivering training, attending coaching sessions or stakeholder events) and experience delivering low-intensity CBT based interventions with CYP. Participants were also aware of the lead researcher's connection to the LIAM coach and co-author (JO as placement and research supervisor for GB) introducing potential for responses to be biased by social desirability. The impact of the researcher on participants and dynamics were considered in analysis through reflection in supervision and use of memos.

2.6.6. Analysis

Analysis of the interviews followed the grounded theory approach outlined by Charmaz (77). Memos were included in the analytic process to ensure transparency in interpretation. Line-by-line coding of the raw data, reflecting the language of participants, was completed to identify key descriptive concepts grounded in the data and reduce the imposition of pre-analytic assumptions on analysis. In a reductive process, low level categories emerged from initial coding and were used to generate new interview questions and a conceptual understanding of the data.

Subsequent interviews employed theoretical sampling to refine emerging high level categories. This process was repeated until theoretical sufficiency occurred. Theoretical sufficiency (85) was sought rather than theoretical saturation (81) to account for the on-going nature of the implementation of the intervention and possibility of changes in perspective during analysis.

Constant comparison across interviews was used to examine the relationships between categories and facilitate the generation of theory alongside the exploration of negative cases to add depth to analysis and examine diversity and contrasts in the data.

Abstraction from the data and theoretical categories were repeatedly examined until the data was represented in the most fitting way. Diagrams and memo writing accompanied clustering of data into the framework (77). A framework of facilitators and barriers across different stakeholders was used as a tool to explore themes within the context of the intervention and the systems in which it was implemented. Examples of coding and analysis are displayed in Appendix L.

3. Results

3.1. Quantitative Data

3.1.1. Reach of the Intervention

LIAM training was attended by 41 practitioners (58.5% School Nurses, 34.1% Pupil Support Officers, 7.3% Other Education Staff) between October 2017 and January 2018. Of these, two were no longer delivering LIAM (due to their role being focused on family liaison work, rather than directly with CYP) and 6 practitioners were no longer in post by June 2018. Therefore, 33 (80.4%) continued to attend coaching and, of these practitioners, 24 (58.5%) had consented CYP to receive LIAM. LIAM was implemented with CYP within the initial implementation period by 19 practitioners (46.3%).

In total, 53 CYP were consented to LIAM during the period of the current study, lower than the initial estimate of 135 CYP (39.3%). Delivery of the intervention was initially started with 35 CYP (66.0%) prior to June 2018 with 16 CYP pending beginning LIAM following the school summer holiday (30.2%). Of the 25 CYP who concluded the intervention prior to June 2018, 74% completed the intervention with 16% did not complete due to not engaging. Data on ROMs was returned by practitioners for 23 CYP who completed LIAM. Cases where pre or post data was missing were excluded from analysis.

3.1.2. Training and Coaching Evaluation

As follow-up data was not matched to data collected pre and post training to protect anonymity in feedback it was not possible to conduct analysis within subjects. A Shapiro-Wilko test of normality indicated that data was not normally distributed and a Kruskal-Wallis analysis was completed treating data as independent groups.

Practitioners ($n = 36$) rated themselves as being significantly more confident in: understanding cognitive behavioural approaches to working with CYP post training ($M = 7.62$, $SD = 1.14$) as compared to pre training ($M = 3.89$, $SD = 1.67$) and this was maintained at follow up ($M = 7.40$, $SD = 1.50$, $F(2, 86) = 53.37$, $p < .001$); being able to carry out

assessments of anxiety with CYP post training ($M = 7.29, SD = 1.25$) as compared to pre training ($M = 3.50, SD = 1.81$) and this was maintained at follow up ($M = 6.93, SD = 1.83, F(2, 86) = 51.58, p < .001$); being able to carry out assessment of anxiety with parents, carers and systems post training ($M = 6.99, SD = 1.35$) as compared to pre training ($M = 3.25, SD = 1.88$) which was maintained at follow up ($M = 6.07, SD = 2.25, F(2, 86) = 44.56, p < .001$); to deliver psycho-education about anxiety post training ($M = 7.25, SD = 1.61$) as compared to pre training ($M = 3.03, SD = 1.78$) and this was maintained at follow up ($M = 7.20, SD = 1.32, F(2, 85) = 52.29, p < .001$); select approaches to support CYP with anxiety presentations to make effective change post training ($M = 7.37, SD = 1.48$) as compared to pre training ($M = 3.61, SD = 1.67$) and this was maintained at follow up ($M = 6.67, SD = 1.68, F(2, 85) = 48.37, p < .001$) and evaluate the use of cognitive behavioural approaches to support CYP with anxiety presentations post training ($M = 7.26, SD = 1.45$) as compared to pre training ($M = 3.36, SD = 1.85$) which was also maintained at follow up ($M = 6.60, SD = 1.60, F(2, 85) = 47.22, p < .001$; Table 2). Post-hoc analysis supported this and indicated that there was a significant increase in ratings of confidence between pre and post training but not when comparing post training to follow up. A post-hoc power calculation indicated that the total sample size would have 80% power to calculate a medium effect size.

Evaluation of coaching, on a 10-point Likert scale from very poor to excellent, indicated that practitioners had a positive experience of coaching. Rating of the evaluation items were as follows: the size of the coaching group ($M = 8.67, SD = 1.91$); the content of coaching ($M = 9.47, SD = 0.64$); the frequency of the coaching sessions ($M = 8.80, SD = 1.70$); the expectation of coaching to level of training ($M = 8.90, SD = 1.49$) and the support within coaching ($M = 9.40, SD = 0.83$).

Intended Learning Objective	Pre (n=36) Mean (SD)	Post (n=34) Mean (SD)	Follow-up (n=15) Mean (SD)	df	F	p
A. Understanding cognitive behavioural approaches to working with children and young people	3.89 (1.67)	7.62 (1.14)	7.40 (1.50)	2	53.37	***
B. Carrying out assessment of anxiety with CYP	3.50 (1.81)	7.29 (1.25)	6.95 (1.83)	2	51.58	***
C. Carrying out assessment of anxiety with parents, carers and systems	3.25 (1.88)	6.99 (1.35)	6.07 (2.25)	2	44.56	***
D. Delivery of psycho education about anxiety	3.03 (1.78)	7.25 (1.61)	7.20 (1.32)	2	52.29	***
E. Selecting approaches to support CYP with anxiety presentations to make effective change	3.61 (1.67)	7.37 (1.48)	6.67 (1.68)	2	48.37	***
F. Evaluating the use of cognitive behavioural approaches to support CYP with anxiety presentations	3.36 (1.85)	7.26 (1.45)	6.60 (1.60)	2	47.22	***

Table 2: Intended Learning Objectives from training.

3.1.3. Routine Outcome Measures

Following tests of normality which indicated normal distribution, a paired-samples t-test was conducted to compare initial data on ROMs pre and post LIAM. There was a significant difference in the scores for pre and post intervention across all ROMs (see Table 4). CYP reported a significant reduction from pre ($M = 57.14, SD = 12.98$) to post scores ($M = 49.86, SD = 13.69, t(20) = 3.17, p < .01, d = -0.69$) on RCADS Total t scores. T scores were also significantly lower post intervention on the low mood and anxiety subscales of the RCADS ($M = 46.48, SD = 11.27$ and $M = 50.95, SD = 13.51$, respectively) in comparison to pre intervention ($M = 53.38, SD = 13.65, t(20) = 3.17, p < .01$ and $M = 56.90, SD = 14.25, t(20) = 2.60, p < .05$, respectively) with moderate effect sizes ($d = -0.49$ to -0.56 respectively). A significant reduction post intervention ($M = 9.36, SD = 7.26$) compared to pre ($M = 17.86, SD = 6.31, t(13) = 4.53, p < .01$) was observed on the YP-Core with a large effect size ($d = -1.31$). CYP rated themselves as moving significantly closer to meeting their goals (GBOs) post intervention ($M = 7.29, SD = 1.68$) in comparison to pre ($M = 2.62, SD = 2.29, t(20) = -8.18, p < .001, d = 1.57$). Parents rated primary school aged CYP as lower post intervention ($M = 11.00, SD = 6.71$) than pre intervention although this difference was not significant ($M = 14.45, SD = 5.01, t(10) = 2.08, p = .064, d = -.64$).

Post-hoc power calculations for a two-tailed hypothesis were completed based on the calculated effect size. These indicated that there was sufficient power to detect changes on GBOs (91.16%) but that analysis of initial ROMs was limited for the YP-Core (61.29%) and underpowered for the RCADS Total Score (30.67%), RCADS Anxiety subscale (21.79%) and Low Mood subscale (17.70%) and SDQ total score (14.24%).

With regards to acceptability to CYP, descriptive analysis of the nine items on the ESQ relating to Satisfaction with Care indicated that the mean total score was 17.29 ($SD = 1.04$) out of a possible total of 18 (Table 4).

Measure	Time	N	Mean	SD	df	t value	p value	Cohen's d (95% CI)
SDQ	Pre	11	14.45	5.01	10	2.082	0.064	-0.64 (-1.63 to 0.11)
	Post	11	11.00	6.71				
GBO	Pre	21	2.62	2.29	20	-8.18	0.000	1.57 (0.88 to 2.27)
	Post	21	7.29	1.68				
YP-Core	Pre	14	17.86	6.31	13	4.53	0.001	-1.31 (-2.13 to -0.49)
	Post	14	9.36	7.26				
RCADS: Low Mood	Pre	21	53.38	13.65	20	3.17	0.005	-0.49 (-1.11 to 0.12)
	Post	21	46.48	11.27				
RCADS: Anxiety	Pre	21	56.90	14.25	20	2.60	0.017	-0.56 (-1.17 to 0.06)
	Post	21	50.95	13.51				
RCADS: Anxiety & Low Mood	Pre	21	57.14	12.98	20	3.17	0.005	-0.69 (-1.34 to -0.09)
	Post	21	49.86	13.69				
ESQ: Satisfaction with Care	Post	17	17.29	1.04				

Table 4: Within subjects t test for pre and post routine outcome measures

3.2. Qualitative Data

Figure 5 displays the key categories which arose from exploration of the facilitators and barriers to the implementation of LIAM, a school based cognitive behavioural informed intervention for CYP. Themes, grounded in the data and interpreted by the researcher, are arranged in a framework of the facilitators and barriers alongside the different stakeholder levels (systemic, practitioner, school, parents and CYP). There is, however, overlap and complexity between these. Excerpts from interviews are presented to increase transparency and illustrate the emerging themes. Stakeholder levels were identified with reference to previous literature on school-based interventions (47) and adapted to the

current multi-agency model of LIAM. Through presentation of sub-themes, Figures 6 and 7 display a more detailed diagrammatic representation of emerging themes.

Due to the constraints of working within the school calendar, it was not possible to present the findings of the interviews to participants to ensure their views were accurately represented. However, reflections on the facilitators and barriers to implementation were captured during the evaluation of coaching, and informal feedback from the wider sample of practitioners during the implementation echoed the emerging themes (see Appendix M).

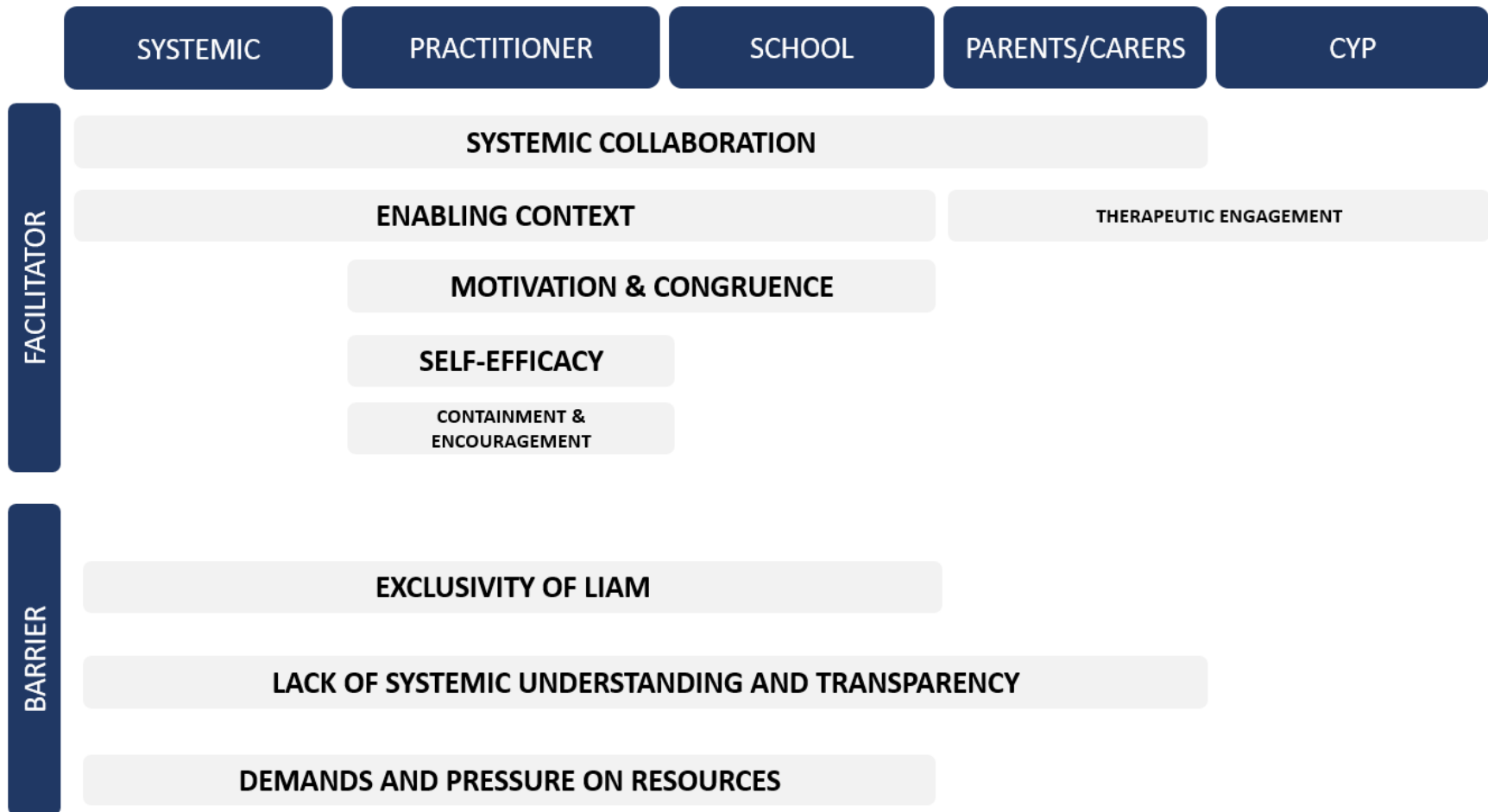


Figure 5: Facilitators and barriers to the implementation of LIAM

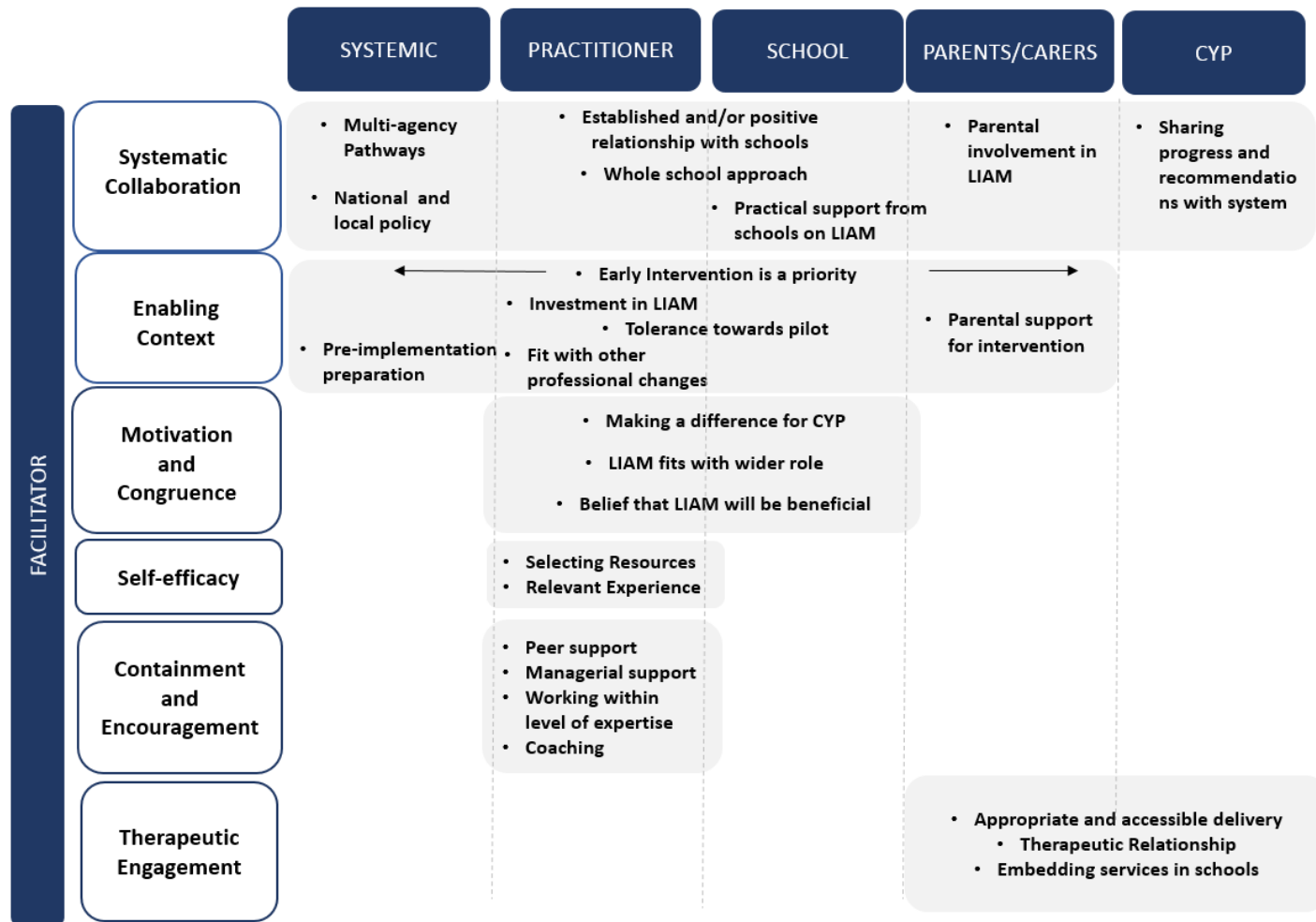


Figure 6: Themes and sub-themes as facilitators to implementation across stakeholders

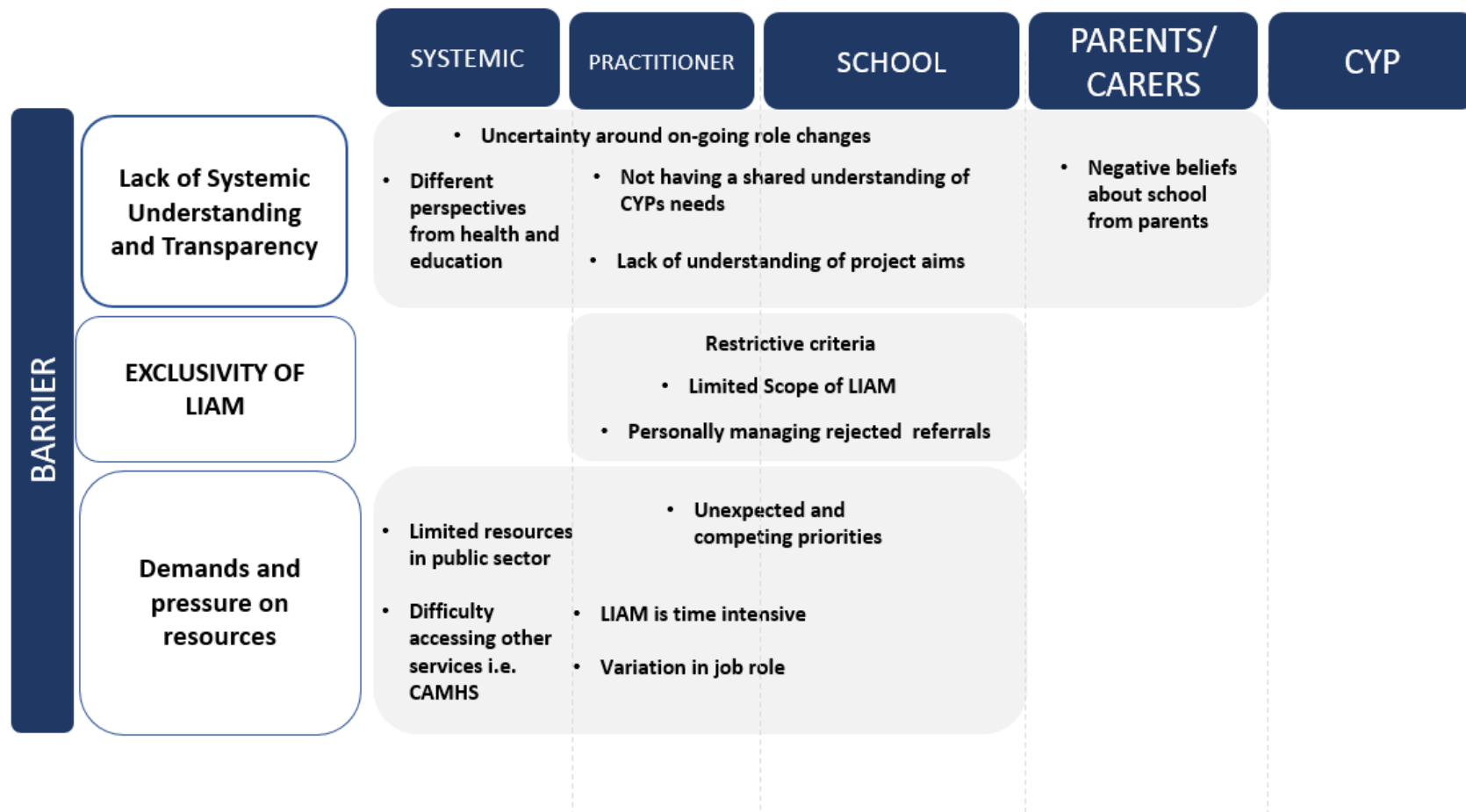


Figure 7: Themes and sub-themes as barriers to implementation across stakeholders

3.2.1. *Explanation of theoretical categories*

3.2.1.1. *Facilitators*

3.2.1.1.1. *Systemic Collaboration*

“*Systemic Collaboration*” emerged as a facilitative higher level theme across stakeholders:

“We would endorse the kind of national and local strategies about early intervention and to do that well I think we have to work in partnership.” (M6)

This involved taking a *multi-agency approach to pathway development* at a systemic level, with participants reflecting on collaboration between different professionals and systems (i.e. education and health) in relation to service provision. This connected with the theme of creating an “*Enabling Context*” which acted as facilitative towards LIAM.

Falling between the practitioner and school stakeholder level was the relationship between them. An *established, positive relationship with schools*, and in particular, the senior management team, emerged as key to facilitating implementation and identifying referrals. Facilitative relationships between practitioners and schools were promoted through visibility and their length of time working with a school, whilst having no relationship would mean that it would be difficult for SNs, as a visiting service, to work with them, and therefore they were less receptive to LIAM:

“I think the visibility is really important. I suppose you can be at the end of a phone but I just feel, especially with, when you're working with children, I think they need to see you quite a bit and get used to you and vice versa and you know, build a trusting kind of relationship.” (SN4)

“You couldn't go in. You couldn't. If a school..and it sounds

terrible...you wouldn't get in because the school nursing service is very much we just go in when we are asked. We're not compulsory. You don't have to do. So it would be really difficult.” (SN14)

This primarily emerged from interviews with SNs, however PSOs who were new to working with their school also identified the importance of building new relationships as facilitative to working.

Participants reported that taking a *whole school approach* was important at both the practitioner and school stakeholder level. Practitioners, who did not know the needs of the school population well, discussed that in order to identify referrals they needed to collaborate with school staff who did know the pupils well. This was more common for practitioners who were new to the school or for SNs. Although the support of the school senior management team (SMT) was important for implementation, it was observed that, to identify CYP who may benefit from the intervention, it was best placed to work in partnership with teachers and guidance teachers due to their more in-depth knowledge of their presentation:

“I think the class teachers are with them 6 hours a day and management just sees them from a distance of being really, really bad or they have overheard something. Whereas with teachers if there is somebody who sitting in the class anxious...[SMT] are not going to notice if they are sitting with their head down in class moping, sitting with lots of layers of clothes on all the time or maybe looks a bit hot and sweaty a lot. Those are things a teacher would notice and those are the signs to look out for. And it's not their fault, it's their job to be on the management side but I have definitely found that especially for LIAM it is better to go through teaching staff for the referrals and for getting to know the children anyway...” (ES15)

A *whole school approach*, was a facilitator that enabled individuals to overcome the “*Lack of Understanding and Transparency*” barrier around LIAM within the school system and improve identification of referrals by working with school staff at different levels.

SNs also reported that *pragmatic support from schools* on other aspects of LIAM

was facilitative as a visiting service. School support around obtaining resources, contacting families and managing issues around risk was facilitative to practitioners as they were not based in the school:

“But I think just being able to phone up, just for simple things, that you can phone the secretary and they can organise a room for you or they can send out a text for you to say oh [name] is coming to see you tomorrow just as a reminder. I think that's really important.” (SN13)

“I think I've been really quite lucky because the school have been quite active and actually spoke to the parent and said look we've got this thing I'm going to refer them is that ok? So they kind of planted the seed and when I sent all the information over they sent it over. So they kind of chased the permission slips up so I didn't really have to do the ...ground work. So it helpful cos I don't think I would have been able to so the school kind of took onus for that.” (SN14)

The impact of the system around CYP, particularly in relation to parents and carers was frequently discussed by practitioners and the need to have *parental involvement* in LIAM emerged as sub theme within “*Systemic Collaboration*” at the parental stakeholder level. Working with parents to involve them in plans and discussions around CYP was seen as important, particularly when working with primary school ages:

“I'll also use it as an opportunity to ask her how things are at home especially if any of the goals are related to anything at home....I think it is important to share the child's goals with the parents because then if there is anything home wise the parent can update you on how it is going...” (ES15)

In addition, practitioners discussed collaborating with the system around the child, including teachers and parents, to *share the progress of LIAM for CYP* and managing any additional concerns such as risk.

3.2.1.1.2. *Enabling Context*

An “*Enabling Context*” emerged as a theme across stakeholders in relation to the context in which LIAM was being implemented. Participants discussed a sense of openness to the intervention across stakeholders and that there was a need for more early intervention making them ready or willing to implement LIAM. This stemmed from various levels and *early intervention as a priority* emerged across stakeholders. Participants reported being aware of the high prevalence of mental health difficulties, the long-term implications and the need for CYP to have access treatment, whilst managers highlighted the need for this to be evidence based.

Within the systemic stakeholder level *national and local policy* was observed to be a facilitator. The focus on early intervention in the Mental Health Strategy 2017 – 2027 (8) along with educational policy, meant that policy supported the implementation of LIAM by prioritising the need to create universal capacity for early intervention in schools:

“I think the mental health strategy is a kind of overarching driver which, with all the focus there on early intervention and effective work in schools, and very much looking at [all of] the parts of the system rather than just the special piece mental health plays.” (M6)

Managers talked about undertaking *pre-implementation preparation* during the exploration and installation phases of implementation leading to “*readiness*” (M6) in the system at management level as well as resources to do so:

“I guess what my role has been is probably setting the scene from a kind of strategic and managerial point of view, and getting things set up. So once we had the LIAM resources we were pretty set up and ready to run with implementation because we had already done quite a lot at a managerial level about what would be required.” (CPM6)

LIAM’s *fit with wider professional changes* emerged as a sub-theme facilitator at the practitioner level in a similar way to *national and local policy* at a systemic level. Mental health was identified as one of the key areas of focus within the new SN pathway, as was

emotional well-being for the PSO's job role. LIAM, recognised as early intervention, emerged as fitting with current professional priorities.

The *investment in LIAM* also contributed to an enabling context and readiness in the system. Within this sub-theme, participants discussed that not only investment in time, resources and staff facilitated the delivery of LIAM, but that the commitment to following plans through and protecting their time gave practitioners a sense of confidence and value in relation to their delivery of LIAM:

"I definitely feel like it's something that is taken serious and it is something that it is highly looked after because we do have that protected time and it was quite nice because it is rare to actually get a nice two full day training." (SN14)

Participants compared this to previous training and that a lack of support can lead to less investment from practitioners:

"It's a bit disheartening when you think that they want you to do a job but they don't put everything behind it whether that be money or time or... photocopies of things...and I think a lot of the time we get hyped up this is what we're going to do, this is what we want you to do and we'll support you all the way and that doesn't always happen.." (SN13)

Tolerance towards the pilot status of LIAM also emerged from the interviews as a sub-theme within the *"Enabling Context"*. Participants were open to learning from the pilot of LIAM, tackling barriers to implementation, and working with aspects of LIAM they were unsure because it was a pilot. In addition, practitioners talked about a sense of openness in developing pathways in collaboration with coaches and schools as LIAM was being delivered in a new, multi-agency way. Participants appeared supportive of the pilot and offered ideas about the scope of LIAM or how it may evolve in the future:

"But that's just the nature of setting up anything new and working with schools, setting up processes but once that's hopefully all

embedded in we'll get slicker at doing it, the schools will get slicker at referring in and it will feel a more natural, just part of the job they are doing.” (M9)

Parental support for intervention was also important in order to create an enabling context in order to facilitate engagement with CYP and application of the intervention at home:

“So there is a big difference between engaging parents and non-engaging parents as well because one they won't engage with us and also they probably won't engage with that child either so there's not the support here to help them. So in relation to using LIAM it would probably be the same, the one parent that I did speak about, about the boy that we thought we were going to be able to use, she was up for it because she was desperate, her parent was really, really unhappy, he was struggling to stay in classes, he was very anxious, he wasn't doing what the doctors had suggested and she was genuinely just looking for any help” (ES8)

3.2.1.1.3. Motivation and Congruence

“Motivation and congruence” towards LIAM emerged as a facilitator to implementation. All participants reported feeling positive towards LIAM and supportive of the project overall, including those who criticised aspects of LIAM and made suggestions for the future. At a school and practitioner level, the sub-theme of *LIAM being beneficial* emerged for both the school and CYP:

“I don't see LIAM as a challenge, I see it as something that, that....I think it will be great for the school and I think it'll be great for the kids and like the one I'm going to be working with. I think it is going to be good and my hope for him is that I'm going to increase his confidence and he is going to put his hand up in class and he is going to be able to play with his friends and that would just be great because I know that's in him somewhere, I know that is there. He just needs it...yeah...” (ES10)

“I think LIAM will work in the school because I think the school, the teachers are so open to trying anything to making these kids lives better that they will of course engage in this” (ES8)

Practitioners discussed that mental health and well being is a large part of their current job role and that they were involved in other ways of working with mental health. LIAM therefore had, *congruence with job roles*, and this emerged as a facilitative sub-theme at the practitioner stakeholder level. Within this, participants acknowledged that, due to a lack of training prior to LIAM, the intervention met a training need for practitioners giving them motivation towards it:

“Although not mental health trained, I've always done a lot of mental health stuff so yeah I think it just formalises it a bit more...gives us a better idea of what we're doing and what we're aiming for. We've always kind of had these kids sent to us and you go in and chat to them and see what their issues are and offered strategies but we've never done specific training in low level mental health. I think that'll be quite good. (SN3)”

Practitioners also discussed that learning new skills from the training was relevant to their role outside of LIAM and would generalise to other ways of working. Practitioners, including those that had implemented and not implemented LIAM, discussed “picking and choosing (SN14)” bits of LIAM when working with other CYP:

“Some of the kids have got issues with sleeping at night, so it has been good. Cos we've been able to sit down and not use any of the LIAM stuff, but the way we were talking in the course, just about how you speak to the kids and look at the positives, and trying to relax and calm down and your mindfulness... so being able to do a wee bit of psycho-education with them has been good cos I would never have known about that without being on the course and doing all the LIAM stuff.” (ES8)

LIAM was reported to be congruent with practitioner's priorities. They identified that *making a difference to CYP* was the core, rewarding part of their role and that seeing the difference that LIAM could make to CYP was motivating towards implementation:

"I suppose once you have finished your couple of people that you have done the program with and maybe seen on the strengths and difficulties or on the RCADS if you see improvement. I suppose for us that's when we can see oh I've done a good job so I'm looking forward to getting to that and seeing what the results are, and the difference that you have maybe made...that'll be good after all this training and all this coaching...and all this time...that's what you are looking forward to..."
(SN13)

3.2.1.1.4. Self-Efficacy

"Self-efficacy" emerged as a facilitator at the practitioner level. Participants discussed that you needed confidence to begin the implementation of LIAM in a similar way to learning anything new. Self-efficacy was also reported to be facilitative to building relationships with new teams.

In particular, self-efficacy was relevant to the use of ROMs and *selecting resources*. Practitioners reported feeling anxious about delivering LIAM with CYP without the resource pack from NES, although acknowledged receiving this would not change the delivery of the intervention. Although some of these difficulties were attributed to demands on time, practitioners reported feeling uncertain about selecting and preparing resources, particularly when there were multiple to choose from:

"The start it was quite difficult because we didn't have the packs and a lot of people were saying where's this resource, should we be using that one, shouldn't we be using that one. So I think that was a factor as well." (PSO15)

Experience was related to building self-efficacy and, as practitioners had a range of different backgrounds and skill sets, the level of confidence in the implementation of LIAM

varied. Previous *relevant experience* professionally was connected to increased self-efficacy alongside different educational backgrounds and completing LIAM cases:

"It's the confidence thing of being able to pick up something and run with it and I suppose it is just because I come from a different background" (ES12)

Practitioners reported feeling confident about the part of LIAM that involved engaging CYP as this was a core part of their role already. Where there was a gap between training and LIAM delivery with CYP, practitioners reported concerns around losing confidence. This was in keeping with a number of minimum cases being built into the model in order to promote skill development. Gaining experience was associated with feeling more confident in relation to skill development:

"I know if I was going to do it again with another young person I would be way more comfortable knowing right we do the YP-Core every week, all that stuff, but initially that was a bit daunting cos that is completely new to me." (ES11)

3.2.1.1.5. *Containment and Encouragement*

"Containment and Encouragement" emerged as a theme which facilitated the implementation of LIAM at a practitioner level. Participants reflected that the format of the training was well received and at an appropriate level and it would be beneficial for their wider staff teams. Although participants felt that training contained a lot of information, the on-going support of coaching facilitated learning over time. *Coaching* was a key facilitator and supported practitioners to overcome the barriers to implementation. Participants reflected that coaching was containing, kept the momentum of the implementation going and allowed practitioners to build confidence:

"Her role is very much this is session 2, this is the pack, I have photocopied it for you, do this, do this and do this and simplifying it. And I think she has recognised that within the group so she will bring

one pack at a time because I think people get very quickly overwhelmed and it's fine cos you can concentrate on it in here but as soon as you go out of that building the demands will be put on you and a hundred and one things that, best will in the world, you are not going to remember. So I like, I think that she is very good at breaking things down for the people that need it, broken down and offering you know, phone me, send me an email, have you got everything you need. So always available, or that's how it feels. You know, in that position, a very supportive in that way and I think, that is what I said earlier, that is what makes the difference. It's that, somebody who is there, you're not just left to run with it." (ES12)

The consistency of coaching sessions and their protected time was also observed to be facilitating and provide reassurance, as was the informal support practitioners received from the coach:

"I was able to phone her and she phoned back. It was quite good just to have the reassurance that I did the right thing and to have, like obviously we have our [Child Protection protocol] we follow but obviously [coach] had shown us that that she has an action plan and she had a safety net in place." (SN14)

A supportive relationship with the coach was also encouraging towards implementing LIAM:

"It's been great working with [coach], she's so accommodating with the staff and flexible and easy to work with in a very you know non-threatening, non-judgmental way which is really important for staff to undertake this work. They need to feel comfortable with the person who you know is driving this and providing the supervision. So I don't think she could have been more accommodating than she has. It has been really nice working with her and I think if you had got the wrong person right at the beginning that would have had quite a negative affect but

*she has only brought positive things to it even with all the challenges.
She has worked really hard".(M9)*

Coaching was also reported to prevent drift, improve consistency and ensure safe delivery of the intervention. It emerged that practitioners also acknowledged an awareness of the limitations of LIAM and the importance of *working in their area of expertise*:

"Within that caveat obviously you need to recognise when it's not appropriate to very much work within your boundaries and your role and not try and over commit to something you're not totally trained to do." (M9)

In addition, the *manualised structure of LIAM* was observed to be clear and containing, allow practitioners to feel more prepared and structured when undertaking mental health work than the work they were doing prior to LIAM. Coaching allowed people to become familiar with resources and continue to develop skills:

"I think the resources are really good cos it highlights the wee boxes of everything you need to remember for that session so you are always reminded that you need to have that sheet out with yf core the goal based outcomes which is really helpful." (ES15)

Peer support emerged as a facilitator for practitioners in encouraging them to implement LIAM. They described being used to working in a team and having colleagues available for informal support. However, time demands meant that it was not always available. Within coaching groups, practitioners who were more experienced with the educational setting were able to offer those new to working in the school environment support. Peer support was observed to normalise and contain experiences working with LIAM, allow for sharing ideas, learning about a wider range of referrals and offer a more informal way of being supported:

"I think it just shares...one it shares that everybody is kind of feeling the same because it is new but it also helps bounce ideas off...That was brilliant, just being able to bounce off each other and I

think that is key. So for staff when you are seeing somebody so afterwards I think it is really important to have a discussion with someone. And I know that [coach] is going to be part of that but even just talking to another member of staff sometimes is just.. because at the time when you are in there, and you are focusing, you might think one things happening but sometimes it takes somebody else to say well maybe it's that. The person who is doing it might be absolutely right, the other person might be talking absolute rubbish but sometimes it can make you ask different questions especially if it is something new.” (SN5)

One practitioner who attended individual coaching discussed feeling isolated and wanting more peer support, but this was related to their wider role as a PSO rather than specifically around LIAM:

“Just to speak to somebody who else is doing the same job, who has got the same job title as me and saying what are you doing in your school and how are you finding it” (ES11)

Although aspects of management and support were discussed by 10 participants, themes did not emerge at a management stakeholder level. “*Managerial support,*” including collaborating to develop the role, good communication, emotional support and overall support for LIAM as a priority were identified by practitioners as encouraging them to overcome implementation barriers:

“You know what, I don't find it hard to balance it because I feel really well supported in this school. I've got a really good management and I've got a really supportive management. I've got a really supportive colleague in the principle teacher who we started this role together.” (ES10)

In addition, SNs discussed that their existing *referral pathway*, and the pathway of discussing referrals at coaching sessions was containing as it meant that the number of referrals that they received was managed and triaged.

3.2.1.1.6. *Therapeutic Engagement*

“*Therapeutic Engagement*” emerged as the key facilitator for working with parents and CYP. Therapeutic engagement was obtained through considering *appropriate and accessible delivery* of LIAM and that this was appropriate to the needs of the CYP. For example, by considering the length of the session, when they would meet during the week, setting individualised goals and using materials that suited their style or learning. Several practitioners discussed that use of videos was helpful in engaging CYP and also reduced “pressure” on CYP who perhaps found it more difficult to engage due to their anxiety. In addition, practitioner’s discussed the need to create a safe, consistent space for CYP, where they would feel heard and supported by the practitioner summarised by the sub-theme of *therapeutic relationship*. It was acknowledged that this could take time to develop and PSOs, as practitioners *embedded in the school*, discussed being able to informally build relationships with CYP prior to implementing LIAM.

“*Therapeutic engagement*” also emerged as a theme at a parental level. One practitioner talked about how some parents, particularly those with their own difficulties could find it challenging to engage with services. SNs reported that families tended to engage well with them as they were seen as a “non-threatening service,” (SN5) whilst PSOs discussed how parent’s own experiences of school could influence their beliefs around school for their child and it was important to work with them to overcome this barrier. It was therefore facilitative for parents to work with practitioners *embedded in schools and* have relationships with practitioners similar to those captured by the non-judgmental, supportive nature of the *therapeutic relationships* sub theme.

3.2.1.2. Barriers

3.2.1.2.1. Lack of Systemic Understanding and Transparency

“Lack of Systemic Understanding and Transparency” emerged as a theme around the understanding of one another’s roles, systems, priorities and intervention aims. At a systemic level, the *different perspectives between health and education* were highlighted as a barrier, particularly for practitioners working within education:

“Sometimes the solutions that health finds to help us with that are constrained within a health model and don't really, properly understand the educational model of working.” (M7)

Educational Psychology talked about health and education coming from different “underlying world views” (EP7) as health was focused on a deficit model while education was moving towards a more strength based approach. A deficit model was observed to not fit with the strength-based approach of GIRFEC and this was reflected in the use of language and evaluation in LIAM:

“That is definitely, what has felt so new about it cos I've always... I was previously a teacher but I've come into this role very much from the education side of things and the LIAM part is, has felt very much like it is coming from.. What's the word, coming from health, NHS, it's just very new, very new.. “ (ES11)

PSOs who had not observed differences between these system, attributed this to LIAM being well placed as embedded in schools and SNs noted that this was their typical way of working and did not observe this to be a barrier:

“It's not something I've heard school nurses say they struggle with in any way. And you know all school nurses have good relationships with guidance so there is that link with education and health in that respect.” (M9)

Due to the differences in these systems, several practitioners from an educational background suggested coaching around their other work on emotional well-being in schools would be useful as well as having a more educational perspective to LIAM coaching.

Identifying referrals emerged as a barrier to implementation and, on further exploration, this was attributed not only to the theme “Exclusivity of LIAM” but to the sub-themes of a *lack of systemic understanding of the project aims* and *not having shared knowledge of CYP’s needs*.

Not having a shared understanding of CYP’s needs led to difficulties in identifying referrals if practitioners did not know CYP well enough to establish whether LIAM was appropriate. Improving identification of CYP who would be appropriate for LIAM jointly between practitioners and schools was discussed frequently by participants. It was thought more people who were appropriate for LIAM exist but that school staff may not have the knowledge required to identify anxiety at an appropriate level and share the needs of the CYP with LIAM practitioners. However, LIAM practitioners were also required to make decisions about referrals within coaching with limited information. This was particularly difficult if the practitioner was not well known in the school:

“I think that is just because of my specific circumstances is that I am in a new school, with new staff, with new pupils, in a new job that's never been done before so I wasn't able to compare to some of the PSOs who had maybe been working in their schools for years and maybe just taken on this role and they know the pupils so they would be able to say well I know that that child and that child would be perfect for this. I didn't know who I was working with and that has really been my main barrier and until I get to know more and it's a big school, with 1000s of pupils so I kind of have to rely on other members of staff bringing forward the referrals that's my main barrier.” (ES11)

Those that were new to their school or a visiting service had to rely on others to identify CYP who may be appropriate while those that were more readily able to implement LIAM knew the pupils well due to being established in their role and having an overview of the needs of the school.

A *lack of systemic understanding of the project aims* also emerged. The SMT were reported to not always be aware of LIAM and, within schools, if a small

number of people were aware of the project, they were likely to not understand the details of the program, who it was appropriate for and what the intervention modality involved:

“Even just down to me saying to you, the head teacher won't even know what [LIAM] is. Because when you're doing your courses, you can imagine how many courses you're doing, you couldn't go down this and say this is what I've done, this is what I'm doing this is what I've learnt and this is what I'm going to do...” (ES8)

“I think even the members of staff that do know are aware of LIAM and roughly what it is and there's been a couple of times when they've been like of maybe you could do a bit of that with X and if you could maybe do that for the next 3 or 4 weeks until this happens or that happens and I'm maybe thinking no no, you can't do it in 3 or 4 weeks it is a slightly longer program. “ (ES11)

Participants reported that the initial referral criteria in relation to the project aims was not clear with one participant reporting that it was “mis-sold” to the SMT (ES12). This lack of understanding around the project's aims led to more inappropriate referrals initially and pressure on time made it more difficult to promote understanding within the school:

“I think that is one thing I don't think.. I don't think the criteria was discussed at the LIAM training. It would be good to know straight off what the criteria was... “(SN14)

“we had just sent our referrals out first, but I think in the future if we were going to do this again I would go in and I would speak to my schools, but it is just a matter of time constraints we have on it. I would go into school and maybe just have a half hour session or even speak to the teachers that deliver like an information session before and then say because I think this time we just got anything and everything because it was so new. “(SN14)

Participants discussed that in order to promote the understanding of the project aims to the school they needed to communicate the required resources to school clearly and take a whole school approach, highlighting a need to increase knowledge of anxiety presentations in schools and how LIAM fits in.

In addition, a *lack of understanding around job roles* between different professional was a barrier for practitioners. SNs discussed frustration at their role not being known in schools and the on-going need to promote it as part of their wider professional changes whilst PSOs, who were working in a new role, discussed the difficulties becoming established in a newly created post. At a practitioner level, the larger professional changes led to a lack of understanding and uncertainty for SNs around what was happening with their current job role:

“[We] had 2 days CPD and I know that caused a lot of anxiety and worry with staff but I think staff are beginning to feel like they are being asked to do too much you know, there is lots of stuff happening at the same time. There is going to be training coming up, we've got the LIAM stuff, we've got to do this, we've got child planning meetings to attend, we've got case conferences to attend, we've got our normal workload as well as all this new stuff and I think some staff are finding that quite stressful.” (SN5)

At a parental stakeholder level, participants reported that a lack of understanding and transparency between parents and schools emerged as a barrier. For example, participants notes that parents not feeling heard by the school or holding negative beliefs about the school based on their own prior experiences was a barrier to working together.

3.2.1.2.2. Exclusivity of the Intervention

The *“Exclusivity of the Intervention”* emerged as a barrier across systemic, practitioner and school stakeholder levels. Participants mentioned concerns around the referral criteria being too restrictive or “specific” and that this had led to difficulties identifying referrals and initiating the implementation of LIAM:

“I guess it's just that concept of it might appear to the school nurse that they need to be in a little set package of what's wrong with them, anything extra we can't deal with, any ASD features, self-harm...anything which can often go hand in hand with an anxiety, not always obviously...but from what I'm hearing quite a few referrals are brought to the table but are not going to be acceptable because there are other things going on at that time and you just think... it probably feels for them quite frustrating because not many people do just fall into that nice little niche..” (M9)

Within this sub-theme of the *restrictive referral criteria*, participants discussed disagreement with the exclusion of CYP with Autism Spectrum Disorder in particular, despite having experience of CYP engaging with LIAM in an adaptation:

“Like you can't have a children with autism on it, but that is quite interesting because the young person I started with, that I am working with, he has now been given a formal diagnosis of ASD, but it has been approved that I can continue with it, but for me this kind of highlights the fact that it could actually be working for it...” (ES15)

On reflection within the interviews, some practitioners discussed that the criteria was developed by mental health specialists and must be grounded in the evidence base, although the delay in identifying referrals was frustrating. Practitioners in the education system attributed the current referral criteria to the ‘piloting’ of the intervention and anticipated that this may change in the future as it did not account for the context of CYP that they work with. Participants reported working with a range of needs across age groups, levels of deprivation, exposure to trauma, in relation to sexuality and systemic difficulties. The *limited scope of LIAM* as a low intensity intervention for anxiety to address diverse presentations emerged as a sub-theme barrier to implementation. Excluding individuals with more complexity was not seen as sustainable by practitioners, as it did not meet the priorities of some practitioners or schools:

“I also feel in my current role in... a lot of the time you are dealing with the high tariff, and it is fire fighting daily, so the difficulty of this program is because the supports are really, really low intensity on the spectrum” (ES12)

Schools were reported to primarily refer those that they were most worried about irrespective of whether they were appropriate specifically for the intervention, but there was *limited scope* for LIAM to address these needs. Rather, participants frequently discussed that LIAM was one part of their wider role and not “stand alone.” PSOs discussed that they offered other forms of support and interventions around mental health and well-being with CYP as part of their role while SNs discussed that they may continue working with someone even if they did not meet the criteria for LIAM and that referrals should not be so exclusive and they may need support through a different intervention:

“For them to think of someone, in my opinion, there is obviously some level of need in the first place or they wouldn’t be saying that name in the first place so you have to... it’s not that if LIAM is a no for that person...in my opinion, you have to find another route of support” (ES15)

Practitioners also discussed difficulty *excluding referrals personally*. Not offering an intervention conflicted with the way that PSOs and SNs worked and they reported feeling “uncomfortable” or not “fulfilling my job role professionally” (SN14) if they rejected a referral for LIAM, particularly when presenting difficulties were not severe enough to meet CAMHS referral criteria. Practitioners reported a need to offer another service because if felt like “Letting people down a bit when you say no” (SN13). Overall, participants reported that engagement with LIAM at different stakeholder levels would be reduced engagement if it did not meet systemic priorities. However, a manager reported that LIAM was not inappropriate for complex cases per say, but may be a small part of the input a CYP received and in relation to a specific anxiety and a need for LIAM to be more integrated with the provision of other services in schools was highlighted.

3.2.1.2.3. Demands and Pressure on Resources

The impact of the *“demands and pressure on resources”* was discussed by practitioners. While this was primarily related to time, practitioners also discussed pressure on other resources such as accommodation. Practitioners reported finding it challenging to manage both the variation and volume of demands on their time. This was associated with the implications of *limited resources in the public sector*. Practitioners discussed feeling constrained in their ability to implement LIAM because there were less staff *“on the shop floor”* (SN4), yet the demands of their role had not changed. SNs discussed their holistic approach to health in their role and the need for them to work with a large range of presentations. The *diversity of their role* emerged as a sub-theme within this theme and was reported to be challenging, with one participant describing themselves as *“jack of all trades and master of none”* (SN13). Participants reported finding it difficult to give their focus to one aspect of their role, including LIAM, and it could be a *“full time job”* (SN13):

“Because it's one part of a very big role you know it just depends who we get, as a school nurse you're always a bit of a juggler, you've got all these balls in the air and you've got child protection stuff coming in right, left and centre and this needs to be done and that needs to be done.” (SN3)

One PSO reported pausing the implementation of LIAM due to not having enough time to begin within their part-time hours whilst simultaneously setting up other new services within their school. Other PSOs discussed their changing role day to day and apprehension about implementing LIAM without being able to dedicate adequate time to the work. Both SNs and PSOs reported that their time was taken away from LIAM by *unexpected or competing priorities*. For SNs this was primarily concerns around Child Protection and attending case conferences whilst PSOs reported that they would have to react to any difficulties arising in the school:

“It is really tricky, it's really tricky because if we've got like a child protection case conference that might pop up but you've already got a meeting scheduled for this little one and maybe they've been waiting all week and maybe they are relying on that appointment. That's really

difficult to actually say, well you know what I can't do today but I can do tomorrow.”(SN14)

“To be pulled away from what your original idea was because it is very difficult to protect that time within a school because you have to be reactive and if you are that body that is needed at that time then I think that is a difficulty of the program...even though I'm timetabled, I've put these children in on my timetable, as soon as something like that happens you have to drop everything and that is the frustration of it.” (ES12)

Practitioners acknowledged that the CYP who they were meeting with for LIAM had needs to be met but that, due to the demands and pressure and time, it was difficult but to prioritise low level needs and early intervention:

“But how do you protect that just because this one is kicking off here why is this one not got exactly the same rights. They do, their needs need met just as much but in that moment, that's always going to be the tricky thing in teaching, always.” (ES12)

Working round the school calendar was also observed to be challenging practitioners to build in 6 weekly sessions due to holidays and timetabling:

“So for me to do it with a pupil they obviously have to be taken out of a class on a weekly basis and sometimes that can be tough just from a timetable point of view I guess it would be a bit different in a primary school where the day is a little bit more flexible but in a secondary school you've got the blocks, and the subjects and can you afford to have them missing a certain subject for 6 to 8 weeks . So that can be quite frustrating.” (ES11)

In addition, a sub-theme around *LIAM being time intensive* emerged at the practitioner level. The demands on time for LIAM were higher than anticipated and, in

particular, the work around gathering information about referrals, obtaining consent, preparing resources, use of ROMs and attending coaching. Practitioners reported not initially building this time in and that the initial frequency of coaching had been “too frequent” (M09) when there were not cases to discuss but as delivery of the intervention had begun it was more justified. Practitioners who were part time were reported to find the demands of LIAM more challenging as the proportion of time on LIAM was greater for them. As a result of this barrier, practitioners expressed concerns around their caseload capacity:

“I think for staff that is a worry because if you work 20 hours a week that could be quite a lot of time. I think, for myself, I work full-time so, but I think for me it will be ok. I think I would manage it ok. You have to be, we have to be very careful how many kids we take on at a time as well” (SN5)

Practitioners that overcame this barrier reported protecting time through use of a timetable, sharing this with the wider school and having support from management:

“That is going to be protected. So we kinda made sure of that at the beginning because that was something that we didn't want to interrupt, because I'm going to be in a place with this child, I'm going to be in a room and we're going to have that 1:1 and we're not going to be interrupted no matter what's going on kinda like outside.” (ES10)

“Actually having a few sessions on your timetable saying you are with the child but actually this is your preparation time. People don't build in preparation time and if you start at 9 and you finish at 3 you don't get preparation time. Sometimes you don't even get your lunch depending on what is happening in the day... “ (ES12)

The demands and pressure on time in the wider system out with LIAM was discussed by participants. Teachers were reported to find it difficult to offer targeted

support for CYP in class and the impact of *difficulties accessing other services such as* CAMHS due to the length of waiting times was discussed:

“Obviously CAMHS themselves have such a high waiting list and everybody knows that it's not hidden and because of this schools are now reluctant to refer on because that child might wait. Obviously if there are serious issues they will refer on but they would rather have something more accessible or a quick-fix...which it might not work but you know you can try” (SN5)

Participants reported frustration from various stakeholders at the difficulties accessing specialist mental health services and the consequences of this on the systemic expectations of whose needs LIAM could meet.

4. Discussion

The study aimed to explore the facilitators and barriers to the implementation of LIAM, a school-based cognitive behavioural intervention for anxiety involving multi-agency collaboration between health (CAMHS & SNs) and education. The intervention aimed to create more capacity for targeted mental health interventions embedded in schools for CYP through up skilling practitioners.

4.1. Main Findings

The results of the study report on the installation and initial implementation period, within which, LIAM was implemented. Practitioners received training in LIAM which led to a significant increase in confidence in cognitive behavioural skills and continued to attend coaching following this. While at a slower rate than estimated, practitioners met with CYP to implement LIAM leading to a significant reduction in symptoms of anxiety and other mental health difficulties for CYP. Barriers and facilitators to implementation were explored within qualitative data. Facilitators that emerged across stakeholders included *systemic collaboration* and an *enabling context* while *motivation and congruence* emerged at the practitioner and school level. *Self-efficacy* and *containment and encouragement* emerged as facilitative only for practitioners while *therapeutic engagement* was facilitative to working with CYP and their parents/carers. The *exclusivity of LIAM, lack of systemic understanding and transparency* and *demands or pressure on resources* emerged barriers to implementation.

Two practitioner groups implemented LIAM; SNs based within the health system and education staff. Overall, few differences were identified within the themes between different practitioner groups despite SNs not being embedded in schools. This indicates similarities in issues around implementation across contexts. Both professional groups were under-going wider role changes which were congruent with the aims of LIAM and responded in similar ways to coaching and training. While both groups of professionals reported the need to collaborate with the system, this could be difficult if there was not understanding between different professionals and within systems.

4.1.1. Progress of Implementation

The reach of LIAM was considered in relation to the progress of implementation. Of those that completed LIAM training, 80.4% continued to attend LIAM coaching and 58.5% had consented CYP to participate in LIAM after the initial implementation period. However, only 46.3% of practitioners had begun to deliver LIAM with CYP during this period. This indicates that while focus on the implementation of LIAM was sustained and progressing after the initial implementation period, moving from training to delivering the intervention with CYP was difficult for some practitioners and, therefore, barriers to implementation occurred.

With regards to the reach of LIAM to CYP, the majority who consented within the initial implementation period either completed or were on-going with the intervention and, for those that received LIAM, completion rates were high. This suggests that, once CYP were identified and consented to taking part, implementation of LIAM occurred. ROMs indicated that, when implemented, LIAM significantly reduced symptoms of anxiety and other mental health difficulties in CYP. Although these analyses were preliminary and underpowered (with the exception of GBOs), effect sizes in the current study ($d = 0.56$ to 1.57) were larger in comparison to previous meta-analysis (e.g. $g = 0.20$ to 0.23 , 28). Other CYP who had consented to treatment were waiting to start LIAM due to the constraints of the school calendar, a barrier echoed in the theme of *demands and pressure on time* and previous literature (86).

The reach of implementation to CYP was, however, lower than estimated (39.3% of the estimate consented). Given the high completion rate for CYP who received the intervention once identified, and that only half of practitioners implemented LIAM, descriptive data on the reach of the intervention suggests that barriers occurred prior to beginning LIAM with CYP as opposed to drop-out during the intervention. This fits with the themes that emerged as barriers from qualitative data around the *lack of systemic understanding* and *transparency and the exclusivity of LIAM*. These themes acted as barriers by making it more challenging for practitioners to identify CYP who met the referral criteria for the intervention.

4.1.2. Barriers and Facilitators to Implementation

4.1.2.1. Characteristics of LIAM Model

Themes that emerged as barriers and facilitators to implementation complement aspects of existing implementation frameworks and previous literature. The importance of initial training and on-going support to develop and sustain intervention competencies has been extensively noted throughout the literature (37, 46, 49). Within the current study, the data revealed that the model of training and coaching in LIAM was facilitative to implementation at the practitioner stakeholder level. Training led to an increase in confidence in the skills associated with LIAM, and analysis indicated these were sustained at follow-up. Although, this data captures only the lower levels of Kirkpatrick model of training, reaction and knowledge gain, to indicate practitioners learnt cognitive-behavioural skills following training, it does not necessarily indicate changes in the behaviour of the practitioner or wider system (44). However, data on the reach of the intervention indicates that practitioners met with CYP to use these skills in practice, but at a slower rate than estimated.

Coaching is a key competency driver within the active implementation framework (37) and was included in the initial design of the LIAM model. Quantitative data demonstrated that practitioners found regular coaching to be valuable, and interviews revealed that it facilitated implementation through *containing and encouraging* practitioners. This is in line with previous literature echoing the need for on-going support and expertise (46). Coaching enabled practitioners to overcome their anxiety around LIAM as well as some barriers relating to demands on time, managing resources and being 'stuck' with delivering the intervention. Previous research has indicated that the qualifications or training of the coach, the outcomes expected from coaching and logistics around accessing coaching can be problematic (39) but embedding coaching into the LIAM model from the exploration stage of implementation may have meant that barriers to coaching previously identified did not emerge within the current study. In addition, support from peers emerged from the data as being containing and encouraging, another factor which previous qualitative research on the implementation of school-based cognitive behavioural interventions has found that as being facilitative to implementation (51).

Good completion rates for those CYP who began the intervention could be attributed to the themes that emerged as facilitators at the parental and CYP stakeholder level. Similarly to previous findings practitioners reported that adapting the delivery of LIAM to make it accessible to the individual, positive therapeutic relationships and embedding services in the school were important in engaging families (47). However, this

warrants further exploration in later implementation stages when practitioners have more experiences of delivering LIAM to CYP to draw upon and compare as well as through the involvement of CYP and their parents/carers in research.

Participant responsiveness and adaptations to interventions are a key aspect of evaluating implementation (43) and, within the current study, practitioners highlighted the need to use different modalities to engage CYP (e.g. video or worksheets) and adjust the frequency and length of sessions. Further examination of the impact of these adjustments on intervention outcomes was not feasible using the data obtained in the current study, but adaptations are likely to interact with the intended dose and fidelity of the intervention, although the processes by which this occurs are not established in the literature (31, 49).

4.1.2.2. Individual Factors

Factors specific to individuals are recognised as pertinent to implementation processes due to the occurrence of natural human variation (37). Previous literature has identified professional (e.g. skills and experience) and psychological characteristics (e.g. self-efficacy, burnout and stress) as well as perceptions and attitudes towards the intervention (e.g. congruence) as factors that influence implementation at the practitioner level (48; 53). Within the current study, the *self-efficacy* of practitioners emerged as facilitative to implementation at the practitioner level, in line with previous studies (37). Relevant previous experience led to greater self-efficacy which, in turn led to confidence in accessing resources and implementing LIAM. Similarly to other studies on implementation (53), LIAM was delivered by existing staff members, so individual characteristics that are facilitative to intervention were not considered in individual staff selection, although potentially factored in when identifying practitioner staff groups. These findings offer potential areas for consideration when selecting staff who would make effective implementers in the future but also areas that could be targeted in on-going support (37). Existing staff who may not have previous knowledge or skills, or associated self-efficacy, can be supported through on-going coaching as within the current study (53).

Motivation and congruence also emerged as facilitative themes relating to the individual practitioner. Participants reported that, as LIAM aimed to make a difference to CYP, this was congruent with their job role and motivated them towards implementation,

as fundamentally, they wanted to support CYP to make changes. Participants also reported that practitioners believed LIAM would be beneficial for CYP. This is in line with previous literature that has found that practitioner willingness to implement is most strongly influenced by beliefs about acceptability and efficacy (53), and acceptable interventions are more likely to be implemented (33, 51). This has been linked to perceptions around the characteristics of the intervention being adaptable (49) and not difficult to use (33; 51). The manualised nature of LIAM was perceived within the current study to be *encouraging and containing* and adaptations possible to facilitate the *therapeutic engagement*.

4.1.2.3. Contextual Factors

Implementation processes in schools are complex, and the context in which implementation occurs, (e.g. school organisation, policy and external agencies) is a key aspect of the process evaluation framework (31) alongside organisational drivers within the active implementation framework (37). *Systemic collaboration* emerged as a theme across stakeholders, highlighting the need to take a whole system approach that includes external collaborators, whole schools and CYP and their families. Successful implementation was facilitated by working systemically in this multi-agency manner and the importance of fundamental relationships within the system is highlighted as a key factor in implementation within the present study.

Previous literature has highlighted organisational factors relevant to school-based implementation as the attitudes, beliefs and behaviours of managers, administrators and other stakeholders (49, 50). The support of senior management within a school is facilitative in encouraging wider staff to take on the additional responsibilities associated with a new intervention (47, 53). However, this literature stems from teachers implementing universal classroom interventions and LIAM is a targeted intervention by both staff external to the school and education staff. Support from the school, and in particular, senior management still emerged as important but in relation to being able to identify CYP who would benefit from LIAM as well as pragmatic support with accommodation and resources, although better identification of CYP occurred with those who knew them best (e.g. teachers). Dissemination of information pertaining to LIAM was at a managerial level and there is a need to improve the inclusion of wider school staff who are more readily able to identify CYP.

Motivation and congruence interacted with the theme of an *enabling context*, which emerged across stakeholder levels. A sense that people were willing to implement the intervention emerged, particularly due to the early intervention being a priority and the practitioner's jobs having a focus on mental health and well-being. An *enabling context* was further enhanced at a practitioner level by the investment from stakeholders in LIAM similarly to previous findings on willingness to implement being associated with perceptions of the presence of organisational resources and support (53). Pre-planning prior to implementation and support in the context of policy has emerged as a key stage in implementation throughout the literature (37, 46, 47, 49, 50). Both of these factors emerged as sub-themes that created an *enabling context* for initial implementation at a systemic level. Although anticipated, themes did not emerge at a managerial stakeholder level. This may be due to context that had been created through policy, the stage of pre-implementation, and "scene-setting" occurred prior to study. While managerial support was acknowledged within the interviews, themes did not emerge at a management stakeholder level within the framework, rather their support was related to practitioner experience.

Despite pre-implementation planning seeking to protect staff time and on-going role changes facilitating the realignment of staff (a critical aspect of intervention installation; 37) as well as systemic support for LIAM, participants reported that having limited time and other demands pulled their focus away from LIAM. Practitioners reported that they needed to react to urgent situations in the classroom (education staff) and child protection matters (SNs). Such competing responsibilities were identified as a primary barrier by previous research on the implementation of cognitive behavioural interventions (51) and within the current and previous studies this barrier was overcome with protected time and managerial support. The time involved with LIAM was greater than practitioners anticipated and the cost-benefit of time for an intervention can influence willingness to implement (53).

A barrier emerged from interviews around a *lack of systemic understanding and transparency*, which was not conducive to *systemic collaboration*. The aims and scope of LIAM were not clearly known throughout the school system, making it difficult to identify CYP who were appropriate for the intervention. Staff who were able to overcome this knew the CYP well in schools and were able to identify CYP without collaborating with wider school staff. This was not feasible for staff who were either new to the school or not

embedded within it. In addition, a lack of understanding between the health and education system, and between different professional's roles and responsibilities and how LIAM could be co-ordinated with alternative interventions could make it challenging for systemic collaboration to occur. Disseminating the aims of an intervention and how they fit with a school's need or ethos are key stages of implementation (47).

Within the current study, the themes of *motivation and congruence* and *enabling context* also emerged as facilitators at the level of the school organisation. To afford 'buy in' at an organisational level, interventions need to fit with school need and ethos as well as be viewed as leading to positive outcomes for CYP (47). Participants indicated that schools observed LIAM to be beneficial and acceptable but barriers emerged around the *exclusivity of LIAM*. At times LIAM was not congruent with the needs of the practitioner or school but reflective of the original scope and aims of the intervention.

It could be difficult for practitioners to prioritise LIAM, particularly if the referral criteria was seen as too restrictive or having limited scope to meet the needs of CYP they worked with. Wider contextual factors meant that it was difficult for the system to prioritise early intervention as CYP with higher levels of need were seen to demand more resources. This was seen to be exacerbated by pressures on services external to LIAM and school (e.g. CAMHS) which was perceived to heighten barriers to implementing early intervention. LIAM was not implemented with a view to support CYP with complex social and emotional difficulties, yet schools have an on-going need for this level of support as well as early intervention. There is limited literature on how baseline levels may impact outcomes for school-based early intervention and whether the scope of the intervention could be increased and have positive outcomes.

4.2. Limitations

Limitations were present in the analysis of quantitative data. Standardised quantitative measures of implementation would be beneficial but there is a lack of established measures that can be used across different interventions with sound psychometric properties and, consequently, it is common for the use of bespoke measures as with the evaluation of training and coaching within the current study (43). Due to the current stage of implementation and limited reach of the intervention, there was insufficient routine data to look at how implementation may vary based on context (e.g. participant

characteristics, different school systems, or between health and education practitioners). Analysis of ROMs was underpowered and, therefore, should be interpreted with caution. In addition, the analysis of ILOs was completed by treating data as independent rather than within groups. Variability between participants was therefore not accounted for and could potentially mean erroneous conclusions were drawn in relation to skill development.

With regards to limitations to the qualitative analysis, although data sufficiency was obtained, there is potential for the on-going emergence of themes because of the progressive nature of implementation. Full and sustainable implementation is considered to take two to four years, yet the current study was completed within an eight month period over the initial implementation. Future studies that explore and compare later stages of implementation and any adaptations in practice could be beneficial. In addition, the current study did not include interviews with the wider school system, parents or CYP who are key stakeholders in the intervention. Themes largely emerged at the practitioner level and this may be attributed to them being the primary source of data.

While the lead researcher's role in the implementation was considered and reflexivity highlighted, it is likely that their background influenced the way in which data was interpreted. Feedback of themes to those interviewed did not occur due to the constraints of the school holidays and potential reporting or selection bias may have also been introduced as participants were volunteers and aware of the lead researcher's involvement in the project. For example, participant's responses and, therefore, themes emerging from the data may have been biased by social desirability, limiting the objectivity of the interview process. For example, during sampling, those practitioners who were not able to implement LIAM and were asked to participate in the study were reluctant to be involved meaning that some potential barriers to implementation were not captured. While LIAM is a national project, the scope of the findings is taken from a single health board and findings may not all be applicable to those involved in the wider project. In addition, although coaching was in place to promote fidelity to the model, there was no formal measure of fidelity to examine this dimension of implementation.

4.3. Implications for future research and clinical practice

The current study contributes to the literature on the implementation of school-based cognitive behavioural interventions within complex multi-agency settings. To date, existing literature is sparse and the current study has good utility in being applicable to real world settings. Mixed method approaches allow for multiple aspects of implementation to be captured but priority is often afforded to quantitative data in mixed method research on school-based implementation (43). The emphasis on qualitative interviews offered opportunity for unknown implementation processes to emerge. Although the current study was specific to LIAM, the themes that emerged from the current study did not vary between practitioner groups and are congruent with existing literature on implementation. This indicates that they may generalise beyond the specific context of LIAM, although due to the preliminary and small-scale nature of the research project, findings would benefit from further examination and replication.

Areas remain that would be useful to explore further in research, particularly the later stages of implementation of LIAM, which is lacking in the literature (Pearson). Exploration of the facilitators and barriers to engaging CYP and their families in school-based interventions through their involvement in research as well as when practitioners have greater experiences to compare or contrast would offer further understanding of engaging different stakeholder levels. The impact of implementing the intervention on the wider system (e.g. schools and mental health services) is also a potential area for future research in relation to the long term aims of LIAM (Figure 4).

Future research designs may include relational quantitative analyses to establish whether implementation variability in LIAM is predictive of outcome variability and to identify critical intervention components. Further exploration of the impact of practitioner characteristics (e.g. self-efficacy and previous experience), CYP baseline severity or diagnosis (e.g. ASD) may also benefit from quantitative exploration in predicting outcomes and informing the scope of LIAM.

With regard to how the aspects of implementation interact (e.g. fidelity, dose and acceptability), this is not established in the literature (43, 49). While facilitators and barriers to implementation emerged within the current study, the relative importance of each factor was not established and there remains sparse literature on this (87). In addition, research must focus on how common challenges can be overcome.

The implications of the current study on clinical practice are discussed in relation to the aims of the intervention and wider clinical practice. LIAM was acceptable across

stakeholders and the need for the provision of early interventions emerged indicating support to progress the implementation. Future implementation processes in clinical practice would benefit from pre-implementation planning in order to create an enabling context where an intervention is acceptable.

The manualised nature of LIAM as well as the training and coaching model has utility in promoting skill development for practitioners as well as reducing symptoms of anxiety in CYP line with the aims of the intervention. Coaching emerged as particularly important for on-going skill development, encouragement and sustaining implementation when faced with barriers. Factors relating to staff selection are also implicated to promote practitioner self-efficacy.

A key part of the implementation process is the intervention passing through critical feedback loops (37, 47, 50). Interventions are considered to need refinement over time through data driven decisions to optimise implementation. Within the current study the number of CYP who engaged with the intervention was smaller than estimated and may be attributed to the barriers identified. Future implementation efforts would benefit from addressing these in order to increase the reach of the intervention to CYP. For example, reviewing the criteria for inclusion and improving the processes by which appropriate CYP are identified. Systemically, greater attention should be paid to collaborating with the whole school system in order to work towards the aims of promoting psychological awareness and knowledge of anxiety in CYP. This may increase the feasibility and utility of an intervention by allowing difficulties to be more readily identified and direction to appropriate services. In addition, to promote acceptability within schools the aims and scope of the intervention need to be disseminated and reviewed in relation to current school needs (e.g. reviewing the exclusion criteria around self-harm and ASD) .

The amount of protected time practitioners have available is pertinent to the feasibility of an intervention. Within this, consideration needs to be given to the demands on time outside specifically delivering LIAM (e.g. preparation time and learning) and how the proportion of time relates to their wider job role and number of cases.

4.4. Conclusions

The impact of implementation variability on outcomes is established, yet the literature on understanding implementation processes for cognitive behavioural school-based

interventions for mental health and well-being is sparse. The current study supports the findings that school-based implementation is a complex, dynamic process involving multiple stakeholders and numerous interactive factors which act as facilitators and barriers. However, there is a need for service planning to consider and integrate all of these aspects in order to move towards sustained and responsive implementation.

References

1. Kessler RC, McLaughlin KA, Green JG, Gruber MJ, Sampson NA, Zaslavsky AM, Aguilar-Gaxiola S, Alhamzawi AO, Alonso J, Angermeyer M, Benjet C. Childhood adversities and adult psychopathology in the WHO World Mental Health Surveys. *The British Journal of Psychiatry*. 2010 Nov;197(5):378-85.
2. Murphy M, Fonagy P. Mental health problems in children and young people. Annual report of the chief medical officer. 2012:1-3.
3. Children's Commissioner. *Lightning Review: Access to Child and Adolescent Mental Health Services, May 2016*
4. Green H, McGinnity Á, Meltzer H, Ford T, Goodman R. Mental health of children and young people in Great Britain, 2004.
5. Gulliver A, Griffiths KM, Christensen H. Perceived barriers and facilitators to mental health help-seeking in young people: a systematic review. *BMC psychiatry*. 2010 Dec;10(1):113.
6. Division of Clinical Psychology, British Psychological Society. What Good looks like in services for children, young people and their families. The Child and Family Clinical Psychology 2015 Review 3
7. Division of Clinical Psychology, British Psychological Society. What Good looks like in services for schools and colleges The Child and Family Clinical Psychology 2017 Review 5.
8. The Scottish Government. *The Mental Health Strategy 2017-2027*. 2017
9. Durlak JA, Weissberg RP, Dymnicki AB, Taylor RD, Schellinger KB. The impact of enhancing students' social and emotional learning: A meta-analysis of school-based

- universal interventions. *Child development*. 2011 Jan;82(1):405-32.
10. Weare K, Nind M. Mental health promotion and problem prevention in schools: what does the evidence say?. *Health promotion international*. 2011 Dec 1;26(suppl_1):i29-69.
 11. The Scottish Government. *The Scottish Attainment Challenge*. 2017.
 12. Bonell C, Humphrey N, Fletcher A, Moore L, Anderson R, Campbell R. Why schools should promote students' health and wellbeing. *BMJ: British Medical Journal (Online)*. 2014 May 13;348.
 13. Currie CE, Elton RA, Todd J, Platt S. Indicators of socioeconomic status for adolescents: the WHO Health Behaviour in School-aged Children Survey. *Health education research*. 1997 Sep 1;12(3):385-97.
 14. Rones M, Hoagwood K. School-based mental health services: A research review. *Clinical child and family psychology review*. 2000 Dec 1;3(4):223-41.
 15. Barrett PM, Pahl KM. School-based intervention: Examining a universal approach to anxiety management. *Journal of Psychologists and Counsellors in Schools*. 2006 Jul;16(1):55-75.
 16. Masia-Warner C, Nangle DW, Hansen DJ. Bringing evidence-based child mental health services to the schools: General issues and specific populations. *Education and Treatment of Children*. 2006 May 1;29(2):165-72.
 17. Costello EJ, Mustillo S, Erkanli A, Keeler G, Angold A. Prevalence and development of psychiatric disorders in childhood and adolescence. *Archives of general psychiatry*. 2003 Aug 1;60(8):837-44.
 18. Merikangas KR, He JP, Burstein M, Swanson SA, Avenevoli S, Cui L, Benjet C, Georgiades K, Swendsen J. Lifetime prevalence of mental disorders in US

- adolescents: results from the National Comorbidity Survey Replication–Adolescent Supplement (NCS-A). *Journal of the American Academy of Child & Adolescent Psychiatry*. 2010 Oct 1;49(10):980-9.
19. Polanczyk GV, Salum GA, Sugaya LS, Caye A, Rohde LA. Annual Research Review: A meta-analysis of the worldwide prevalence of mental disorders in children and adolescents. *Journal of Child Psychology and Psychiatry*. 2015 Mar;56(3):345-65.
 20. Hoagwood, K. E., Serene Olin, S., Kerker, B. D., Kratochwill, T. R., Crowe, M., & Saka, N. (2007). Empirically based school interventions targeted at academic and mental health functioning. *Journal of emotional and behavioral disorders*, 15(2), 66-92.
 21. Wood JJ, McLeod BD, Hiruma LS, Phan AQ. *Child anxiety disorders: A family-based treatment manual for practitioners*. WW Norton & Co; 2008.
 22. Rajaleid K, Nummi T, Westerlund H, Virtanen P, Gustafsson PE, Hammarström A. Social adversities in adolescence predict unfavourable trajectories of internalized mental health symptoms until middle age: results from the Northern Swedish Cohort. *The European Journal of Public Health*. 2015 Aug 14;26(1):23-9.
 23. Goodman A, Joyce R, Smith JP. The long shadow cast by childhood physical and mental problems on adult life. *Proceedings of the National Academy of Sciences*. 2011 Mar 15:201016970.
 24. Fonagy P, Cottrell D, Phillips J, Bevington D, Glaser D, Allison E. *What works for whom?: a critical review of treatments for children and adolescents*. Guilford Publications; 2014 Oct 13.
 25. NHS Education Scotland. *The Matrix (2015) A Guide to Delivering Evidence-Based Psychological Therapies in Scotland*. 2015
 26. Young JF, Mufson L, Gallop R. Preventing depression: A randomized trial of interpersonal psychotherapy-adolescent skills training. *Depression and anxiety*.

2010 May;27(5):426-33.

27. Zenner C, Herrnleben-Kurz S, Walach H. Mindfulness-based interventions in schools—a systematic review and meta-analysis. *Frontiers in psychology*. 2014 Jun 30;5:603.
28. Werner-Seidler A, Perry Y, CEAR AL, Newby JM, Christensen H. School-based depression and anxiety prevention programs for young people: A systematic review and meta-analysis. *Clinical psychology review*. 2017 Feb 1;51:30-47.
29. Merry SN, Hetrick SE, Cox GR, Brudevold-Iversen T, Bir JJ, McDowell H. Cochrane Review: Psychological and educational interventions for preventing depression in children and adolescents. *Evidence-Based Child Health: A Cochrane Review Journal*. 2012 Sep 1;7(5):1409-685.
30. CEAR AL, Christensen H. Systematic review of school-based prevention and early intervention programs for depression. *Journal of adolescence*. 2010 Jun 1;33(3):429-38.
31. Moore GF, Audrey S, Barker M, Bond L, Bonell C, Hardeman W, Moore L, O’Cathain A, Tinati T, Wight D, Baird J. Process evaluation of complex interventions: Medical Research Council guidance. *bmj*. 2015 Mar 19;350:h1258.
32. Clarke M, Brice A, Chalmers I. Accumulating research: a systematic account of how cumulative meta-analyses would have provided knowledge, improved health, reduced harm and saved resources. *PLoS One*. 2014 Jul 28;9(7):e102670.
33. Rogers EM. *The diffusion of innovation* 5th edition.
34. Fixsen DL, Ogden T. *Facing the challenges of implementation*.
35. Durlak JA, Weissberg RP, Dymnicki AB, Taylor RD, Schellinger KB. The impact of enhancing students’ social and emotional learning: A meta-analysis of school-based

- universal interventions. *Child development*. 2011 Jan;82(1):405-32
36. Meyers DC, Durlak JA, Wandersman A. The quality implementation framework: a synthesis of critical steps in the implementation process. *American journal of community psychology*. 2012 Dec 1;50(3-4):462-80.
37. Fixsen DL, Naoom SF, Blase KA, Friedman RM. Implementation research: a synthesis of the literature.
38. Slavin RE. Foreword. In Kelly B, Perkins DF, editors. *Handbook of implementation science for psychology in education*. Cambridge University Press; 2012 Aug 20.
39. Blase K, Van Dyke M, Fixsen D, Wallace Bailey F. Implementation science: Key concepts, themes, and evidence for practitioners in educational psychology. In *Handbook of implementation science for psychology in education*. London, UK: Cambridge University Press
40. Fixsen D, Blase K, Metz A, Van Dyke M. Statewide implementation of evidence-based programs. *Exceptional Children*. 2013 Jan;79(2):213-30.
41. Joice A & Rafferty L. *An evaluation of the implementation of an evidence based psychological approach in the Third Sector*. NHS Education Scotland. Available from: <http://www.fiveareas.com/wp-content/uploads/Final-An-evaluation-of-the-implementation-of-an-EBPA-in-the-Third-Sect....pdf>
42. Basch CE, Sliepcevich EM, Gold RS, Duncan DF, Kolbe LJ. Avoiding type III errors in health education program evaluations: a case study. *Health Education Quarterly*. 1985 Sep;12(3):315-31.
43. Humphrey N, Lendrum A, Ashworth E, Frearson K, Buck R, Kerr K. Implementation and process evaluation (IPE) for interventions in education settings: A synthesis of the literature. Education Endowment Foundation, London. 2016.

44. Kirkpatrick D, Kirkpatrick JD. The Kirkpatrick Four Levels. Kirkpatrick Partners; 2011.
45. Forman SG, Shapiro ES, Coddling RS, Gonzales JE, Reddy LA, Rosenfield SA, Sanetti LM, Stoiber KC. Implementation science and school psychology. *School Psychology Quarterly*. 2013 Jun;28(2):77.
46. Forman SG, Barakat NM. Cognitive-behavioral therapy in the schools: Bringing research to practice through effective implementation. *Psychology in the Schools*. 2011 Mar;48(3):283-96.
47. Pearson M, Chilton R, Wyatt K, Abraham C, Ford T, Woods HB, Anderson R. Implementing health promotion programmes in schools: a realist systematic review of research and experience in the United Kingdom. *Implementation Science*. 2015 Dec;10(1):149.
48. Domitrovich CE, Bradshaw CP, Poduska JM, Hoagwood K, Buckley JA, Olin S, Romanelli LH, Leaf PJ, Greenberg MT, Ialongo NS. Maximizing the implementation quality of evidence-based preventive interventions in schools: A conceptual framework. *Advances in School Mental Health Promotion*. 2008 Jan 1;1(3):6-28.
49. Durlak JA, DuPre EP. Implementation matters: A review of research on the influence of implementation on program outcomes and the factors affecting implementation. *American journal of community psychology*. 2008 Jun 1;41(3-4):327.
50. Han SS, Weiss B. Sustainability of teacher implementation of school-based mental health programs. *Journal of abnormal child psychology*. 2005 Dec 1;33(6):665-79.
51. Langley AK, Nadeem E, Kataoka SH, Stein BD, Jaycox LH. Evidence-based mental health programs in schools: Barriers and facilitators of successful implementation. *School mental health*. 2010 Sep 1;2(3):105-13.

52. Ringle VA, Read KL, Edmunds JM, Brodman DM, Kendall PC, Barg F, Beidas RS. Barriers to and facilitators in the implementation of cognitive-behavioral therapy for youth anxiety in the community. *Psychiatric Services*. 2015 May 15;66(9):938-45.
53. Forman SG. Implementation of mental health programs in schools: A change agent's guide. American Psychological Association; 2015.
54. Lendrum A, Humphrey N. The importance of studying the implementation of interventions in school settings. *Oxford Review of Education*. 2012 Oct 1;38(5):635-52.
55. Palinkas LA, Aarons GA, Horwitz S, Chamberlain P, Hurlburt M, Landsverk J. Mixed method designs in implementation research. *Administration and Policy in Mental Health and Mental Health Services Research*. 2011 Jan 1;38(1):44-53.
56. Bernard HR. Qualitative methods in cultural anthropology.
57. Landsverk J, Brown CH, Reutz JR, Palinkas L, Horwitz SM. Design elements in implementation research: A structured review of child welfare and child mental health studies. *Administration and Policy in Mental Health and Mental Health Services Research*. 2011 Jan 1;38(1):54-63.
58. NHS Education Scotland. Let's Introduce Anxiety Management (LIAM) 2018
59. The Scottish Government. CEL- 13: Public Health Nursing Services – Future Focus. 2013
60. Stallard P. Think good-feel good: A cognitive behaviour therapy workbook for children and young people. John Wiley & Sons; 2002 Jun 27.
61. Goodman R. The Strengths and Difficulties Questionnaire: a research note. *Journal of child psychology and psychiatry*. 1997 Jul;38(5):581-6

62. Chorpita BF, Yim L, Moffitt C, Umemoto LA, Francis SE. Assessment of symptoms of DSM-IV anxiety and depression in children: A revised child anxiety and depression scale. *Behaviour research and therapy*. 2000 Aug 1;38(8):835-55.
63. Twigg E, Barkham M, Bewick BM, Mulhern B, Connell J, Cooper M. The Young Person's CORE: Development of a brief outcome measure for young people. *Counselling and Psychotherapy Research*. 2009 Sep;9(3):160-8.
64. Law D. *Goals and goal based outcomes (GBOs)*. London: CAMHS Press; 2013.
65. Brown A, Ford T, Deighton J, Wolpert M. Satisfaction in child and adolescent mental health services: Translating users' feedback into measurement. *Administration and Policy in Mental Health and Mental Health Services Research*. 2014 Jul 1;41(4):434-46. ESQ; Health Care Commission, YEAR
66. Chorpita BF, Yim L, Moffitt C, Umemoto LA, Francis SE. Assessment of symptoms of DSM-IV anxiety and depression in children: A revised child anxiety and depression scale. *Behaviour research and therapy*. 2000 Aug 1;38(8):835-55.
67. Chorpita BF, Moffitt CE, Gray J. Psychometric properties of the Revised Child Anxiety and Depression Scale in a clinical sample. *Behaviour research and therapy*. 2005 Mar 1;43(3):309-22.
68. Kwan B, Rickwood DJ. A systematic review of mental health outcome measures for young people aged 12 to 25 years. *BMC psychiatry*. 2015 Dec;15(1):279.
69. Yao S, Zhang C, Zhu X, Jing X, McWhinnie CM, Abela JR. Measuring adolescent psychopathology: psychometric properties of the self-report strengths and difficulties questionnaire in a sample of Chinese adolescents. *Journal of Adolescent Health*. 2009 Jul 1;45(1):55-62.
70. Lundh A, Gøtzsche PC. Recommendations by Cochrane Review Groups for assessment of the risk of bias in studies. *BMC medical research methodology*. 2008

Dec;8(1):22.

71. Muris P, Meesters C, van den Berg F. The strengths and difficulties questionnaire (SDQ). *European child & adolescent psychiatry*. 2003 Feb 1;12(1):1-8.
72. Goodman R. Psychometric properties of the strengths and difficulties questionnaire. *Journal of the American Academy of Child & Adolescent Psychiatry*. 2001 Nov 1;40(11):1337-45.
73. Law D, Wolpert M, editors. *Guide to using outcomes and feedback tools with children, young people and families*. CAMHS Press; 2014.
74. Wolpert M, Ford T, Trustam E, Law D, Deighton J, Flannery H, Fugard RJ. Patient-reported outcomes in child and adolescent mental health services (CAMHS): Use of idiographic and standardized measures. *Journal of Mental Health*. 2012 Apr 1;21(2):165-73.
75. Brown A, Ford T, Deighton J, Wolpert M. Satisfaction in child and adolescent mental health services: Translating users' feedback into measurement. *Administration and Policy in Mental Health and Mental Health Services Research*. 2014 Jul 1;41(4):434-46.
76. Lenhard, W. & Lenhard, A. *Calculation of Effect Sizes*. Accessed from: https://www.psychometrica.de/effect_size.html. Dettelbach (Germany): Psychometrica. DOI: 10.13140/RG.2.1.3478.4245
77. Charmaz K. *Constructing grounded theory*. Sage; 2014 Mar 19.
78. Ritchie J, Spencer L, Bryman A, Burgess RG. *Analysing qualitative data*.
79. Glaser BS, Strauss A. A.(1967). *The discovery of grounded theory*. New york. 1971:581-629.

80. Barker NC, Pistrang N, Elliott R. Foundations of qualitative methods. Research methods in clinical psychology: An introduction for students and practitioners. 2002:5-72
81. Strauss A, Corbin JM. Basics of qualitative research: Grounded theory procedures and techniques. Sage Publications, Inc; 1990.
82. Yardley L, editor. Material discourses of health and illness. Psychology Press; 1997.
83. Yardley L. Dilemmas in qualitative health research. Psychology and health. 2000 Mar 1;15(2):215-28.
84. Yardley L, Morrison L, Bradbury K, Muller I. The person-based approach to intervention development: application to digital health-related behavior change interventions. Journal of medical Internet research. 2015 Jan;17(1).
85. Dey I. Grounded theory. Qualitative research practice. 2004 Feb 28:80-93.
86. Owens JS, Lyon AR, Brandt NE, Warner CM, Nadeem E, Spiel C, Wagner M. Implementation science in school mental health: Key constructs in a developing research agenda. School mental health. 2014 Jun 1;6(2):99-111.
87. Schoenwald SK, Garland AF, Chapman JE, Frazier SL, Sheidow AJ, Southam-Gerow MA. Toward the effective and efficient measurement of implementation fidelity. Administration and Policy in Mental Health and Mental Health Services Research. 2011 Jan 1;38(1):32-43.

List of Abbreviations

ASD = Autism Spectrum Disorder
CBT = Cognitive Behavioural Therapy
CYP = Children and Young People
ESQ = Experience of Service Questionnaire
GBO = Goal Based Outcomes
ILO = Intended Learning Objective
IPA = Interpretative Phenomenological Analysis
IPT = Interpersonal Therapy
LIAM = Let' Introduce Anxiety Management
M = Mean ROM = Routine Outcome Measures
NES = NHS Education Scotland
PSO = Pupil Support Officer
RCADS = Revised Children's Anxiety and Depression Scale
RCT = Randomised Control Trial
SD = Standard Deviation
SDQ = Strengths and Difficulties Questionnaire
SMT = Senior Management Team
SN = School Nurse

Appendix A: School-Based Mental Health Author Guidelines

The current study has followed the author guidelines for the *School-Based Mental Health* journal. The author has adapted these guidelines to be appropriate for the submission of a thesis as a requirement of the Doctorate of Clinical Psychology.

Aims and Scope

School Mental Health: A Multidisciplinary Research and Practice Journal is a forum for the latest research related to prevention and treatment practices that are associated with the education system and target children and adolescents with emotional and behavioral disorders. The journal publishes empirical studies, theoretical papers, and review articles from authors representing the many disciplines that are involved in school mental health. Examples of topics include:

- Innovative school based treatment practices
- Training procedures
- Educational techniques for children with emotional and behavioral disorders
- School-wide prevention programs
- Medication effects on school behavior and achievement
- Assessment practices
- Developmental implications
- Racial, ethnic and cultural issues
- School policy
- Role of families in school mental health
- Prediction of impairment and resilience
- Moderators and mediators of response to treatment.

Instructions for Authors

APA STYLE

Please follow the 6th Edition of the APA Style Guide.

Text must be double-spaced, 12-point Times New Roman with standard 1-inch borders around the margins.

Page Length: 35 pages.

MANUSCRIPT SUBMISSION

Manuscript Submission

Submission of a manuscript implies: that the work described has not been published before; that it is not under consideration for publication anywhere else; that its publication has been approved by all co-authors, if any, as well as by the responsible authorities – tacitly or explicitly – at the institute where the work has been carried out. The publisher will not be held legally responsible should there be any claims for compensation.

Permissions

Authors wishing to include figures, tables, or text passages that have already been published elsewhere are required to obtain permission from the copyright owner(s) for both the print and online format and to include evidence that such permission has been granted when submitting their papers. Any material received without such evidence will be assumed to originate from the authors.

Online Submission

Please follow the hyperlink “Submit online” on the right and upload all of your manuscript files following the instructions given on the screen.

TITLE PAGE

Title Page

The title page should include:

- The name(s) of the author(s)
- A concise and informative title
- The affiliation(s) and address(es) of the author(s)
- The e-mail address, and telephone number(s) of the corresponding author
- If available, the 16-digit ORCID of the author(s)

Abstract

Please provide an abstract of 150 to 250 words. The abstract should not contain any undefined abbreviations or unspecified references.

Keywords

Please provide 4 to 6 keywords which can be used for indexing purposes.

TEXT

Text Formatting

Manuscripts should be submitted in Word.

- Use a normal, plain font (e.g., 10-point Times Roman) for text.
- Use italics for emphasis.
- Use the automatic page numbering function to number the pages.
- Do not use field functions.
- Use tab stops or other commands for indents, not the space bar.
- Use the table function, not spreadsheets, to make tables.
- Use the equation editor or MathType for equations.
- Save your file in docx format (Word 2007 or higher) or doc format (older Word versions).

Manuscripts with mathematical content can also be submitted in LaTeX.

- LaTeX macro package (zip, 182 kB)

Headings

Please use no more than three levels of displayed headings.

Abbreviations

Abbreviations should be defined at first mention and used consistently thereafter.

Footnotes

Footnotes can be used to give additional information, which may include the citation of a reference included in the reference list. They should not consist solely of a reference citation, and they should never include the bibliographic details of a reference. They should also not contain any figures or tables. Footnotes to the text are numbered consecutively; those to tables should be indicated by superscript lower-case letters (or asterisks for significance values and other statistical data). Footnotes to the title or the authors of the article are not given reference symbols.

Always use footnotes instead of endnotes.

Acknowledgments

Acknowledgments of people, grants, funds, etc. should be placed in a separate section on the title page. The names of funding organizations should be written in full.

REFERENCES

Citation

Cite references in the text by name and year in parentheses. Some examples:

- Negotiation research spans many disciplines (Thompson 1990).
- This result was later contradicted by Becker and Seligman (1996).
- This effect has been widely studied (Abbott 1991; Barakat et al. 1995; Kelso and Smith 1998; Medvec et al. 1999).

Reference list

The list of references should only include works that are cited in the text and that have been published or accepted for publication. Personal communications and unpublished works should only be mentioned in the text. Do not use footnotes or endnotes as a substitute for a reference list. Reference list entries should be alphabetized by the last names of the first author of each work.

- Journal article

Harris, M., Karper, E., Stacks, G., Hoffman, D., DeNiro, R., Cruz, P., et al. (2001). Writing labs and the Hollywood connection. *Journal of Film Writing*, 44(3), 213–245.

- Article by DOI

Slifka, M. K., & Whitton, J. L. (2000) Clinical implications of dysregulated cytokine production. *Journal of Molecular Medicine*, <https://doi.org/10.1007/s001090000086>

- Book

Calfee, R. C., & Valencia, R. R. (1991). *APA guide to preparing manuscripts for journal publication*. Washington, DC: American Psychological Association.

- Book chapter

O’Neil, J. M., & Egan, J. (1992). Men’s and women’s gender role journeys: Metaphor for healing, transition, and transformation. In B. R. Wainrib (Ed.), *Gender issues across the life cycle* (pp. 107–123). New York: Springer.

- Online document

Abou-Allaban, Y., Dell, M. L., Greenberg, W., Lomax, J., Peteet, J., Torres, M., & Cowell, V. (2006). Religious/spiritual commitments and psychiatric practice. Resource document. American Psychiatric Association. http://www.psych.org/edu/other_res/lib_archives/archives/200604.pdf. Accessed 25 June 2007.

Journal names and book titles should be italicized.

For authors using EndNote, Springer provides an output style that supports the formatting of in-text citations and reference list.

- EndNote style (zip, 3 kB)

TABLES

- All tables are to be numbered using Arabic numerals.
- Tables should always be cited in text in consecutive numerical order.
- For each table, please supply a table caption (title) explaining the components of the table.
- Identify any previously published material by giving the original source in the form of a reference at the end of the table caption.
- Footnotes to tables should be indicated by superscript lower-case letters (or asterisks for significance values and other statistical data) and included beneath the table body.

ARTWORK AND ILLUSTRATIONS GUIDELINES

Electronic Figure Submission

- Supply all figures electronically.
- Indicate what graphics program was used to create the artwork.

- For vector graphics, the preferred format is EPS; for halftones, please use TIFF format. MSOffice files are also acceptable.
- Vector graphics containing fonts must have the fonts embedded in the files.
- Name your figure files with "Fig" and the figure number, e.g., Fig1.eps.

Line Art

- Definition: Black and white graphic with no shading.
- Do not use faint lines and/or lettering and check that all lines and lettering within the figures are legible at final size.
- All lines should be at least 0.1 mm (0.3 pt) wide.
- Scanned line drawings and line drawings in bitmap format should have a minimum resolution of 1200 dpi.
- Vector graphics containing fonts must have the fonts embedded in the files.

Halftone Art

- Definition: Photographs, drawings, or paintings with fine shading, etc.
- If any magnification is used in the photographs, indicate this by using scale bars within the figures themselves.
- Halftones should have a minimum resolution of 300 dpi.

Combination Art

- Definition: a combination of halftone and line art, e.g., halftones containing line drawing, extensive lettering, color diagrams, etc.
- Combination artwork should have a minimum resolution of 600 dpi.

Color Art

- Color art is free of charge for online publication.
- If black and white will be shown in the print version, make sure that the main information will still be visible. Many colors are not distinguishable from one another when converted to black and white. A simple way to check this is to make a xerographic copy to see if the necessary distinctions between the different colors are still apparent.
- If the figures will be printed in black and white, do not refer to color in the captions.
- Color illustrations should be submitted as RGB (8 bits per channel).

Figure Lettering

- To add lettering, it is best to use Helvetica or Arial (sans serif fonts).
- Keep lettering consistently sized throughout your final-sized artwork, usually about 2–3 mm (8–12 pt).
- Variance of type size within an illustration should be minimal, e.g., do not use 8-pt type on an axis and 20-pt type for the axis label.
- Avoid effects such as shading, outline letters, etc.
- Do not include titles or captions within your illustrations.

Figure Numbering

- All figures are to be numbered using Arabic numerals.
- Figures should always be cited in text in consecutive numerical order.
- Figure parts should be denoted by lowercase letters (a, b, c, etc.).
- If an appendix appears in your article and it contains one or more figures, continue the consecutive numbering of the main text. Do not number the appendix figures, "A1, A2, A3, etc." Figures in online appendices (Electronic Supplementary Material) should, however, be numbered separately.

Figure Captions

- Each figure should have a concise caption describing accurately what the figure depicts. Include the captions in the text file of the manuscript, not in the figure file.
- Figure captions begin with the term Fig. in bold type, followed by the figure number, also in bold type.
- No punctuation is to be included after the number, nor is any punctuation to be placed at the end of the caption.
- Identify all elements found in the figure in the figure caption; and use boxes, circles, etc., as coordinate points in graphs.
- Identify previously published material by giving the original source in the form of a reference citation at the end of the figure caption.

Figure Placement and Size

- Figures should be submitted separately from the text, if possible.
- When preparing your figures, size figures to fit in the column width.
- For most journals the figures should be 39 mm, 84 mm, 129 mm, or 174 mm wide and not higher than 234 mm.
- For books and book-sized journals, the figures should be 80 mm or 122 mm wide and not higher than 198 mm.

Permissions

If you include figures that have already been published elsewhere, you must obtain permission from the copyright owner(s) for both the print and online format. Please be aware that some publishers do not grant electronic rights for free and that Springer will not be able to refund any costs that may have occurred to receive these permissions. In such cases, material from other sources should be used.

Accessibility

In order to give people of all abilities and disabilities access to the content of your figures, please make sure that

- All figures have descriptive captions (blind users could then use a text-to-speech software or a text-to-Braille hardware)
- Patterns are used instead of or in addition to colors for conveying information (colorblind users would then be able to distinguish the visual elements)
- Any figure lettering has a contrast ratio of at least 4.5:1

ELECTRONIC SUPPLEMENTARY MATERIAL

Springer accepts electronic multimedia files (animations, movies, audio, etc.) and other supplementary files to be published online along with an article or a book chapter. This feature can add dimension to the author's article, as certain information cannot be printed or is more convenient in electronic form.

Before submitting research datasets as electronic supplementary material, authors should read the journal's Research data policy. We encourage research data to be archived in data repositories wherever possible.

Submission

- Supply all supplementary material in standard file formats.
- Please include in each file the following information: article title, journal name, author names; affiliation and e-mail address of the corresponding author.
- To accommodate user downloads, please keep in mind that larger-sized files may require very long download times and that some users may experience other problems during downloading.

Audio, Video, and Animations

- Aspect ratio: 16:9 or 4:3
- Maximum file size: 25 GB
- Minimum video duration: 1 sec
- Supported file formats: avi, wmv, mp4, mov, m2p, mp2, mpg, mpeg, flv, mxfl, mts, m4v, 3gp

Text and Presentations

- Submit your material in PDF format; .doc or .ppt files are not suitable for long-term viability.
- A collection of figures may also be combined in a PDF file.

Spreadsheets

- Spreadsheets should be submitted as .csv or .xlsx files (MS Excel).

Specialized Formats

- Specialized format such as .pdb (chemical), .wrl (VRML), .nb (Mathematica notebook), and .tex can also be supplied.

Collecting Multiple Files

- It is possible to collect multiple files in a .zip or .gz file.

Numbering

- If supplying any supplementary material, the text must make specific mention of the material as a citation, similar to that of figures and tables.
- Refer to the supplementary files as "Online Resource", e.g., "... as shown in the animation (Online Resource 3)", "... additional data are given in Online Resource 4".
- Name the files consecutively, e.g. "ESM_3.mpg", "ESM_4.pdf".

Captions

- For each supplementary material, please supply a concise caption describing the content of the file.

Processing of supplementary files

- Electronic supplementary material will be published as received from the author without any conversion, editing, or reformatting.

Accessibility

In order to give people of all abilities and disabilities access to the content of your supplementary files, please make sure that

- The manuscript contains a descriptive caption for each supplementary material
- Video files do not contain anything that flashes more than three times per second (so that users prone to seizures caused by such effects are not put at risk)

ETHICAL RESPONSIBILITIES OF AUTHORS

This journal is committed to upholding the integrity of the scientific record. As a member of the Committee on Publication Ethics (COPE) the journal will follow the COPE guidelines on how to deal with potential acts of misconduct.

Authors should refrain from misrepresenting research results which could damage the trust in the journal, the professionalism of scientific authorship, and ultimately the entire scientific endeavour. Maintaining integrity of the research and its presentation can be achieved by following the rules of good scientific practice, which include:

- The manuscript has not been submitted to more than one journal for simultaneous consideration.

- The manuscript has not been published previously (partly or in full), unless the new work concerns an expansion of previous work (please provide transparency on the re-use of material to avoid the hint of text-recycling (“self-plagiarism”).
- A single study is not split up into several parts to increase the quantity of submissions and submitted to various journals or to one journal over time (e.g. “salami-publishing”).
- No data have been fabricated or manipulated (including images) to support your conclusions
- No data, text, or theories by others are presented as if they were the author’s own (“plagiarism”). Proper acknowledgements to other works must be given (this includes material that is closely copied (near verbatim), summarized and/or paraphrased), quotation marks are used for verbatim copying of material, and permissions are secured for material that is copyrighted.

Important note: the journal may use software to screen for plagiarism.

- Consent to submit has been received explicitly from all co-authors, as well as from the responsible authorities - tacitly or explicitly - at the institute/organization where the work has been carried out, **before** the work is submitted.
- Authors whose names appear on the submission have contributed sufficiently to the scientific work and therefore share collective responsibility and accountability for the results.
- Authors are strongly advised to ensure the correct author group, corresponding author, and order of authors at submission. Changes of authorship or in the order of authors are **not** accepted **after** acceptance of a manuscript.
- Adding and/or deleting authors and/or changing the order of authors **at revision stage** may be justifiably warranted. A letter must accompany the revised manuscript to explain the reason for the change(s) and the contribution role(s) of the added and/or deleted author(s). Further documentation may be required to support your request.
- Requests for addition or removal of authors as a result of authorship disputes after acceptance are honored after formal notification by the institute or independent body and/or when there is agreement between all authors.
- Upon request authors should be prepared to send relevant documentation or data in order to verify the validity of the results. This could be in the form of raw data, samples, records, etc. Sensitive information in the form of confidential proprietary data is excluded.

If there is a suspicion of misconduct, the journal will carry out an investigation following the COPE guidelines. If, after investigation, the allegation seems to raise valid concerns, the accused author will be contacted and given an opportunity to address the issue. If misconduct has been established beyond reasonable doubt, this may result in the Editor-in-Chief’s implementation of the following measures, including, but not limited to:

- If the article is still under consideration, it may be rejected and returned to the author.
- If the article has already been published online, depending on the nature and severity of the infraction, either an erratum will be placed with the article or in severe cases complete retraction of the article will occur. The reason must be given in the published erratum or retraction note. Please note that retraction means that the paper is **maintained on the platform**, watermarked "retracted" and explanation for the retraction is provided in a note linked to the watermarked article.
- The author’s institution may be informed.

COMPLIANCE WITH ETHICAL STANDARDS

To ensure objectivity and transparency in research and to ensure that accepted principles of ethical and professional conduct have been followed, authors should include information regarding sources of funding, potential conflicts of interest (financial or non-financial), informed consent if the research involved human participants, and a statement on welfare of animals if the research involved animals.

Authors should include the following statements (if applicable) in a separate section entitled “Compliance with Ethical Standards” when submitting a paper:

- Disclosure of potential conflicts of interest
- Research involving Human Participants and/or Animals
- Informed consent

Please note that standards could vary slightly per journal dependent on their peer review policies (i.e. single or double blind peer review) as well as per journal subject discipline. Before submitting your article check the instructions following this section carefully.

The corresponding author should be prepared to collect documentation of compliance with ethical standards and send if requested during peer review or after publication.

The Editors reserve the right to reject manuscripts that do not comply with the above-mentioned guidelines. The author will be held responsible for false statements or failure to fulfill the above-mentioned guidelines.

DISCLOSURE OF POTENTIAL CONFLICTS OF INTEREST

Authors must disclose all relationships or interests that could influence or bias the work. Although an author may not feel there are conflicts, disclosure of relationships and interests affords a more transparent process, leading to an accurate and objective assessment of the work. Awareness of real or perceived conflicts of interests is a perspective to which the readers are entitled and is not meant to imply that a financial relationship with an organization that sponsored the research or compensation for consultancy work is inappropriate. Examples of potential conflicts of interests **that are directly or indirectly related to the research** may include but are not limited to the following:

- Research grants from funding agencies (please give the research funder and the grant number)
- Honoraria for speaking at symposia
- Financial support for attending symposia
- Financial support for educational programs
- Employment or consultation
- Support from a project sponsor
- Position on advisory board or board of directors or other type of management relationships
- Multiple affiliations
- Financial relationships, for example equity ownership or investment interest
- Intellectual property rights (e.g. patents, copyrights and royalties from such rights)
- Holdings of spouse and/or children that may have financial interest in the work

In addition, interests that go beyond financial interests and compensation (non-financial interests) that may be important to readers should be disclosed. These may include but are not limited to personal relationships or competing interests directly or indirectly tied to this research, or professional interests or personal beliefs that may influence your research.

The corresponding author collects the conflict of interest disclosure forms from all authors. In author collaborations where formal agreements for representation allow it, it is sufficient for the corresponding author to sign the disclosure form on behalf of all authors. Examples of forms can be found

- [here](#):

The corresponding author will include a summary statement **on the title page that is separate from their manuscript**, that reflects what is recorded in the potential conflict of interest disclosure form(s).

See below examples of disclosures:

Funding: This study was funded by X (grant number X).

Conflict of Interest: Author A has received research grants from Company A. Author B has received a speaker honorarium from Company X and owns stock in Company Y. Author C is a member of committee Z.

If no conflict exists, the authors should state:

Conflict of Interest: The authors declare that they have no conflict of interest.

RESEARCH INVOLVING HUMAN PARTICIPANTS AND/OR ANIMALS

1) Statement of human rights

When reporting studies that involve human participants, authors should include a statement that the studies have been approved by the appropriate institutional and/or national research ethics committee and have been performed in accordance with the ethical standards as laid down in the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards.

If doubt exists whether the research was conducted in accordance with the 1964 Helsinki Declaration or comparable standards, the authors must explain the reasons for their approach, and demonstrate that the independent ethics committee or institutional review board explicitly approved the doubtful aspects of the study.

The following statements should be included in the text before the References section:

Ethical approval: "All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards."

For retrospective studies, please add the following sentence:

"For this type of study formal consent is not required."

2) Statement on the welfare of animals

The welfare of animals used for research must be respected. When reporting experiments on animals, authors should indicate whether the international, national, and/or institutional guidelines for the care and use of animals have been followed, and that the studies have been approved by a research ethics committee at the institution or practice at which the studies were conducted (where such a committee exists).

For studies with animals, the following statement should be included in the text before the References section:

Ethical approval: "All applicable international, national, and/or institutional guidelines for the care and use of animals were followed."

If applicable (where such a committee exists): "All procedures performed in studies involving animals were in accordance with the ethical standards of the institution or practice at which the studies were conducted."

If articles do not contain studies with human participants or animals by any of the authors, please select one of the following statements:

"This article does not contain any studies with human participants performed by any of the authors."

"This article does not contain any studies with animals performed by any of the authors."

"This article does not contain any studies with human participants or animals performed by any of the authors."

INFORMED CONSENT

All individuals have individual rights that are not to be infringed. Individual participants in studies have, for example, the right to decide what happens to the (identifiable) personal data gathered, to what they have said during a study or an interview, as well as to any photograph that was taken. Hence it is important that all participants gave their informed consent in writing prior to inclusion in the study. Identifying details (names, dates of birth, identity numbers and other information) of the participants that were studied should not be published in written descriptions, photographs, and genetic profiles unless the information is essential for scientific purposes and the participant (or parent or guardian if the participant is incapable) gave written informed consent for publication. Complete anonymity is difficult to achieve in some cases, and informed consent should be obtained if there is any doubt. For example, masking the eye region in photographs of participants is inadequate protection of anonymity. If identifying characteristics are altered to protect anonymity, such as in genetic profiles, authors should provide assurance that alterations do not distort scientific meaning.

The following statement should be included:

Informed consent: “Informed consent was obtained from all individual participants included in the study.”

If identifying information about participants is available in the article, the following statement should be included:

“Additional informed consent was obtained from all individual participants for whom identifying information is included in this article.”

RESEARCH DATA POLICY

The journal encourages authors, where possible and applicable, to deposit data that support the findings of their research in a public repository. Authors and editors who do not have a preferred repository should consult Springer Nature’s list of repositories and research data policy.

- List of Repositories
- Research Data Policy

General repositories - for all types of research data - such as figshare and Dryad may also be used.

Datasets that are assigned digital object identifiers (DOIs) by a data repository may be cited in the reference list. Data citations should include the minimum information recommended by DataCite: authors, title, publisher (repository name), identifier.

- DataCite

Springer Nature provides a research data policy support service for authors and editors, which can be contacted at researchdata@springernature.com.

This service provides advice on research data policy compliance and on finding research data repositories. It is independent of journal, book and conference proceedings editorial offices and does not advise on specific manuscripts.

- Helpdesk

AFTER ACCEPTANCE

Upon acceptance of your article you will receive a link to the special Author Query Application at Springer’s web page where you can sign the Copyright Transfer Statement online and indicate whether you wish to order OpenChoice, offprints, or printing of figures in color.

Once the Author Query Application has been completed, your article will be processed and you will receive the proofs.

Copyright transfer

Authors will be asked to transfer copyright of the article to the Publisher (or grant the Publisher exclusive publication and dissemination rights). This will ensure the widest possible protection and dissemination of information under copyright laws.

- Creative Commons Attribution-NonCommercial 4.0 International License

Offprints

Offprints can be ordered by the corresponding author.

Color illustrations

Online publication of color illustrations is free of charge. For color in the print version, authors will be expected to make a contribution towards the extra costs.

Proof reading

The purpose of the proof is to check for typesetting or conversion errors and the completeness and accuracy of the text, tables and figures. Substantial changes in content, e.g., new results, corrected values, title and authorship, are not allowed without the approval of the Editor.

After online publication, further changes can only be made in the form of an Erratum, which will be hyperlinked to the article.

Online First

The article will be published online after receipt of the corrected proofs. This is the official first publication citable with the DOI. After release of the printed version, the paper can also be cited by issue and page numbers.

OPEN CHOICE

Open Choice allows you to publish open access in more than 1850 Springer Nature journals, making your research more visible and accessible immediately on publication.

Benefits:

- Increased researcher engagement: Open Choice enables access by anyone with an internet connection, immediately on publication.
- Higher visibility and impact: In Springer hybrid journals, OA articles are accessed 4 times more often on average, and cited 1.7 more times on average*.
- Easy compliance with funder and institutional mandates: Many funders require open access publishing, and some take compliance into account when assessing future grant applications.

It is easy to find funding to support open access – please see our funding and support pages for more information.

*) Within the first three years of publication. Springer Nature hybrid journal OA impact analysis, 2018.

- [Open Choice](#)
- [Funding and Support pages](#)

[Copyright and license term – CC BY](#)

Open Choice articles do not require transfer of copyright as the copyright remains with the author. In opting for open access, the author(s) agree to publish the article under the Creative Commons Attribution License.

- [Find more about the license agreement](#)

EDITORIAL PROCEDURE

[Double-blind peer review](#)

This journal follows a double-blind reviewing procedure. Authors are therefore requested to submit:

- A blinded manuscript without any author names and affiliations in the text or on the title page. Self-identifying citations and references in the article text should be avoided.
- A separate title page, containing title, all author names, affiliations, and the contact information of the corresponding author. Any acknowledgements, disclosures, or funding information should also be included on this page.

Appendix B: Systematic Review Protocol (PROSPERO)

PROSPERO
International prospective register of systematic reviews



Interpersonal, social and psychological predictors of outcome in cognitive behavioural school-based interventions for mental health and well-being

Gemma Brown, Jane Owens, Matthias Schwannauer

Citation

Gemma Brown, Jane Owens, Matthias Schwannauer. Interpersonal, social and psychological predictors of outcome in cognitive behavioural school-based interventions for mental health and well-being. PROSPERO 2018 CRD42018087396 Available from:

http://www.crd.york.ac.uk/PROSPERO/display_record.php?ID=CRD42018087396

Review question

- 1) What psychological, interpersonal and social variables have been explored as possible predictors, mediators and moderators of CBT school-based interventions?
- 2) Do these variables effect mental health outcomes for CYP in CBT school-based interventions?
- 3) Through exploration of effect size, what variables have most impact on mental health outcomes?

Searches

Electronic databases (PsycINFO, MEDLINE, ERIC and EMBASE) will be searched with the following terms:

1. Predict* OR Moderate* OR Mediat* AND;
2. School* OR School-based AND;
3. Intervention* OR Program* AND;
4. Mental Health

Publications will be limited to peer review journals and those published or translated to English.

Types of study to be included

Inclusion

- Quasi-experimental

Exclusion

- Case reports and series
- Ideas, editorials and opinions
- Reviews and meta-analyses

Condition or domain being studied

Psychological well-being.

Participants/population

Children and young people aged 19 years and under enrolled in primary or secondary school.

Intervention(s), exposure(s)

Inclusion:

- Psychological or educational interventions that are based in and supported by schools. Delivered as part of the curriculum or before/after school.
- Group or individual and universal or targeted interventions will both be included.
- Delivery of the intervention by other professionals skills within the classroom/school settings or by teachers and other school staff

PROSPERO International prospective register of systematic reviews

- Based on the principles of cognitive behavioural therapy (CBT)

Exclusion:

- Interventions that take place out of school, at home or in clinic.
- Other psychological interventions other than CBT based approaches (i.e. IPT or mindfulness-based cognitive therapy).
- Pharmacological treatment

Comparator(s)/control

A control or comparator is required.

Context

Primary outcome(s)

Mental health, anxiety, depression, post traumatic symptoms

Secondary outcome(s)

None.

Data extraction (selection and coding)

Retrieved studies will be deduplicated as well as non-English studies removed. Titles and/or abstracts will then be screened by the main author to determine whether they will meet the inclusion criteria. Full texts will then be retrieved and assessed for eligibility.

Data will be extracted by the main author using a standardised electronic data extraction form. Data extraction will include:

- Author
- Year of publication
- Country
- Participant demographics and characteristics
- Details of the intervention
- Control conditions
- Methodology
- Dependent variables – outcome measure and data
- Independent variables– predictors, mediators and moderators and data
- Intervention outcomes
- Method of analysis
- Data on results of analysis

Two reviewers will independently rate the quality of studies using a standardised quality assessment tool. Any disagreements will be recorded and the opinion of a third reviewer sought as necessary.

Risk of bias (quality) assessment

~~Risk of bias will be assessed independently by two reviewers using the ROBIS tool and will be coded as such.~~ Risk of bias will be assessed independently by two reviewers using the ROBIS tool and will be coded as such. Then referred to a third reviewer if necessary. Quality assessment will be used to critique the synthesis.

Strategy for data synthesis

Extracted data will be summarised in tables and organised around intervention, predicting variable and outcome.

A descriptive narrative will then be provided. Meta-analysis is not expected to be suitable due to the heterogeneity of the included studies although effect size may be calculated. However, if found to be sufficiently homogenous, we will quantitatively combine results of subsamples of studies using meta-analysis.

PROSPERO
International prospective register of systematic reviews

Analysis of subgroups or subsets

If sufficient data is available, subgroup analysis may be completed i.e. for specific interventions or presentations.

Contact details for further information

Gemma Brown
s0563788@sms.ed.ac.uk

Organisational affiliation of the review

University of Edinburgh / NHS Lothian

Review team members and their organisational affiliations

Miss Gemma Brown. University of Edinburgh / NHS Lothian
Dr Jane Owens. NHS Lothian
Professor Matthias Schwannauer. University of Edinburgh

Anticipated or actual start date

29 January 2018

Anticipated completion date

28 September 2018

Funding sources/sponsors

University of Edinburgh

Conflicts of interest

Language

English

Country

Scotland

Stage of review

Review_Ongoing

Subject index terms status

Subject indexing assigned by CRD

Subject index terms

Humans; Mental Disorders; Mental Health; Schools

Date of registration in PROSPERO

08 March 2018

Date of publication of this version

04 June 2018

Details of any existing review of the same topic by the same authors

Stage of review at time of this submission

PROSPERO
International prospective register of systematic reviews



Stage	Started	Completed
Preliminary searches	Yes	Yes
Piloting of the study selection process	Yes	No
Formal screening of search results against eligibility criteria	Yes	No
Data extraction	No	No
Risk of bias (quality) assessment	No	No
Data analysis	No	No

Versions

08 March 2018

04 June 2018

PROSPERO

This information has been provided by the named contact for this review. CRD has accepted this information in good faith and registered the review in PROSPERO. CRD bears no responsibility or liability for the content of this registration record, any associated files or external websites.

Appendix C: Quality Rating Tool

Reference:		
Section 1: Population		
1.1	Is the source population or source area well described? Was the country (e.g. developed or non-developed, type of healthcare system), setting (primary schools, community centres etc.), location (urban, rural), population demographics etc. adequately described?	++ + - NR NA
1.2	Is the eligible population or area representative of the source population or area? Was the recruitment of individuals, clusters or areas well defined (e.g. advertisement, birth register)? Was the eligible population representative of the source? Were important groups under-represented?	++ + - NR NA
1.3	Do the selected participants or areas represent the eligible population or area? Was the method of selection of participants from the eligible population well described? What % of selected individuals or clusters agreed to participate? Were there any sources of bias? Were the inclusion or exclusion criteria explicit and appropriate?	++ + - NR NA
Section 2: Method of allocation to intervention (or comparison)		
2.1	Allocation to intervention (or comparison). How was selection bias minimised? Was allocation to exposure and comparison randomised? Was it truly random ++ or pseudo-randomised + (e.g. consecutive admissions)? If not randomised, was significant confounding likely (-) or not (+)? If a cross-over, was order of intervention randomised?	++ + - NR NA
2.2	Were interventions (and comparisons) well described and appropriate? Were interventions and comparisons described in sufficient detail (i.e. enough for study to be replicated)? Was comparisons appropriate (e.g. usual practice rather than no intervention)?	++ + - NR NA
2.3	Was the allocation concealed? Could the person(s) determining allocation of participants or clusters to intervention or comparison groups have influenced the allocation? Adequate allocation concealment (++) would include centralised allocation or computerised allocation systems.	++ + - NR NA
2.4	Were participants or investigators blind to exposure and comparison? Were participants and investigators – those delivering or assessing the intervention kept blind to intervention allocation? (Triple or double blinding score ++) If lack of blinding is likely to cause important bias, score –	++ + - NR NA
2.5	Was the exposure to the intervention and comparison adequate? Is reduced exposure to intervention or control related to the intervention (e.g. adverse effects leading to reduced compliance) or fidelity of implementation (e.g. reduced adherence to protocol)? Was lack of exposure sufficient to cause important bias?	++ + - NR NA

2.6	Was contamination acceptably low? Did any in the comparison group receive the intervention or vice versa? If so, was it sufficient to cause important bias? If a cross-over trial, was there a sufficient wash-out period between interventions?	++ + - NR NA
3.1	Were outcome measures reliable? Were outcome measures subjective or objective? How reliable were outcome measures (e.g. inter- or intra-rater reliability scores)? Was there any indication that measures had been validated (e.g. validated against a gold standard measure or assessed for content validity)?	++ + - NR NA
3.2	Were outcomes relevant? Where surrogate outcome measures were used, did they measure what they set out to measure? (e.g. a study to assess impact on physical activity assesses gym membership – a potentially objective outcome measure – but is it a reliable predictor of physical activity?)	++ + - NR NA
3.3	Were there similar follow-up times in exposure and comparison groups? If groups are followed for different lengths of time, then more events are likely to occur in the group followed-up for longer distorting the comparison. Analyses can be adjusted to allow for differences in length of follow-up (e.g. using person-years).	++ + - NR NA
3.4	Was follow-up time meaningful? Was follow-up long enough to assess long-term benefits or harms? Was it too long, e.g. participants lost to follow-up?	++ + - NR NA
3.5	Was the selection of explanatory variables based on a sound theoretical basis? How sound was the theoretical basis for selecting the explanatory variables?	++ + - NR NA
4.1	Were exposure and comparison groups similar at baseline? If not, were these adjusted? Were there any differences between groups in important confounders at baseline? If so, were these adjusted for in the analyses (e.g. multivariate analyses or stratification). Were there likely to be any residual differences of relevance?	++ + - NR NA
4.2	Was the study sufficiently powered to detect an intervention effect (if one exists)? A power of 0.8 (that is, it is likely to see an effect of a given size if one exists, 80% of the time) is the conventionally accepted standard. Is a power calculation presented? If not, what is the expected effect size? Is the sample size adequate?	++ + - NR NA
4.3	4.5 Were the analytical methods appropriate? Were important differences in follow-up time and likely confounders adjusted for? If a cluster design, were analyses of sample size (and power), and effect size performed on clusters (and not individuals)? Were subgroup analyses pre-specified?	++ + - NR NA
4.4	Was the precision of intervention effects given or calculable? Were they meaningful? Were confidence intervals or p values for effect estimates given or	++ +

	possible to calculate? Were CI's wide or were they sufficiently precise to aid decision-making? If precision is lacking, is this because the study is under-powered?	- NR NA
--	--	---------------

Checklist items are worded so that 1 of 5 responses is possible:	
++	Indicates that for that particular aspect of study design, the study has been designed or conducted in such a way as to minimise the risk of bias.
+	Indicates that either the answer to the checklist question is not clear from the way the study is reported, or that the study may not have addressed all potential sources of bias for that particular aspect of study design.
-	Should be reserved for those aspects of the study design in which significant sources of bias may persist.
Not reported (NR)	Should be reserved for those aspects in which the study under review fails to report how they have (or might have) been considered.
Not applicable (NA)	Should be reserved for those study design aspects that are not applicable given the study design under review (for example, allocation concealment would not be applicable for case-control studies).

Appendix D: Author Guidelines for Empirical Project

The current study has followed the author guidelines for the BMC Public Health journal. The author has adapted these guidelines to be appropriate for the submission of a thesis as a requirement of the Doctorate of Clinical Psychology.

BMC Public Health Author Guidelines

Aims and scope

BMC Public Health is an open access, peer-reviewed journal that considers articles on the epidemiology of disease and the understanding of all aspects of public health. The journal has a special focus on the social determinants of health, the environmental, behavioral, and occupational correlates of health and disease, and the impact of health policies, practices and interventions on the community.

Research article

Criteria

Research articles should report on original primary research, but may report on systematic reviews of published research provided they adhere to the appropriate reporting guidelines which are detailed in our [editorial policies](#). Please note that non-commissioned pooled analyses of selected published research will not be considered.

Authors who need help depositing and curating data may wish to consider uploading their data to [Springer Nature's Research Data Support](#) or contacting our [Research Data Support Helpdesk](#). Springer Nature's Research Data Support provides data deposition and curation to help authors follow good practice in sharing and archiving of research data, and can be accessed [via an online form](#). The services provide secure and private submission of data files, which are curated and managed by the Springer Nature Research Data team for public release, in agreement with the submitting author. These services are provided in partnership with figshare. Checks are carried out as part of a submission screening process to ensure that researchers who should use a specific community-endorsed repository are advised of the best option for sharing and archiving their data. Use of Research Data Support is optional and does not imply or guarantee that a manuscript will be accepted.

Preparing your manuscript

The information below details the section headings that you should include in your manuscript and what information should be within each section.

Please note that your manuscript must include a 'Declarations' section including all of the subheadings (please see below for more information).

Title page

The title page should:

- present a title that includes, if appropriate, the study design e.g.:
 - "A versus B in the treatment of C: a randomized controlled trial", "X is a risk factor for Y: a case control study", "What is the impact of factor X on subject Y: A systematic review"
 - or for non-clinical or non-research studies a description of what the article reports

- list the full names, institutional addresses and email addresses for all authors
 - if a collaboration group should be listed as an author, please list the Group name as an author. If you would like the names of the individual members of the Group to be searchable through their individual PubMed records, please include this information in the “Acknowledgements” section in accordance with the instructions below
- indicate the corresponding author

Abstract

The Abstract should not exceed 350 words. Please minimize the use of abbreviations and do not cite references in the abstract. Reports of randomized controlled trials should follow the [CONSORT](#) extension for abstracts. The abstract must include the following separate sections:

- **Background:** the context and purpose of the study
- **Methods:** how the study was performed and statistical tests used
- **Results:** the main findings
- **Conclusions:** brief summary and potential implications
- **Trial registration:** If your article reports the results of a health care intervention on human participants, it must be registered in an appropriate registry and the registration number and date of registration should be in stated in this section. If it was not registered prospectively (before enrollment of the first participant), you should include the words 'retrospectively registered'. See our [editorial policies](#) for more information on trial registration

Keywords

Three to ten keywords representing the main content of the article.

Background

The Background section should explain the background to the study, its aims, a summary of the existing literature and why this study was necessary or its contribution to the field.

Methods

The methods section should include:

- the aim, design and setting of the study
- the characteristics of participants or description of materials
- a clear description of all processes, interventions and comparisons. Generic drug names should generally be used. When proprietary brands are used in research, include the brand names in parentheses
- the type of statistical analysis used, including a power calculation if appropriate

Results

This should include the findings of the study including, if appropriate, results of statistical analysis which must be included either in the text or as tables and figures.

Discussion

This section should discuss the implications of the findings in context of existing research and highlight limitations of the study.

Conclusions

This should state clearly the main conclusions and provide an explanation of the importance and relevance of the study reported.

List of abbreviations

If abbreviations are used in the text they should be defined in the text at first use, and a list of abbreviations should be provided.

Declarations

All manuscripts must contain the following sections under the heading 'Declarations':

- Ethics approval and consent to participate
- Consent for publication
- Availability of data and material
- Competing interests
- Funding
- Authors' contributions
- Acknowledgements
- Authors' information (optional)

Please see below for details on the information to be included in these sections.

If any of the sections are not relevant to your manuscript, please include the heading and write 'Not applicable' for that section.

Ethics approval and consent to participate

Manuscripts reporting studies involving human participants, human data or human tissue must:

- include a statement on ethics approval and consent (even where the need for approval was waived)
- include the name of the ethics committee that approved the study and the committee's reference number if appropriate

Studies involving animals must include a statement on ethics approval.

See our [editorial policies](#) for more information.

If your manuscript does not report on or involve the use of any animal or human data or tissue, please state "Not applicable" in this section.

Consent for publication

If your manuscript contains any individual person's data in any form (including any individual details, images or videos), consent for publication must be obtained from that person, or in the case of

children, their parent or legal guardian. All presentations of case reports must have consent for publication.

You can use your institutional consent form or our [consent form](#) if you prefer. You should not send the form to us on submission, but we may request to see a copy at any stage (including after publication). See our [editorial policies](#) for more information on consent for publication. If your manuscript does not contain data from any individual person, please state “Not applicable” in this section.

Availability of data and materials

All manuscripts must include an ‘Availability of data and materials’ statement. Data availability statements should include information on where data supporting the results reported in the article can be found including, where applicable, hyperlinks to publicly archived datasets analysed or generated during the study. By data we mean the minimal dataset that would be necessary to interpret, replicate and build upon the findings reported in the article. We recognise it is not always possible to share research data publicly, for instance when individual privacy could be compromised, and in such instances data availability should still be stated in the manuscript along with any conditions for access.

Data availability statements can take one of the following forms (or a combination of more than one if required for multiple datasets):

- The datasets generated and/or analysed during the current study are available in the [NAME] repository, [PERSISTENT WEB LINK TO DATASETS]
- The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.
- All data generated or analysed during this study are included in this published article [and its supplementary information files].
- The datasets generated and/or analysed during the current study are not publicly available due [REASON WHY DATA ARE NOT PUBLIC] but are available from the corresponding author on reasonable request.
- Data sharing is not applicable to this article as no datasets were generated or analysed during the current study.
- The data that support the findings of this study are available from [third party name] but restrictions apply to the availability of these data, which were used under license for the current study, and so are not publicly available. Data are however available from the authors upon reasonable request and with permission of [third party name].
- Not applicable. If your manuscript does not contain any data, please state 'Not applicable' in this section.

More examples of template data availability statements, which include examples of openly available and restricted access datasets, are available [here](#).

BioMed Central also requires that authors cite any publicly available data on which the conclusions of the paper rely in the manuscript. Data citations should include a persistent identifier (such as a DOI) and should ideally be included in the reference list. Citations of datasets, when they appear in the reference list, should include the minimum information recommended by DataCite and follow journal style. Dataset identifiers including DOIs should be expressed as full URLs. For example:

Hao Z, AghaKouchak A, Nakhjiri N, Farahmand A. Global integrated drought monitoring and prediction system (GIDMaPS) data sets. figshare. 2014. <http://dx.doi.org/10.6084/m9.figshare.853801>

With the corresponding text in the Availability of data and materials statement:

The datasets generated during and/or analysed during the current study are available in the [NAME] repository, [PERSISTENT WEB LINK TO DATASETS].^[Reference number]

Competing interests

All financial and non-financial competing interests must be declared in this section.

See our [editorial policies](#) for a full explanation of competing interests. If you are unsure whether you or any of your co-authors have a competing interest please contact the editorial office.

Please use the authors initials to refer to each authors' competing interests in this section.

If you do not have any competing interests, please state "The authors declare that they have no competing interests" in this section.

Funding

All sources of funding for the research reported should be declared. The role of the funding body in the design of the study and collection, analysis, and interpretation of data and in writing the manuscript should be declared.

Authors' contributions

The individual contributions of authors to the manuscript should be specified in this section. Guidance and criteria for authorship can be found in our [editorial policies](#). Please use initials to refer to each author's contribution in this section, for example: "FC analyzed and interpreted the patient data regarding the hematological disease and the transplant. RH performed the histological examination of the kidney, and was a major contributor in writing the manuscript. All authors read and approved the final manuscript."

Acknowledgements

Please acknowledge anyone who contributed towards the article who does not meet the criteria for authorship including anyone who provided professional writing services or materials.

Authors should obtain permission to acknowledge from all those mentioned in the Acknowledgements section.

See our [editorial policies](#) for a full explanation of acknowledgements and authorship criteria.

If you do not have anyone to acknowledge, please write "Not applicable" in this section.

Group authorship (for manuscripts involving a collaboration group): if you would like the names of the individual members of a collaboration Group to be searchable through their individual PubMed records, please ensure that the title of the collaboration Group is included on the title page and in the submission system and also include collaborating author names as the last paragraph of the "Acknowledgements" section. Please add authors in the format First Name, Middle initial(s) (optional), Last Name. You can add institution or country information for each author if you wish, but this should be consistent across all authors.

Please note that individual names may not be present in the PubMed record at the time a published article is initially included in PubMed as it takes PubMed additional time to code this information.

Authors' information

This section is optional. You may choose to use this section to include any relevant information about the author(s) that may aid the reader's interpretation of the article, and understand the standpoint of the author(s). This may include details about the authors' qualifications, current positions they hold at institutions or societies, or any other relevant background information. Please refer to authors using their initials. Note this section should not be used to describe any competing interests.

Endnotes

Endnotes should be designated within the text using a superscript lowercase letter and all notes (along with their corresponding letter) should be included in the Endnotes section. Please format this section in a paragraph rather than a list.

References

Examples of the Vancouver reference style are shown below. See our editorial policies for author guidance on good citation practice

Web links and URLs: All web links and URLs, including links to the authors' own websites, should be given a reference number and included in the reference list rather than within the text of the manuscript. They should be provided in full, including both the title of the site and the URL, as well as the date the site was accessed, in the following format: The Mouse Tumor Biology Database. <http://tumor.informatics.jax.org/mtbwi/index.do>. Accessed 20 May 2013. If an author or group of authors can clearly be associated with a web link, such as for weblogs, then they should be included in the reference.

Example reference style:

Article within a journal

Smith JJ. The world of science. Am J Sci. 1999;36:234-5.

Article within a journal (no page numbers)

Rohrmann S, Overvad K, Bueno-de-Mesquita HB, Jakobsen MU, Egeberg R, Tjønneland A, et al. Meat consumption and mortality - results from the European Prospective Investigation into Cancer and Nutrition. BMC Medicine. 2013;11:63.

Article within a journal by DOI

Slifka MK, Whitton JL. Clinical implications of dysregulated cytokine production. *Dig J Mol Med.* 2000; doi:10.1007/s801090000086.

Article within a journal supplement

Frumin AM, Nussbaum J, Esposito M. Functional asplenia: demonstration of splenic activity by bone marrow scan. *Blood* 1979;59 Suppl 1:26-32.

Book chapter, or an article within a book

Wyllie AH, Kerr JFR, Currie AR. Cell death: the significance of apoptosis. In: Bourne GH, Danielli JF, Jeon KW, editors. *International review of cytology.* London: Academic; 1980. p. 251-306.

OnlineFirst chapter in a series (without a volume designation but with a DOI)

Saito Y, Hyuga H. Rate equation approaches to amplification of enantiomeric excess and chiral symmetry breaking. *Top Curr Chem.* 2007. doi:10.1007/128_2006_108.

Complete book, authored

Blenkinsopp A, Paxton P. *Symptoms in the pharmacy: a guide to the management of common illness.* 3rd ed. Oxford: Blackwell Science; 1998.

Online document

Doe J. Title of subordinate document. In: *The dictionary of substances and their effects.* Royal Society of Chemistry. 1999. [http://www.rsc.org/dose/title of subordinate document](http://www.rsc.org/dose/title%20of%20subordinate%20document). Accessed 15 Jan 1999.

Online database

Healthwise Knowledgebase. *US Pharmacopeia,* Rockville. 1998. <http://www.healthwise.org>. Accessed 21 Sept 1998.

Supplementary material/private homepage

Doe J. Title of supplementary material. 2000. <http://www.privatehomepage.com>. Accessed 22 Feb 2000.

University site

Doe, J: Title of preprint. <http://www.uni-heidelberg.de/mydata.html> (1999). Accessed 25 Dec 1999.

FTP site

Doe, J: Trivial HTTP, RFC2169. <ftp://ftp.isi.edu/in-notes/rfc2169.txt> (1999). Accessed 12 Nov 1999.

Organization site

ISSN International Centre: The ISSN register. <http://www.issn.org> (2006). Accessed 20 Feb 2007.

Dataset with persistent identifier

Zheng L-Y, Guo X-S, He B, Sun L-J, Peng Y, Dong S-S, et al. Genome data from sweet and grain sorghum (*Sorghum bicolor*). GigaScience Database. 2011. <http://dx.doi.org/10.5524/100012>.

Figures, tables and additional files

See [General formatting guidelines](#) for information on how to format figures, tables and additional files.

Appendix E: Ethical Approvals



SCHOOL of HEALTH IN SOCIAL SCIENCE
CLINICAL AND HEALTH PSYCHOLOGY

The University of Edinburgh
Medical School
Doorway 6, Teviot Place
Edinburgh EH8 9AG

Telephone 0131 651 3969
Fax 0131 650 3891
Email submitting.ethics@ed.ac.uk

Gemma Brown
Trainee Clinical Psychologist
School of Health in Social Science
University of Edinburgh

11 July 2018

Dear Gemma,

Application for Level 1 Ethical Approval

Reference: CLIN528

Project Title: The implementation of school-based low intensity anxiety management: A mixed methods process analysis

Academic Supervisor: Matthias Schwannauer

Thank you for submitting the above research project for review by the Department of Clinical and Health Psychology Ethics Research Panel. I can confirm that the submission has been independently reviewed and was approved on the 24th November 2017.

Should there be any change to the research protocol it is important that you alert us to this as this may necessitate further review.

Yours sincerely,

Kirsty Gardner
Administrative Secretary, Clinical Psychology

Gemma Brown
Trainee Clinical Psychologist
Child and Adolescent Mental Health Service
Royal Edinburgh Hospital
Tipperlinn Road,
Edinburgh
EH10 5HF

Date 30/11/17

Your ref

Our Ref MG/AF

Dear Gemma,

I am writing in response to your application requesting permission to undertake research in schools in The City of Edinburgh.

Your request has been considered, and I am pleased to inform you that you have been given permission in principle to undertake your research. I must stress that it is the policy of this Authority to leave the final decision about participation in research projects of this kind to Head Teachers and their staff, so that approval in principle does not oblige any particular establishment to take part.

I request that you forward a copy of your completed findings to me when they become available. In this case an electronic summary of your thesis would be preferred. Your work may be of interest to a number of staff in the Communities and Families Department.

I would like to thank you for contacting the Communities and Families Department about your work, and wish you every success in the completion of your project.

Yours sincerely



Martin Gemmell
Principal Psychologist

Psychological Services, Children's Services
Level 1.3 Waverley Court, 4 East Market Street, Edinburgh EH8 8BG

Tel 0131 469 2803 E-mail anne.fitzpatrick@ea.edin.sch.uk



**Confirmation of Quality Improvement Team Approval for Service Evaluation within
CAMHS, NHS Lothian**

From: [REDACTED]
Sent: 20 September 2017 12:53
To: [REDACTED]; Brown, Gemma K; [REDACTED]
Cc: [REDACTED]
Subject: RE: QIT registration form

Thanks for checking everything out Gemma [REDACTED] and I can grant QIT approval in that case on the basis of the original application. Saz, could you please log that?

It sounds like the only outstanding issue is the Caldicott one – info available on the intranet in the information governance section. Please don't contact the Caldicott guardian directly but I suggest if you need further advice then Gemma should contact [REDACTED]. If you are using NHS data then you will need to apply for this as our guidance currently stands, and should do this as soon as possible as a recent approval has taken more than 4 months to come through. However, if the cases are not open to CAMHS you may decide that you are not using NHS data, in which case Caldicott doesn't apply

Hope that helps with the decision making

Bw

[REDACTED]

From: [REDACTED]
Sent: 19 September 2017 18:01
To: Brown, Gemma K; [REDACTED]
Subject: RE: QIT registration form

My reading of this is that from an NHS point of view nothing else is needed? Helen however, is always much clearer on these things than me

Bw

[REDACTED]

[REDACTED]

From: Brown, Gemma K
Sent: 19 September 2017 10:21
To: [REDACTED]
Subject: RE: QIT registration form

Hi all,

Thank you all for help with this. I have spoken with R&D and ACCORD and they have advised the following in relation to my thesis:

Charlotte Smith (Research Governance Co-Ordinator, ACCORD/Uni) has reviewed my thesis summary and checked with colleagues in ACCORD. She has advised that they both agree that this is an evaluation of a service not research and should only require QIT approval as well as any local

council/school approvals. She has confirmed it does not require sponsorship and she does not need to review any study documentation.

Last week R&D advised I would need to go through R&D but they did not review a summary of my thesis at the time. I followed up re Charlotte's response with R&D this morning who said that if it has been deemed as service evaluation and QIT approval is given then I will not require R&D.

I have also submitted for approval from City of Edinburgh Council.

I'd be grateful for your advice on how to take this forward.

Many thanks,
Gemma

From: [REDACTED]
Sent: 18 September 2017 17:01
To: [REDACTED]; Brown, Gemma K
Subject: RE: QIT registration form

Hi all,

[REDACTED] – thank you so much for your help with this – and very helpful email below. I'm just getting back into the swing of things after some extended and unplanned leave (will fill you in when I see you!) so apologies for being a little off the radar.

Just to follow up on a few of the points you mention – and a few additional queries if that's ok:

1. Whether QIT approval is needed

Very happy to take yours and [REDACTED] views on whether QIT is necessary – However as grey my instinct is to go ahead with QIT approval if possible. While no CYP will be open to CAMHS, CYP seen by school nurses will be NHS patients. Those seen by local authority employee's won't be NHS patients however we will still be very much working in partnership regarding these CYP and will be asking to collect and hold data in relation to them.

2. Research or service evaluation

It sounds like we can be clear that this is the implementation of an evidence based intervention and therefore service development/evaluation. This fits with discussions with NES who were clear that what they/we are proposing is service development. As part of this we will collect a number of routine outcome measures (ROMS). We'll keep anonymised data relating to ROMS and will register any data bases as an information asset with NHS Lothian Information Governance Department. We've included information sheets and consent forms relating to the collection and use of this data.

Gemma will be collecting additional data (qualitative interviews/questionnaires) from NHS and Local government staff. This is novel data rather than Routine outcome data. I believe Gemma has had confirmation from Helen Newbery that she does not need REC approval for this but does need to register collection of this data with R&D which she is doing. She is following this up separately for non- NHS staff also. So although this part of the project is research, Gemma is pursuing any required approvals separately for this.

Does that all sound ok?

3. Any additional approvals needed

* One query that has come up is whether we need additional approval – specifically from Caldicott, to allow the data that is being routinely collected to be used as part of research

either now (therefore allowing Gemma to use the ROMs as part of her thesis) or in the future. We have included this in the consent form but I'm not sure if anything additional is needed. We've proposed that consent forms will be held as part of the CYP school record – therefore negating the need for us needing access to any identifiable information but I'm wondering if this would cause problems in terms of using data collected. Having said all that – some of the demographic information that we were thinking of collecting (age, gender, school, SIMD (Scottish Index of multiple Deprivation) may be considered to be identifiable information. NES hasn't suggested we collect this data however it would be relevant to the evaluation of the implementation. Helen I wondered if you've come across anything like this before and had any idea's or whether we should best go directly to Caldicott in relation to this?

Thanks very much again for your help,

Best wishes,

■

From: ■
Sent: 14 July 2017 17:40
To: ■
Cc: ■; Brown, Gemma K
Subject: RE: QIT registration form

Hi ■

This all looks really interesting and well thought out. My one big query about all of it – and that I flagged with Gemma - is whether participants are being recruited on the basis of being NHS patients. I think the answer is probably not, but I think the fact it is a partnership between schools and NHS Lothian makes it a bit grey in my opinion.

If participants are recruited on the basis of being NHS patients, then you need to be clear whether it's research, audit or service evaluation. If this is a local implementation of something that we know works, it's likely to be service evaluation/audit. If it's looking at whether a new intervention works then it probably is more research.

If you're clear that participants are not being recruited on the basis of being NHS patients, then it's probably debatable whether you need NHS CAMHS QIT approval but everything looks good to me so I am happy to give approval anyway! I did say to Gemma that regardless she should check with NHS Lothian R+D (not ethics; R+D are supposed to be consulted when staff time is involved if it's research)– the contact is Helen Newbury. If you have any concern that it might be research that involves NHS participants, then you should probably also discuss that with Helen. She can provide a written statement that it doesn't require approval from a REC which is sometimes helpful. And finally, have you also thought about whether you would need approval from school authority?

I hope all that makes sense – though my brain is very tired on a Friday evening! I'm in Weds/Thurs or get hold of me at the uni if you want to discuss anything more

Bw

■

From: ■
Sent: 10 July 2017 14:38
To: ■
Cc: ■; Brown, Gemma K
Subject: QIT registration form

Hi [REDACTED],

I've attached a QIT registration form for the work I'll be doing in my new post. Please also see attached methodology document and appendices.

Gemma Brown will be assisting with the evaluation of the project implementation as part of her thesis. I'm aware that she has already contacted you about this. For this she will be using quantitative data that will be routinely collected as part of the project and, as an addition, will be conducting focus groups and qualitative interviews with key staff members in the NHS and in Schools. I've worked this into the QIT form and methodology however Gemma will be contacting Local NHS ethics to see if further approval is needed regarding the NHS staff interviews (I believe that was the advice from her discussion with you).

The data that we will have access to for evaluation will be routinely collected questionnaires and figures regarding number of people seen, average sessions attended etc. These will be collected by those delivering the interventions in schools (e.g. nurses, pupil support workers) and we (CAMHS) will keep an anonymised data base containing demographic information and questionnaire scores only. As this is a partnership between schools and NHS Lothian I was hoping that consent forms/original questionnaires could be kept in school records only. As such, NHS Lothian would not need access to identifiable information. [REDACTED] and I wondered if you had any thoughts on this?

Please do let me know if further information would be helpful. I've attached draft information sheets and consent forms based on those already approved for the guided self help service in CAMSH. These may change and are yet to go through communications but will give you a sense of what we are proposing.

Thanks very much in advance for any thoughts on this,

Best wishes

[REDACTED]

Our Values Into Action

Quality | Dignity and Respect | Care and Compassion | Openness, Honesty and Responsibility | Teamwork

For more information visit: <http://www.nhslothian.scot.nhs.uk/values>

Confirmation of Caldicott Approval within NHS Lothian

From: [REDACTED]
Sent: Wednesday, February 07, 2018 04:59 PM
To: Brown, Gemma K
Cc: [REDACTED]
Subject: RE: Advice re Caldicott 17185- Approval granted 06/02/2018

Hi [REDACTED]

I only have delegated responsibility re Caldicott for small scale research projects. If R&D have advised that they don't require you to apply for Caldicott approval in relation to your thesis, that's fine. I'll add this email trail to the file with Cathy's Caldicott application and accept that you're covered within that application.

Bw
Ros

[REDACTED]

From: Brown, Gemma K
Sent: 07 February 2018 13:26
To: [REDACTED]
Cc: [REDACTED]
Subject: RE: Advice re Caldicott 17185- Approval granted 06/02/2018

Hi [REDACTED],

I am using some of this data for my thesis. It has been approved by the University (pending confirmation around Caldicott approval), Quality Improvement Team within CAMHS and REC approval was not required. It was reviewed by R&D who felt that it was a service evaluation and did not need approval from them. I had thought that the project's overall approval would include me accessing this data for research/thesis purposes. Would you be able to clarify whether this approval will cover my thesis as well?

I'm not sure if it's relevant to this but, regarding learning objectives, I have previously completed a Caldicott form for my SSRP which was on another topic.

Best wishes,
Gemma

From: [REDACTED]
Sent: 06 February 2018 15:01
To: [REDACTED]
Cc: [REDACTED] Brown, Gemma K
Subject: Re: Advice re Caldicott 17185- Approval granted 06/02/2018

Thanks [REDACTED]
That's really helpful
Best wishes

This application was passed to [REDACTED] on the instruction of [REDACTED], please see emails below. [REDACTED] has given [REDACTED] delegated Caldicott approval for straightforward Psychology student small scale projects.
Let me know if I can be of further help.

BW

[REDACTED]

From: [REDACTED]
Sent: 31 January 2018 14:26
To: Guardian, Caldicott
Cc: [REDACTED]
Subject: Re: Advice re Caldicott 17185

Hi [REDACTED]
Is there any update about this?
Best wishes

[REDACTED]

Sent from my BlackBerry 10 smartphone on the O2 network.

From: [REDACTED]
Sent: Thursday, 30 November 2017 10:25
To: Guardian, Caldicott
Cc: [REDACTED]
Subject: FW: Advice re Caldicott 17185

Good morning,
Signed form attached.
Many thanks,

[REDACTED]

****PLEASE NOTE WORKING HOURS****

Monday Off, Tuesday-Thursday 7.30am-5.30pm and Friday 7.30am-5pm

From: Guardian, Caldicott <>
Sent: Wednesday, 29 November 2017 14:37
[REDACTED]
Cc: Guardian, Caldicott
Subject: RE: Advice re Caldicott 17185

Dear [REDACTED]
Many thanks for your email and apologies for delay in responding, I have been outwith the office. Your Caldicott application has been passed to me for log and initial review. I will now pass it to the Data Protection Officer and when I hear further I will be back in touch.
Meantime, we do require a signed copy and you can either email a copy to this mailbox or post a copy to the address in my signature box below.
Best regards

[REDACTED]

Caldicott Administrator Tel 0131 465 (3)5452

Appendix F: Empirical Project Protocol

Project Summary: The implementation of school-based low intensity anxiety management: a mixed methods process analysis

Background

Up to 20% of children and young people will experience a depressive episode or anxiety disorder before the age of 18 years (Werner-Seidler et al., 2017); with many more experiencing sub-threshold difficulties with emotional and mental well-being. While evidence-based interventions are recommended for these children and young people (The Matrix, 2015), access to these is limited.

Prevention and early intervention is identified as a key priority of the Scottish Government's Mental Health Strategy 2017-2027. Furthermore, the strategy highlights that every child and young person should have appropriate access to emotional and mental well-being support in school and that training for non-mental health staff should be available across health and social care services. NHS Lothian aim to work in partnership with schools and local authorities to increase access to safe and effective evidence based, low intensity psychological interventions in schools. This will involve providing training and supervision to key staff groups as well as consultation on implementation strategies.

Current Policy

The Mental Health Strategy 2017 – 2027 (Scottish Government, 2017) has set out the need for increased provision of tier one and two services using a multi-agency, whole system approach. This involves upskilling the workforce in universal settings such as schools and increasing the provision of low-intensity community based interventions. This aims to address the factors identified as a barrier to the treatment of problems earlier, reduce the flow of referrals to more intense services and facilitate access to preventative and early intervention services.

Intervention

The CAMHS Matrix (2015) sets out the evidence base for interventions at tiers one and two with cognitive behavioural therapy based interventions being the primary recommendations for anxiety and depression (NES, 2015). The intervention will be based on materials developed by NES (NHS Education Scotland), specifically the 'LIAM' (Low intensity anxiety management) approach and Paul Stellard's 'Think Good Feel Good' resources (Stellard, 2002). The intervention will generally take place over 6-8 sessions and delivering initially in a 1-1 setting by school nurses and pupil support officers. The incorporation of anxiety workshops for parents and anxiety groups for CYP will also be considered. Initial training in a CBT informed low intensity intervention for anxiety will take place over 2 days and will be support by an e-learning component. Training will continue via fortnightly supervision and coaching sessions delivered by a clinical psychologist.

Implementation Science

Although CBT based interventions have demonstrated a positive effect post intervention, the culture in which evidence-based interventions are delivered in real-world settings differs to that of an

experimental trial. Documentation of intervention and policy failures has demonstrated that interventions are not self-implementing and highlighted ‘a science to service gap’ and quality chasm (Fixsen et al., 2015). The importance of considering how innovations in clinical practice are implemented to bridge this gap and produce good outcomes has been evidenced (Meyers et al., 2012) leading to rapid growth in the field of implementation science.

Implementation science draws from theories of diffusion, dissemination and implementation to develop active guidance for managing the gap between research and services in the use of evidence based interventions. Within this field, an active framework for implementation (figure 1) was developed from a synthesis of transdisciplinary research (Blasé et al., 2012 & Fixsen et al., 2005, 2013) which provides guidance for practice and developing testable hypotheses to guide research in implementation.

Current Study

The current project seeks to apply the active implementation framework (Fixsen et al., 2005) to the developing provision of early intervention services for anxiety within schools. This will be based on low-intensity CBT for anxiety for children aged five to eighteen. A mixed method process analysis will seek to explore the barriers and facilitators to the initial implementation of this intervention. This will contribute to the literature on implementation of school-based mental health interventions and the ‘science to service gap’.

Methodology

Design

A mixed method design will be used for the process analysis. The design will combine sequential and concurrent design structures as both quantitative and qualitative datasets are collected and analysed to explore the overall implementation of the intervention. The data will converge within phases and the overall phase results will be built upon in an explanatory process. The researcher intends to place equal weighting to both quantitative and qualitative data although this may vary between phases. An example of this is represented diagrammatically in Figure 2.

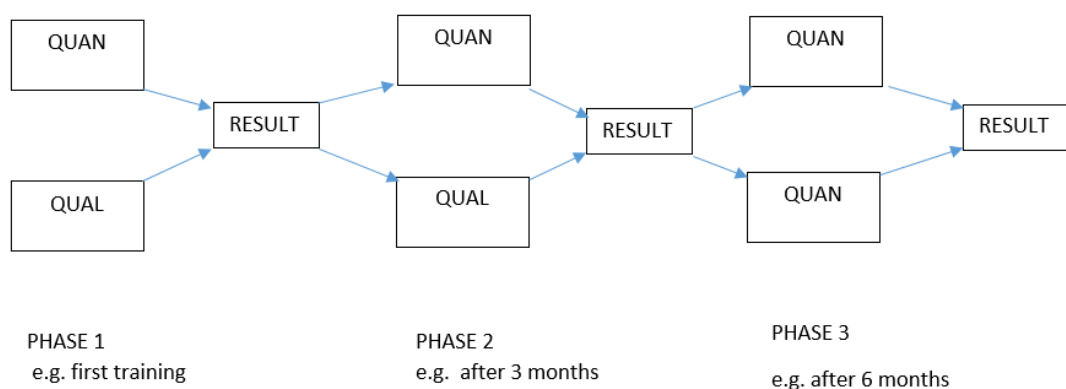


Figure 2: A pictorial representation of the multiphase mixed method design.

Due to the nature of the process analysis, the study will not follow a traditional fixed approach but be responsive to the observations the researcher makes about the implementation of the

intervention, maintaining an open, flexible stance in data collection. The study may be more or less than 3 phases depending on the progression of the intervention and constraints of the research project. Quantitative and/or qualitative data will be collected at each phase.

Additional Ethics

Approval has been sought from the Quality Improvement Team within CAMHS, NHS Lothian. The researcher will seek any relevant approvals within the NHS (i.e. REC, R&D and Caldicott) and other local authorities if required. Where it is not required, written confirmation will be obtained.

Sample

The sample will be within NHS Lothian and the corresponding local authorities (Midlothian, West Lothian, East Lothian and City of Edinburgh Council).

Novel Data Collection:

Stakeholders involved with the implementation of the intervention will be recruited and interviewed for the purpose of the study. This may include:

- Practitioners (i.e. School Nurses or Pupil Support Officers (City of Edinburgh Council only)) delivering the intervention
- Supervisor/Coaches
- Educational System – guidance teachers, educational psychology, head teachers etc.
- Leaders and managers

Novel data will not be collected from children and young people.

Routine Data:

- Routinely collected, non-identifiable data relating to children and young people (i.e. demographic data, attendance, attainment and outcome measures) will be accessed.
- Routinely collected, anonymised data relating to staff (i.e. experience of training) will be accessed.

Routine data is collected by staff involved in delivering the intervention. The researcher will not directly collect data from children and young people but access an anonymised database within NHS Lothian CAMHS. Data will be analysed by the researcher on an electronic database within the NHS. Routine data will include outcome measures, demographic details and other factors relating to outcome (i.e. school attendance or attainment).

In addition the researcher will conduct individual semi-structured interviews and/or focus groups with various stakeholders/staff to explore the facilitators and barriers to implementation. This may include, but is not limited to, discussion around organisational and individual factors. Interviews will be conducted throughout the process analysis and will last approximately 60 minutes. An interview schedule will be prepared to guide the semi-structured interview and ensure questions are framed in an open form. The interview will not be fixed but led by the participant's concerns where relevant to the research question and in response to the researcher's observations around the implementation of the intervention.

Examples of when novel data may be collected:

Collected from practitioners:

- pre training
- post training
- 1 month / first supervision
- 6 months / sixth supervision

Collected from other stakeholders:

- Prior to the initial implementation (i.e. around expectations)
- 6 months after the implementation begins (i.e. reflections on how the intervention is progressing)

Procedure

The primary researcher will be involved in the implementation of the intervention and immersed in the process. To complete the process analysis the researcher will utilise routinely collected data, make observations throughout the process and interview key stakeholders. Data collected will relate to the factors identified in the Active Implementation Framework (Blasé *et al.*, 2012 & Fixsen *et al.*, 2005, 2013).

Consent Procedures

Young people and their parent/carers

Only routinely collected data by the service relating to young people and their parent/carers will be accessed. Although the research will not directly seek the consent of young people and their parent/carer, written consent for treatment prior to the intervention commencing will be obtained including details regarding providing written consent for routine, anonymised data to be used in current and future research.

Other Stakeholders/Staff

Routinely collected data on the staff will also be accessed. Informed consent will be obtained from staff prior to conducting interviews. Interviews will be audio recorded for the purpose of interview transcription and data analysis. Data transcripts will be anonymized prior to analysis. All data will be securely stored in line with University of Edinburgh, local authority and NHS Lothian procedures.

Intervention

The intervention will be clearly defined prior to implementation in accordance with guidance for conducting process analysis (Moore *et al.*, 2004). Approximately, 16 school nurses and 20 pupil support officers will complete a two day training event supported by an e-learning component on the provision of a manualised, cognitive behavioural therapy informed, individual Low Intensity Anxiety Management programme (LIAM; NHS Education Scotland) and 'Think Good, Feel Good' (Stallard, 2002). Interventions will be approximately six to eight sessions with children and young people aged

5 to 18 years with mild levels of anxiety (see Section 9 for further inclusion/exclusion criteria). Those delivering the intervention will hold two to three cases at a time. They will receive supervision and coaching fortnightly from a clinical psychologist.

Analysis

A multiphase mixed method design will be used for the process analysis. The design will combine sequential and concurrent design structures as both quantitative and qualitative datasets are collected and analysed to explore the overall implementation of the intervention. The data will converge within phases and the overall phase results will be built upon in an explanatory process.

Quantitative Data

Analysis of the data may be exploratory in nature due to the available sample size. The process analysis is not reliant on statistical analysis.

Qualitative Data

Qualitative data will be analysed using framework analysis (Ritchie & Spencer, 1994) which allows for a priori issues and emergent data driven themes to simultaneously guide the development of the analytic framework. As the analysis will involve the exploration of areas predefined by implementation frameworks whilst also being open to discovering new themes, framework analysis was thought to be more appropriate for the current study than grounded theory where the focus is on generating new explanatory conceptualisations. In addition, framework analysis allows for flexibility in analysis as it is not bound by a specific epistemological position and allows for the management of a large dataset. As the study seeks to understand people's experiences a framework analysis was felt to be more appropriate than discourse analysis where the meaning is constructed through language.

Novel Data Storage

Staff who consent to taking part in the research study will be given a unique research key. This will bear no relation to their personal information and only be linked to their names on the consent forms. Consent forms will be stored separately and securely to the data. The data will therefore be deidentified from the beginning.

Consent forms: Collected in paper form and stored in locked facilities in NHS Lothian. Interviews will be audio recorded then transcribed.

Audio recordings:- Audio recordings will be securely stored on encrypted NHS audio recorders until transferred then deleted immediately. Audio recorders will only be accessible to the primary researcher and clinical/academic supervisors. Recordings will be kept by the primary researcher. Recordings will be removed from the audio recorder within 48 hours of the interview and uploaded to a University of Edinburgh's secure shared drive then deleted.

Electronic transcripts: Transcripts will be anonymised at the point of transcription. NVivo projects will be stored on OneDrive. NVivo projects will be deleted 10 years after all data analysis is complete Recordings

will be stored in line with NHS Lothian and/or University of Edinburgh's Information Security Policy. Consideration will be given to the use of quotes and collateral information that may lead to a participant fearing identification, and steps taken to avoid such an outcome at every stage of reporting.

Gemma Brown

Trainee Clinical Psychologist
CAMHS, NHS Lothian

Supervised by:

Dr Jane Owens

Clinical Psychologist
CAMHS NHS Lothian

Professor Matthias Schwannauer

Professor of Clinical Psychology,
Head of Clinical & Health Psychology
University of Edinburgh

Appendix G: LIAM Referral Guidance Sheet

LIAM referral criteria:

LIAM (Low Intensity Anxiety Management) is an early intervention approach targeting mild levels of anxiety that are persistent and having an impact of a young person's wellbeing and quality of life.

Inclusion criteria:

Mild levels of anxiety

This may include:

- Separation anxiety: Fear of being separated from attachment figures
- Specific Phobias: Fear of specific things (e.g. dogs) or places (e.g. the dentist)
- Generalised anxiety: Fear of the unknown or uncertainty
- Social anxiety: Fear of social situations
- Panic: Fear of disaster or being out of control

Exclusion Criteria:

- Absent from school (attending on a part-time timetable is OK)
- Moderate to severe anxiety
- Moderate to severe low mood
- Current or past self harm
- Past or current suicidal thinking
- Diagnosis of Autism spectrum Disorder (ASD)

Considering a LIAM referral: information to gather from referrers

Once information is gathered, referrals should be discussed in LIAM coaching groups before agreeing whether or not to offer this intervention. These questions are guides only, not all information may be known and additional questions may be relevant.

Views of parents and children and young people

- Are the CYP/Parent/Carer aware of the potential referral to LIAM?
- If yes, What are their key concerns and goals?

What do we know about the young person's experience of anxiety

- What has prompted the referral - What are the referrers main concerns/goals of referral.
- Can you describe what you know about the CYP's anxiety (how does it present, how does it impact the CYP). Inclusion criteria may provide helpful prompts.
- How long has this been present?
- Are there any known triggers?
- What impact is it having (i.e. level of distress, impact in area of life, school)

Have any other interventions been considered/tried?

Are CAMHS or other agencies currently involved?

Are there any additional concerns for this CYP

Exclusion criteria: Is there a history of Low mood, self harm, suicidal thinking. Does the CYP have a diagnosis of ASD.

Does the CYP have a diagnosis of ASD

Please rate the following items about LIAM Coaching from: 1- Very Poor to 10 - Excellent											
The size of the coaching group	1	2	3	4	5	6	7	8	9	10	Comments: t
The content of coaching	1	2	3	4	5	6	7	8	9	10	
The frequency of the coaching sessions	1	2	3	4	5	6	7	8	9	10	
The expectation of coaching is appropriate to my level of training.	1	2	3	4	5	6	7	8	9	10	
The support within coaching	1	2	3	4	5	6	7	8	9	10	



The Implementation of School-Based Low Intensity Anxiety Management Participant Information Sheet

We are asking you if you would like to take part in a research study. This is to find out more about the implementation of school based interventions for the management of anxiety.

Before you decide you need to understand why the research is being done and what it would involve for you. Please take time to read the following information carefully. Ask questions if anything you read is not clear or would like more information. Take time to decide whether or not to take part.

What is the purpose of the study?

Increasing the availability of emotional and mental well-being support for children and young people is a key priority for Scotland. Up to 20% of children and young people may experience depression or anxiety before the age of 18 years, but access to treatments that research has shown to be effective is limited. The environment in which treatment is delivered is also different to that of a research trial.

NHS Lothian is working in partnership with schools and local authorities to increase access to safe and effective interventions for depression and anxiety. We want to learn about the process of implementing interventions from research to schools. We want to learn about the barriers and facilitators to implementing the intervention so that we can continue to improve the delivery of services for children and young people.

Why have I been asked to take part?

We are looking to speak to staff involved in the implementation of the intervention.

Do I have to take part?

No, your participation in this study is voluntary and you do not have to take part. You do not have to give a reason if you choose not to participate.

What will happen if I take part?

Once you have had an opportunity to read the Participant Information Sheet, you will be contacted by the researcher who will give you more information on what is involved and, if you are interested in taking part, invite you for an interview at a time convenient for you. This will take place at the place you work. The researcher will take written informed consent before the interview takes place.

The interview will explore your experience of the intervention, and any barriers or enablers to treatment delivery. You may also be asked about your experiences treating patients who have received the intervention. The interview is expected to take approximately 30-60 minutes and will be audio recorded with your permission. We will also look at your experience and evaluation of training.

What are the possible benefits of taking part?

We hope the views and experiences of staff expressed during these interviews will help us improve the delivery of school based interventions to improve the mental well-being of children and young people.

Date: 13/09/17 Version 1

What are the possible disadvantages and risks of taking part?

It is not thought that there are many disadvantages to taking part.

What happens when the study is finished?

At the end of the study you do not need to do anything else. If you would like to know more about the results of the study you can let us know.

Will my taking part in the study be kept confidential?

All the information we collect during the course of the research will be kept confidential and only used for research purposes. We will keep all information in accordance with the University of Edinburgh information governance procedures, and managed within an established protocol. No personal details will be made public or shared outside of the research team. Direct quotation may be used in the end of study report but these will be anonymised.

What will happen to the results of the study?

After the study is completed, we will analyse the results and find themes. You will have the option to comment on the results if you would like to.

We will write a journal article with the results. This will be submitted as part of the Doctorate of Clinical Psychology at the University of Edinburgh and for publication. We may also share the results with other relevant parties i.e. NHS Lothian, local authorities or conferences. Results will be used to improve services. You will not be identified in any publication or presentation but anonymised quotations may be included.

Who is organising the research and why?

The main researcher is Gemma Brown who is a Trainee Clinical Psychologist at the University of Edinburgh. I am supervised by Professor Matthias Schwannauer who is a Professor of Clinical Psychology at the University of Edinburgh. I am also supervised by Dr Jane Owens who is a Clinical Psychologist in CAMHS, NHS Lothian. The research is being organised as part of the Doctorate of Clinical Psychology at the University of Edinburgh. All research at the University of Edinburgh is looked at by an independent group of people, called a Research Ethics Committee. A favourable ethical opinion has been obtained. Where applicable, your local authority has also given a favourable opinion for the research.

What if there is a problem?

If you have any questions or concern about any aspect of this study you can contact Dr Jane Owens (0131 537 6364) or Professor Matthias Schwannauer (0131 651 3972).

If you would like to speak to someone independent of the study you can contact Dr Angus MacBeth, Lecturer in Clinical Psychology at the University of Edinburgh, on 0131 651 3969.

Thank You!

**Please keep this information
somewhere safe for future reference.**

Please contact me for more information:

Gemma Brown
Trainee Clinical Psychologist

Child and Adolescent Mental Health Service
Royal Edinburgh Hospital, Morningside Place,
Edinburgh, EH10 5HF

Gemma.k.brown@nhslothian.scot.nhs.uk
0131 537 6364



CONSENT FORM

The Implementation of School-Based Low Intensity Anxiety Management:
Staff Interview

Participant ID: _____

Please Initial Box:

- 1. I confirm that I have read and understood the information sheet dated 13-09-17 (Version 1) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.
- 2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my legal rights being affected.
- 3. I give my permission for the interview to be audio recorded so the interview can be analysed by members of the research team.
- 4. I consent to the data being stored for 10 years following the final data analysis.
- 5. I am also aware that excerpts from the interview may be included in publications to come from this research. Quotations will be kept anonymous.
- 6. I agree to take part in the research study.

Name of Participant	Date	Signature
_____	_____	_____

Name of Researcher	Date	Signature
_____	_____	_____

[INSERT RELEVANT SCHOOL AND COUNCIL
LOGO HERE]



Children, Young People and Families

Let's Introduce Anxiety Management (LIAM) Information Sheet

Anxiety in children and young people:

Experiencing anxiety and worry is normal and common in people of all ages. While we all experience anxiety sometimes, there are times when anxiety and worry can feel very difficult to manage and can have a big impact on really important aspects of our lives.

Anxiety can, for example, make us feel very upset and get in the way of the things that we would like to do. Common types of anxiety in children and young people include:

- Fear of specific things, (e.g. dogs), or of places, (e.g. the dentist)
- Fear of being separated from your family
- Fear of the unknown or uncertainty
- Fear of social situations
- Panic: Fear of disaster or being out of control
- Worries about upcoming changes, such as changing school.

For children and young people experiencing these difficulties, learning a little more about anxiety and ways of overcoming it can be helpful.

Let's Introduce Anxiety Management

'Let's Introduce Anxiety Management' (LIAM) has been developed by NHS Education for Scotland (NES) and experts in the field of childhood anxiety. LIAM is run as a partnership between your school, NHS Lothian and Edinburgh City Council.

LIAM is designed to help children and young people learn more about anxiety and ways to overcome it. It is based on cognitive behavioural therapy (CBT) principles and focuses on what happens to our thoughts, feelings and behaviour when we feel anxious. Importantly, LIAM helps children and young people to learn new ways of dealing with anxiety.

In your school, LIAM is being offered to children and young people who are experiencing anxiety that they are finding upsetting or difficult to manage. LIAM involves meeting with a school nurse or school staff member on a one to one basis to work through anxiety management resources.

Service evaluation, audit and research

We are keen to evaluate how useful LIAM is for children and young people in the school environment. This will help us plan and improve the delivery of LIAM in the future.

In order to do this, we will ask you to complete questionnaires during your appointments and consent to us using this information for current and future evaluation and research. Information from your questionnaire responses will be stored by NHS Lothian for these purposes. Identifiable information, such as your name and date of birth, will not be shared outside of your school.

The help you get from the LIAM staff will not be affected if you decide at any time that you do not want to take part in this evaluation.

If you do decide to take part, we will ask for your consent to allow us to:

- Use the information collected to evaluate LIAM. This information will be completely anonymous (your name and other identifiable information will not be used).
- Use this information for current and future research and evaluation. This information will be used by NHS Lothian and NHS Education for Scotland (NES). It will be stored securely and confidentially within these organisations.

We will make sure we keep information which relates to you safe and secure and you will not be identified in any reports that follow.

Further information

If you have any questions, please speak with your school guidance teacher or LIAM worker and they will be happy to discuss any of the above in more detail with you.

CONSENT FORM – Let's Introduce Anxiety Management (LIAM) Evaluation

Children, Young People and Families

(Parent Version)

Please Initial Box

- I have read and understand the LIAM information sheet and have had the opportunity to ask questions.

- I understand that the LIAM staff member will work with my child to understand anxiety and ways of coping with anxiety differently.

- I understand that my child's guidance teacher will be given a summary of the work my child completed.

- I understand that my child's LIAM worker will discuss their work with a supervision group. This group will include LIAM workers from other schools and NHS Lothian staff.

- Anonymised information collected from me and my child will be used to evaluate LIAM and may be used as part of current and future research.

- I understand that my participation is voluntary and that my child is free to withdraw at any time, without giving a reason, and without my child's care or legal rights being affected.

Name of child/young person: _____

Name of parent	Date	Signature
_____	_____	_____

Name of person taking consent	Date	Signature
_____	_____	_____

CONSENT FORM – Let's Introduce Anxiety Management (LIAM) Evaluation

Children, Young People and Families

(Child and young person version)

Please Initial Box

- I have read and understand the participant information sheet for LIAM and have had the opportunity to ask questions.

- I understand that the LIAM staff member will work with me to understand anxiety and ways of coping with anxiety differently.

- I understand that my guidance teacher and parents will be given a summary of the work I completed during LIAM.

- I understand that my LIAM worker will discuss our work with a supervision group. This group will include LIAM workers from other schools and NHS Lothian staff.

- Anonymised information that is collected from me will be used to review the effectiveness of the guided self help room and may be used as part of current and future research.

- I understand that my participation is voluntary and that I am free to withdraw at any time, without giving a reason, and without my medical care or legal rights being affected.

Name of young person

Date

Signature

Name of person taking consent

Date

Signature

Appendix K: Interview Schedule

Initial interview Schedule:

- *Can you tell me a bit about your role?*
- *What do you think a YP needs to meet their potential?*
- *How will LIAM relate to your role?*

Final Interview Schedule:

- *Can you tell me about your experience of LIAM so far?*
- *Can you describe delivering LIAM with CYP?*
- *How does it sit alongside your role?*
- *What has support for LIAM been like?*
- *What has it been like identifying CYP for LIAM?*

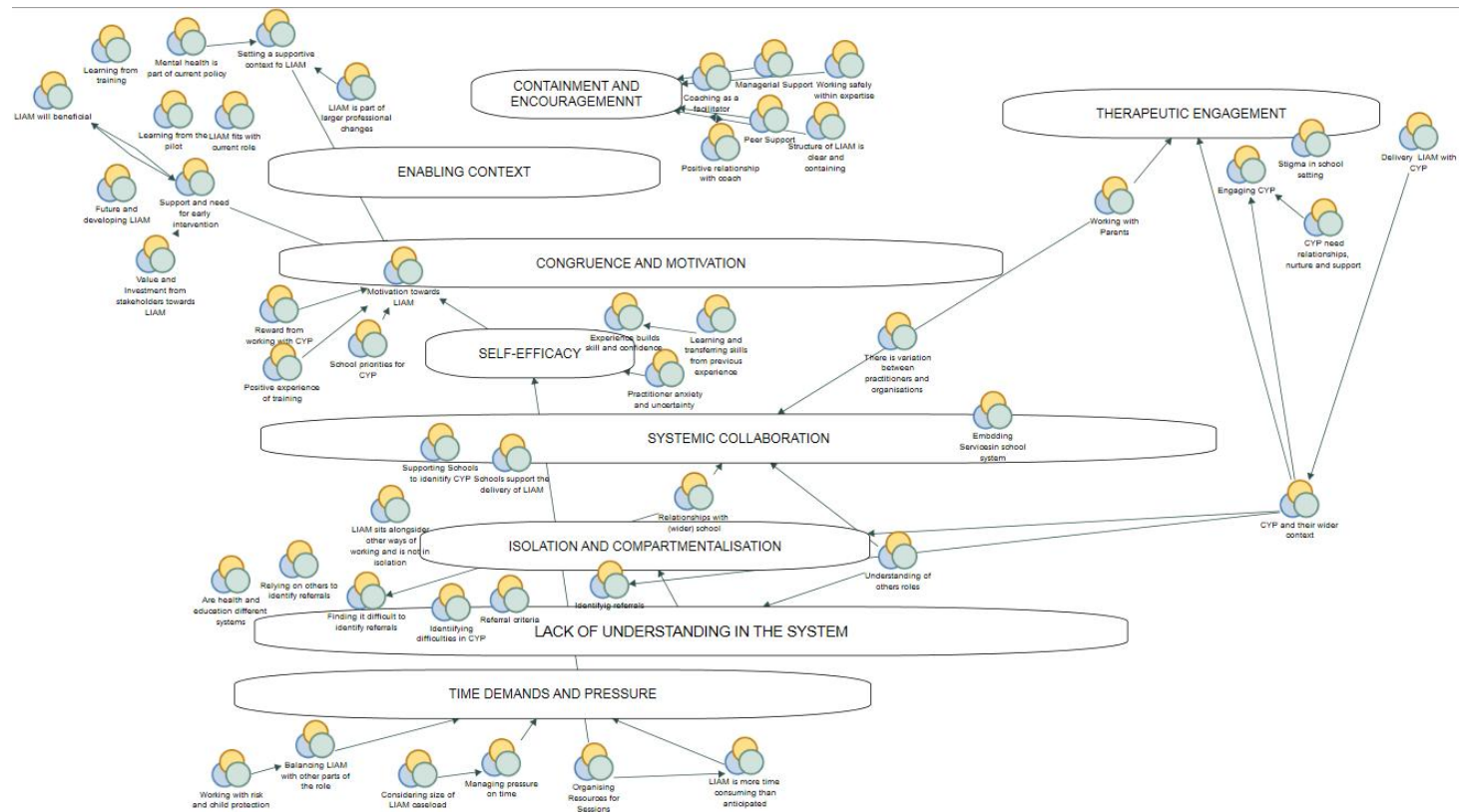
Prompts:

- *How did you feel?*
- *What was that like?*
- *What do you think about that?*
- *Can you tell me more about that?*
- *Do you have any examples?*

- Appendix L: Example of coding and analysis

Text (SN14)	Coding	Low Level Category	Higher Level Category	Theme
<p><i>"I've found it really quite helpful in my role as a school nurse because sometimes we get referrals and from teachers for one thing and actually if you kind of take away all of the other things that you think there is issues with it is usually anxiety. So it is quite nice to be trained and have some sort of knowledge in this. Because for me personally I've found it really helpful cos I've actually been using parts of LIAM for other, other things. Obviously not the full on sessions but it has been good to have a fuller understanding because we don't really cover that in our role, as much as we know about it, we don't really have any training in it."</i></p>	<p>LIAM has been helpful</p> <p>Anxiety underlies many SN referrals</p> <p>It is good to receive training in anxiety</p> <p>LIAM has been helpful</p> <p>Using LIAM material outside of delivering LIAM</p> <p>SNs don't get mental health training</p>	<p>LIAM is helpful to role</p> <p>Mental health and well being is part of job role</p> <p>LIAM generalises to current role</p> <p>Gap in mental health training prior to LIAM</p>	<p>LIAM is beneficial</p> <p>LIAM fits with current role</p>	<p>Motivation and Congruence</p>

Appendix L: Example of clustering during analysis



Appendix M : Quotes from Coaching Evaluation

What has helped you to begin delivering LIAM?

- Regular supervision, support of management, support of school, room in school
- Previous and ongoing training of supporting mental health and wellbeing. Support from [coach] and school team/environment
- Coaching and resourcing
- Many years of working with children and young people. Good communication with education to select appropriate young people. The worksheets and supervision sessions
- Working closely with children and YP with my role at work. The training at CAMHS. Further reading at home
- Coaching and discussion with other school nurses helpful-unfortunately all cases I presented where not appropriate due to other concerns-self harm, too young
- Training was at the right levels for content and length. Coaching/ongoing telephone contact with coach was vital. Peer support was really helpful, working alongside peer for first delivery was vital support from school re accommodation. Availability/contactability of parent
- The coaching provided by [coach] had been invaluable. I feel relatively confident from the training but having someone to check in with makes me feel as if I have a real grasp on the materials. It also feels reassuring to have the check-ins as sometimes the way a session goes is not exactly to plan but I do not feel panicked due to the ongoing contact. The school making the time and space for the provision of LIAM. As I already had an existing role within the school having a positive relationship with the children has helped as they feel comfortable speaking to me.
- My previous experience of working with young people. I have a COSCA certificate in counselling skills which also helped me to actively listen to the young person. The training in October provided me with all the materials alongside the online resources. Coaching sessions with [coach] were crucial and provided the back up and reassurance required to see through the programme. Without these it would have been extremely challenging
- Previous experience and training as well as current training. Coaching/supervision has been invaluable. Support and understanding of role in school has been negligible.
- Lots of information to take in, which left me feeling confused on what, I was to do. The things which have helped me the most of all are
 - 1.1 coaching sessions
 - Support from [coach] and others within my coaching group. It has been useful to share information with one another
 - Support from class teacher and Place2be to help identify a young person for LIAM
 - Getting to know the young person using different resources, such as questionnaires and well-being web to help build a clear picture of the young person's worries and fears.
- My previous role as a community forensic mental health and learning disability nurse put me in good stead, the resources are very good, coaching excellent.
- Meeting with team and clinical psychologist to discuss individual children on our caseloads. Going through the sessions before delivering the sessions with those children.
- Supervisions. Support from peers. Being organised
- Regular support from peers and trainers. Resources which are easy to work with young people. School being enthusiastic
- I have a very supportive SMT who have protected my time to deliver LIAM. I also already had and still have a very positive relationship with the young person I delivered LIAM to. The coaching sessions with [coach] have been invaluable! Her patience and guidance throughout has been great!!
- Fantastic support from [coach], school management team when required and the chance to

go at a slow pace and go over it at coaching sessions.

Have there been any barriers to delivering LIAM?

- My own fears of getting in wrong. Primary school being so full and no accommodation
- Time and resources
- Picking the right candidates/time/staff shortage
- Getting appropriate accommodation within schools. Time of year-lots going on in schools – end of year concert etc
- Time management within my role as a school nurse. No giving this type of intervention the time and evaluation it merits
- Some schools have not been forthcoming with nay referrals-PS due to management changes within school. Referrals that I have received and presented for triage where not appropriate due to self harm, child too young, other emotional concerns
- CYP availability can be difficult to meet about important events in school curriculum in that CYP don't want to miss particular parts of curriculum or special events. This was manageable when only delivering to one but might not be possible to part time school nurse diary if more than one at a time. CYP and parent did not equate appointment to meet in school to a hospital setting appointment. Current time commitment, coaching, travel and delivery and reflection is quite a lot on weekly hours
- N/A
- Identifying young people suitable for LIAM. Scheduling within timetables in high schools to regularly meet with a young person. Access to a computer to print out resources etc.
- Lack of protected time and resources in school. Lack of understanding re. Role in school. Fitting in with other roles in school e.g. Guidance & EWO
- It was challenging to identify the young person because of the referral criteria and amount of questionnaires to complete, however I now completely understand why these are relevant. The resources you have given me have been great; the handbook has been a helpful tool for me to deliver the programme more effectively.
- Barriers were the school's parent's attitudes towards the intervention. The times I started getting candidates (close to school holidays), rooms in the some schools limited.
- P7 pupils going through transition therefore not in school. Medical room sometimes cluttered therefore had to move things around.
- Time and capacity
- Time-P7 transitioning to high school
- I've not come across any barriers that's made my delivering LIAM impossible
- Confidence at first with first young person. As its new, but the more you do it the better you become