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**A Universally Delivered CBT based  
Intervention in a Scottish  
Secondary school:  
A Pilot Feasibility study**

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Submitted in partial fulfilment of the requirements for the degree  
of Doctorate in Clinical Psychology

Institute of Health and Wellbeing  
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University of Glasgow

September, 2016

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## CHAPTER ONE: Systematic Review

# Universal, school-based interventions to promote mental and emotional wellbeing. What is being done in the UK? A systematic review

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## ABSTRACT

**Objectives:** The present review aimed to assess the quality, content and evidence of efficacy of universally-delivered (to all pupils) school-based mental health interventions aimed to promote wellbeing and resilience provided within the UK.

**Method:** A systematic review of published literature was conducted. Relevant electronic databases were searched, supplemented by informal search strategies. Studies were appraised using a quality checklist appropriate for non-randomised studies. 12 studies were included for review (5 primary school based, 7 secondary school based).

**Results:** Effectiveness of school-based universal interventions was found to be neutral or small with more positive effects found for poorer quality studies and those based in Primary schools (pupils aged 9-12 years old). Studies varied widely in their use of measures and study design. Intervention approaches included CBT, mental health education, mindfulness and behavioural approaches. Methodological issues such as small sample size, varying course fidelity and lack of randomisation reduced overall study quality rendering tentative interpretation of effects.

**Conclusions:** The current evidence suggests there are neutral to small effects of universal, school-based interventions in the UK that aim to promote emotional or mental wellbeing or prevention mental health difficulties. Robust, long-term methodologies need to be pursued ensuring adequate recording of fidelity, the use of validated measures sensitive to mechanisms of change, reporting of those lost to follow up and any adverse effects. Further research collaborations are required across the UK in order to facilitate coherence in the literature and demonstrate any long-term benefits for pupils or on the wider educational or health system.

**Keywords:** Review, school-based, resilience, wellbeing, intervention.

## INTRODUCTION

The mental and emotional wellbeing of children and young people has received increased attention worldwide. It has been reported that the prevalence of mental health problems ranges from 10-20% (Kieling et al., 2011) and that by the age of 18 up to 20% of young people will have experienced an emotional disorder (Costello et al., 2003). Mental health conditions such as anxiety and depression often persist into adulthood (Kendall et al., 2004) and have been associated with a range of negative outcomes including lower academic achievement, higher likelihood of health risk behaviour, self-harm and suicide (Collins & Dozois, 2008; Patel et al., 2007). However, provision of services for those in need can be as low as 20% (WHO, 2005). Such access issues to specialist services like CAMHS has meant that school based interventions have been increasingly explored, due to their far reach (Masia Warner et al., 2006) and existing infrastructure to support child development (Domitrovich et al., 2010), while noting that schools need support to use the evidence base when applying such interventions (Vostanis et al., 2013).

Several systematic reviews and meta-analyses have been conducted to review the effectiveness of school-based, mental health interventions at both the universal (delivered to all pupils irrespective of perceived need), and targeted (delivered to vulnerable or 'high risk' individuals only) levels. Durlak et al. (2011) reviewed 213 studies and found that school based programs aiming to enhance social and emotional learning yielded positive effects on social emotional skills, self-concept, positive social behaviours conduct problems and emotional distress (E.S. = 0.22 - 0.57) and that these sustained after 6 months. Wells et al. (2003) reviewed universal programs and found improvements in self-concept and problem solving. Further, that more positive outcomes were obtained for programs adopting a whole school approach, that lasted more than one year, and aimed to promote mental health rather than prevent mental illness. These findings were echoed in Weare & Nind's (2011) review of 53 mental health interventions, adding that a balance of both universal and targeted approaches was optimal, and that interventions were only effective if accurately implemented.



Neil and Christensen (2009) found that CBT formed the basis of the majority of anxiety prevention programs (78%) and over 75% of trials reported a significant reduction in anxiety. CBT-based interventions were also tentatively endorsed in Mychailyszyn et al.'s (2012) meta-analysis of 63 studies which found that CBT was mildly effective in reducing depression (E.S. = 0.29) and moderately effective (E.S. = 0.50) for reducing anxiety symptoms.

Reviews of studies evaluating the prevention of specific mental health conditions have found mixed results. Merry et al. (2011) in their meta-analysis of 53 studies evaluating prevention of depression programmes found that while there was evidence of immediate post-intervention effects, these did not sustain over time (24-36 months). Further, Correiri et al. (2013) reviewed 28 studies evaluating anxiety and depression programmes and found that while the majority were effective for depression (65%) and anxiety (73%), the effect sizes were small (0.12 - 0.29).

Spence & Short (2007) reviewed 14 universal school-based prevention of depression studies and found few positive effects, concluding that universal prevention interventions were not efficacious. This was later endorsed by Calcar & Christensen (2010) who concluded that targeted programs were most effective (ES = 0.21 to 1.40), and in Kavanagh et al. (2009)'s meta-analysis which found that while school-based CBT programmes led to a short-term reduction in depression symptoms, interventions were most effective for those in the clinical range.

Overall therefore, the literature has indicated mixed results regarding efficacy of school-based universal interventions. However, it has been consistent in highlighting methodological issues within the existing research base. In particular, that there is a lack of active intervention controls (Stallard, 2013), studies' operationalisation and measurements of 'resilience' lack

homogeneity (Reavley et al., 2015), that weak program fidelity and treatment dosage impacts outcomes (Durlak et al., 2011) and that there is insufficient use of validated, standardised measures and long-term follow up (Sancassiani et al., 2015).

Furthermore, it is notable that all of the above studies have occurred across a wide range of countries, with most reviewed interventions based in Australia, the US or Canada. This trend was also noted in a NICE funded review (2008) of targeted and universal school-based interventions where it was observed that while the findings from international based research are valuable, the generalisability to the UK educational system is somewhat questionable, giving rise to a need for reviews specifically within the UK context.

Cheney et al. (2014) subsequently focused on the UK in their review of targeted school-based interventions. They concluded that nurture groups demonstrate an immediate positive impact on the social and emotional wellbeing on vulnerable young people, however, that results from longer term follow-up studies are less clear.

The need to carry out a review of universal school-based interventions specifically within the UK context therefore remains. This is especially pertinent in light of the increasing emphasis from national government on developing CAMHS services within the UK, and the impetus on health and education services to work together in order to improve wellbeing outcomes for children and young people (Department of Education, 2016; Education Scotland, no publication date; CYMRU, 2010).

## Review aims

The present review aims to fill this gap in the literature by focusing on universally-delivered, school-based mental health interventions provided within the UK only. The following questions will be explored:

- 1. How effective are universal school based interventions in the UK that promote mental health, emotional wellbeing, or psychological resilience and what tools are being used to measure effectiveness?*
- 2. What methodologies are being applied in UK schools when trialling interventions and what is the quality of these studies?*
- 3. What are the intervention characteristics e.g. delivery, content, target audience?*
- 4. What are the identified barriers in delivering and evaluating universal school based interventions?*

## Search Strategy

Electronic databases were searched for relevant published research on 14<sup>th</sup> April 2016: EMBASE, CINAHL, MEDLINE, PsycINFO, PsycArticles, ASSIA and Psychological and Behavioural Sciences. Selected journals relevant to the area were also hand-searched (British Journal of Educational Psychology; British Journal of School Nursing). Previous reviews and relevant papers were reviewed and following consultation with University librarians, the following keyword search terms were used linked with the Boolean operators 'AND' and 'OR' (\* indicates truncation of words):

Mental Health OR Early Intervention OR Anxi\* OR depress\* OR resilien\* OR emotion\* OR stress\* OR psycho\* OR wellbeing

AND

Adolescent OR Adolescen\* OR child\* OR teen\* OR youth OR young pe\* OR pupil\* OR student\* OR learner\* OR scho\*

AND

School based OR School based mental health OR School based intervention OR interven\* OR effect\* OR program\* OR initiative OR strateg\* OR evaluat\*

AND

United Kingdom OR UK OR Sco\* OR eng\* OR northern ir\* OR wales OR wel\* OR brit\* OR kingdom

Study design criteria was wide to allow for the diverse range of methodologies used to overcome challenges in school-based research. Search terms were, therefore, chosen primarily to promote sensitivity to the subject area. A limit date was set from 2000 to April 2016. The early date limit was selected as this area has been promoted by UK governmental policy largely within the last decade. Further, detailed appraisal of the previous systematic reviews in this area found few, if any, discovered studies prior to this date.

## Study selection

The inclusion criteria were as follows:

- The intervention was based in a mainstream school environment;
- Pupils were the recipients of the interventions;
- The study adopted a pre-post design;
- The intervention aimed to target mental health and/or emotional wellbeing;
- The study used a validated measure to quantitatively evaluate emotional or mental wellbeing outcomes and reported those outcomes;
- The study was published between 2000 and April 2016 in a peer reviewed journal.

Exclusion criteria included:

- The study aims or methodology did not fit the inclusion criteria.
- Any studies using a non-validated outcome measure as their primary outcome e.g. Likert scales.
- Any studies using a purely qualitative methodology.

## Details of included and excluded studies (see Figure 1, below.)

Duplicate papers were excluded. Titles were screened to identify only those that clearly met inclusion criteria. Abstracts were assessed independently by the author and a co-rater (Professor Chris Williams). Raters met to compare included papers. Where eligibility was unclear based on the abstract, full articles were retrieved and assessed jointly by raters. Reference lists of included papers were searched as well as previous reviews on related topics. Articles citing included articles were also reviewed and one paper was sourced via this method. Authors of protocol papers were contacted leading to an additional paper being sourced. Experts in the field in Scotland, England, Northern Ireland and Wales were contacted regarding any other studies. However, none were eligible for inclusion. Twelve papers were included in the final review.

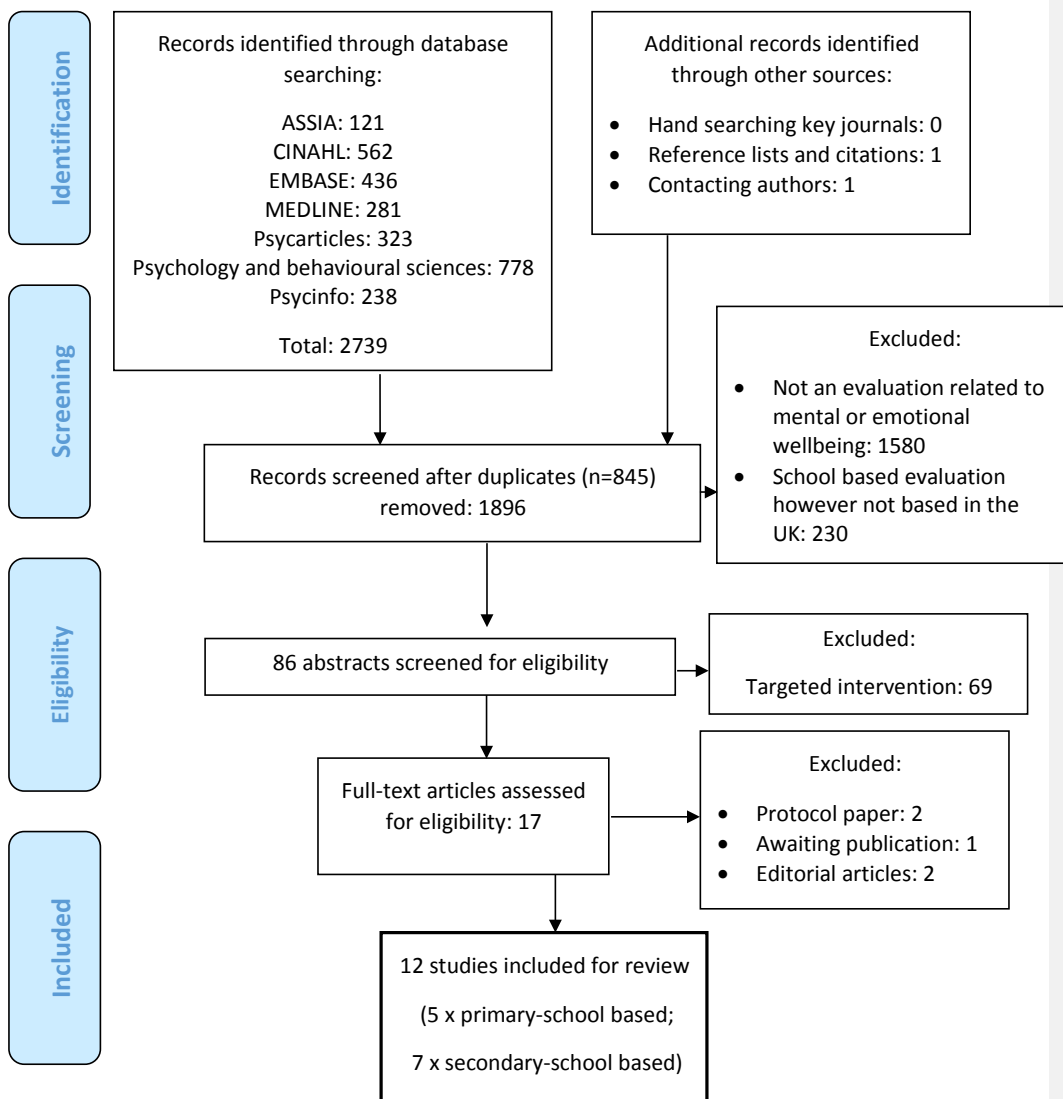


Figure 1: PRISMA diagram of systematic search process.

**Quality rating of studies:**

The Downs and Black (1998) checklist was used to assess quality. This checklist assesses internal and external validity, selection bias and study power over 27 items. This checklist was used due to its utility in assessing studies relating to public health and its applicability to assess quality in both randomised and non-randomised studies. Reliability and validity assessment has

found the Quality Index to have high internal consistency, good test-retest ( $r = 0.88$ ) and inter-rater ( $r = 0.75$ ) reliability and good face and criterion validity (0.90) (Downs & Black, 1998).

A sample of papers were assessed by an independent researcher. Any rating discrepancies were discussed and a shared decision reached. A decision was taken not to exclude any studies found to be of poor quality as the aim of this current review was to critique universal school based interventions whilst acknowledging that the real world implementation of such evaluations can be challenging and, as a result, may reasonably impact study quality.

#### *Data extraction*

Due to the heterogeneity of the studies, meta-analysis was not appropriate. A narrative synthesis will be applied to explain the findings of this review in line with current guidance (Popay et al., 2006). Information gathered from the studies included: study aim, intervention (model, duration, delivery), sample characteristics, study procedures, outcomes and measures, and results. Issues relating to the implementation, as well as effectiveness, of interventions were also noted from those studies commenting on such barriers.

## RESULTS

### *Overview of interventions*

Of the twelve studies sourced, five took place in primary schools (Attwood et al., 2012; Berry et al., 2016; Collins et al., 2013; Stallard et al., 2007; Stallard et al., 2014) and seven took place in secondary schools (Boniwell et al., 2016; Challen et al., 2014; Chisholm et al., 2016; Kuyken et al., 2013; Rice et al., 2015; Naylor et al., 2009 and Stallard et al., 2013). An overview of study interventions based in Primary and Secondary schools can be found in Table 1.

#### *Primary school studies:*

The five studies within primary school settings evaluated interventions based on computerised CBT (Attwood et al., 2012); a teacher led intervention embedded within the curriculum (e.g. PATHS - 'Promoting Alternative Thinking Strategies'; Berry et al., 2016); manualised anxiety interventions (e.g. a locally developed anxiety intervention, or the Australian developed 'FRIENDS' programme) delivered by both school staff (teachers and nurses) and external health staff (e.g. psychologists) (Collins et al., 2013; Stallard et al., 2007; Stallard et al., 2014).

#### *Secondary school studies:*

Three of the secondary school based studies trialled interventions based on Cognitive Behavioural Therapy principles e.g. UK Resilience programme (UKRP), Resourceful Adolescent Programme (RAP-UK) (Rice et al., 2015; Challen et al., 2014; Stallard et al. 2013) delivered by school staff (Challen et al., 2014), educational psychologists (Rice et al., 2015) and external facilitators (Stallard et al., 2013). Interventions were also said to include principles of Interpersonal Therapy (RAP-UK - Stallard et al., 2013) and behavioural approaches ('TRY' - Rice et al., 2015).

One study trialled an intervention based on Positive Psychology (Boniwell et al., 2016), two studies trialled a mindfulness-based intervention (Kuyken et al., 2013; Rice et al., 2015) and two trialled locally developed mental health education sessions delivered to all pupils (Chisholm et al., 2016; Naylor et al., 2009). These interventions were led by trained school teachers (Boniwell et al., 2016; Kuyken et al., 2013, Naylor et al., 2009), and trained volunteers (Chisholm



et al., 2016). All delivered the intervention during Personal Health and Social Education (PHSE) classes.

### *Methodological quality*

The quality of studies ranged from 'poor' (34% - Attwood et al., 2012; 37.5% - Boniwell et al., 2016) to 'excellent' (75% - Chisholm et al., 2016; Stallard et al., 2014; 78.1% - Challen et al., 2014; 81.3% - Stallard et al., 2013).

Six studies used a randomised controlled pre-post design (Attwood et al., 2012; Berry et al., 2016; Chisholm et al., 2016; Collins et al., 2013; Stallard et al., 2013; Stallard et al., 2014). The remaining were non-randomised pre-post designs and only one did not have a control group (Stallard et al., 2007). Some studies were particularly weak on their description of sample characteristics and representation of the population (Attwood et al., 2012; Boniwell et al., 2016), reporting of those lost to follow up and accounting for those in the analysis (Collins et al., 2013; Boniwell et al., 2016), and exploring of adverse events of which only one study provided information (Stallard et al., 2013). Only six studies provided a power calculation (Challen et al., 2014; Chisholm et al., 2016; Naylor et al., 2009; Stallard et al., 2013; Berry et al., 2016; Stallard et al., 2014), most of which had samples sufficiently powered to determine an effect (except Chisholm et al., 2016). The remaining studies did not provide such information.

Of the eleven studies employing controls, six used controls from the same school in which the intervention was taking place (Challen et al., 2014, Chisholm et al., 2016, Rice et al., 2015; Collins et al., 2013, Stallard et al., 2014). All other studies recruited controls from different schools.

Sample sizes ranged from 13 (Attwood et al., 2012) to 5075 (Berry et al., 2016). The age of participants ranged from 4 (Berry et al., 2016) to 16 years old (Stallard et al., 2013; Kuyken et al., 2013) with the majority of studies targeting the early adolescent age range (9-12 years old) at the end of Primary school or at the beginning of Junior / Secondary school (Attwood et al., 2012; Boniwell et al., 2016; Challen et al., 2014; Chisholm et al., 2016; Collins et al., 2013; Stallard et al., 2014).

Table 1. Overview of interventions based in Primary and Secondary schools.

PRIMARY SCHOOLS

| Study (Location)   | Sample   | Study aim / hypothesis  | Intervention - Theoretical model and Content  | Intervention - Setting, Structure & Delivery  |
|--|--|---|---|---|
| Attwood et al., 2012<br>(Bristol, England)               | 10-12 year old boys from two co-educational schools.<br>(n=13) | A proof of concept study to explore the viability and possible benefits of a cCBT programme.  | 'Think, Feel, Do' - Based on CBT principles with a psychoeducation component, cartoon characters guide users through various activities including: emotional recognition; linking thoughts, feelings and behaviours; identifying and challenging negative thoughts; and problem solving. Involves quizzes, practical exercises, videos, music and animation.                                    | Six x 45min sessions delivered via an interactive multimedia CD-ROM.<br>Took place within the school, facilitated by the researcher.  |
| Berry et al., 2016<br>(Birmingham, England)              | 4-6 year old pupils (n=5074; 56 x schools)                     | Test the effectiveness and cost-effectiveness of the intervention to reduce children's level of behavioural and emotional difficulty. | 'PATHS' (Promoting alternative thinking strategies) - aims to improve skills in five areas: self-awareness, managing feelings, motivation, empathy and social skills. Lessons are developmentally sequenced and focus on techniques for self-control; emotional and interpersonal understanding steps for solving interpersonal problems; positive self-esteem and improved peer relationships. | 44 x lessons in Year 1; 47 x lessons in Year 2. Delivered by trained teachers within classroom. Manual provides teacher scripts, pictures, activity sheets, photos, posters, & home activities. |
| Collins et al., 2013<br>(South Lanarkshire, Scotland)    | 9-10 year old pupils (n=317; 9 schools; 18 classes).           | To explore if anxiety & coping showed improvement post-intervention, and test effects of delivery.                                    | 'Lessons for living: Think Well, Do Well'. CBT based intervention to develop coping skills. A series of skills practice using interactive teaching methods. Children are guided to recognise emotional symptoms, reduce avoidant coping strategies, and focus on proactive problems solving and support-seeking.  | Ten x lessons delivered by a psychologist (n=103) & teacher (n=79) during PSE. Teachers provided with intervention manual following one-day training.   |
| Stallard et al., 2007<br>(Bath & N.E. Somerset, England) | 9-10 year old pupils (n=106; 3 schools; 4 classes).            | To evaluate an Australian-originated intervention in the UK; test delivery by school nurses.  | 'FRIENDS - Feelings, Relax, I can do it, Explore solutions, Now reward, Don't forget practice, Smile'. Based on CBT principles it teaches children practice skills to identify their anxious feelings and learn to relax; to identify unhelpful thoughts and replace them with helpful thoughts; to face and overcome problems and challenges.  | Ten x sessions delivered by school nurses who attended 2-day training. Lessons comprise group work, workbooks, role play and games. Parents invited to pre-intervention session.                |

|  |   |   |                                  |   |
|--|---|---|----------------------------------|---|
| <i>Stallard et al., 2014</i><br>(Bath, N.E. Somerset, Swindon, Wiltshire, England) | 9-10 year old pupils (n=1448; 45 x schools) | To assess the effectiveness of FRIENDS delivered by both health and school professionals on anxiety prevention. | As above (Stallard et al., 2007) | Nine x 60 min lessons delivered to whole classes. Health-led group: two trained facilitators; Teacher-led group: led by class teacher. All attended 2-day training. |
|--|---|---|----------------------------------|---|

## SECONDARY SCHOOLS

| Study (Location)   | Sample  | Study aim / hypothesis  | Intervention - Theoretical model and Content  | Intervention - Setting, Structure & Delivery   |
|--|---|---|---|--|
| <i>Boniwell et al., 2016</i><br>(S.E. London, England)                       | 11-12 year old pupils (n=296; 2 x Haberdashers' Aske's Fed. of Schools) | To test the efficacy of a new school programme for the promotion of happiness and wellbeing skills.   | 'Personal Wellbeing Lesson Curriculum' - Covers the 'scientific basis of happiness' focusing specifically on two core aspects - positive emotions / experiences and positive relationships. Based on theoretical constructs from wellbeing research and positive psychology e.g. 'three good things', forgiveness letter, gratitude visit.            | Eighteen bi-weekly 50 min scripted lessons delivered to 8 classes by 4 teachers who attended 5-day training. Provided with lesson plans, PowerPoints and handouts. |
| <i>Challen et al., 2014</i><br>(Greater London, N.W. England & N.E. England) | 11-12 year old pupils (n=2844; 16 x schools; 3 x L.As)                  | To evaluate a UK version of Penn Resiliency Program (PRP). Hypothesised high completion rates & reduction of depression symptoms.   | 'UK Resiliency Program' - Aims to build resilience and promote realistic thinking and adaptive coping, based on Ellis's 'Activating event-belief Consequences model'. Teaches cognitive behavioural and social problem solving skills., encouraging accurate appraisal of situations, and assertiveness, negotiation and relaxation skills.           | An 18-hour program delivered within the timetable at the teacher's discretion. Delivered by school staff who attended 10-day training in the US.                   |
| <i>Chisholm et al., 2016</i><br>(Birmingham, England)                        | 12-13 year old pupils (n=769; 6 x schools).                             | To test whether contact with an individual with MH diagnosis plus education is more effective in reducing stigma, improving MH literacy and promoting wellbeing than education alone. | 'Schoolspace' - a 10-module MH intervention designed by study researchers covering topics such as stress, depression, psychosis, different ways of thinking and a drama workshop. The 'contact' group had an individual facilitating who was a MH service user and had a diagnosis (e.g. psychosis, BPD) - this was revealed halfway through the day. | A one-day intervention within the school led by NHS staff, trained volunteers and MH service users.  |

|  |  |   |   |   |
|--|--|---|---|---|
| <b>Kuyken et al., 2013</b><br>(England)  | 12-16 year old pupils (n= 522; 12 x schools).                  | To investigate the acceptability of a mindfulness programme for teachers and students; test efficacy of programme on MH and wellbeing.                              | 'Mindfulness in Schools Program' (MiSP) - involved learning to direct attention to immediate experience with open-minded curiosity and acceptance. Skills are learned through practices and everyday application. Mindfulness then used to work with mental states and everyday stressors to cultivate wellbeing and promote mental health.   | Nine x weekly scripted lessons delivered as part of the curriculum, or at lunchtime by 7 teachers trained and approved to deliver the MiSP curriculum.  |
| <b>Rice et al., 2015</b><br>(S.E. England)   | 13-14 year old pupils (n=256; 3 x schools).                    | To compare three types of intervention which may prevent adolescent depression and explore cognitive mechanisms involved with each.                                 | 'TRY' (Thinking about Reward in Young People) - aimed to enhance reward processing through actively selecting activities to lift mood.<br><br>CBT - aimed to change negative thinking patterns by encouraging evaluation of thoughts.<br><br>'MBCT' (Mindfulness Based Cognitive Therapy) - aimed to promote awareness and acceptance of thoughts and to develop regulation of attention through guided meditation.<br><br>Psychoeducation regarding depression was provided to all groups. | Eight x weekly manualised sessions of each intervention delivered within 50 minute PHSE lessons by Educational Psychologists who attended regular supervision.                                    |
| <b>Naylor et al. 2009</b><br>(Greater London, England)   | 14-15 year old pupils (n=416; 2 x schools).                    | To explore whether teaching adolescents about mental health would result in gains in knowledge and empathy.   | Mental health lessons - Topics included: stress, learning disability, depression, suicide / self-harm, eating disorders, and bullying using methods such as discussion, role playing and internet searching.  | Six x 50 min weekly lessons delivered by 7 group tutors from pastoral care who attended a 1-day training from researchers.  |
| <b>Stallard et al., 2013.</b><br>(Bath, N.E. Somerset, Bristol, Wiltshire, Nottinghamshire, England) | 12-16 year old pupils (n=5030; 8 x schools, 28 x year groups). | To assess effects of classroom based CBT on symptoms of depression and in relation to other aspects of psychological wellbeing and specific demographic sub-groups. | 'RAP-UK: Resourceful Adolescent Programme' -A depression prevention programme based on CBT and interpersonal therapy principles adapted to fit the UK curriculum. Key elements include: personal strengths, helpful thinking, keeping calm, problem solving, support networks and keeping the peace. Students complete workbooks as they progress.  | Nine x 50-60 min manualised lessons delivered within the PSHE curriculum by two trained facilitators external to the school.<br><br>Two booster sessions offered to schools at 6 month follow up. |

## EFFECTIVENESS OF INTERVENTIONS

An overview of study characteristics and outcomes can be found in Tables 2 and 3.

### *Data collection and measurement*

Studies varied widely in their use of measures. Measures used to rate depressive symptoms included the Children's Depression Inventory (CDI) (Challen et al., 2014), the Short Mood and Feelings Questionnaire (SMFQ) (Stallard et al., 2013; Rice et al., 2015) and the Center for Epidemiological Studies - Depression Scale (CES-D) (Kuyken et al., 2013). Measures used to rate anxiety included the Revised Children's Anxiety and Depression Scale (RCADS) (Stallard et al., 2013, Stallard et al., 2014), Revised Children's Manifest Anxiety Scale (RCMAS) (Challen et al., 2014), Penn State Worry questionnaire (Stallard et al., 2013) and the Spence anxiety scale (Collins et al., 2013; Attwood et al., 2012, Stallard et al., 2007). Measures used to capture different methods of coping related to symptoms of anxiety or depression included: Children's Automatic Thoughts Scale (CATS) (Stallard et al., 2013), Coping Strategy Indicator (CSI) (Collins et al., 2013), Sentence Completion for Events in the Past Test (SCEPT) (Rice et al., 2015), and Perceived Stress Scale (PSS) (Kuyken et al., 2013). Two studies used measures related specifically to wellbeing or resilience: Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS) (Kuyken et al., 2013) and the Resilience Scale (Chisholm et al., 2016) although others used measures related to self-esteem (Stallard et al., 2013, Stallard et al., 2007, Stallard et al., 2014) and life satisfaction (Boniwell et al., 2016). The Strength and Difficulties Questionnaire (SDQ) was the most commonly used measure said to rate behavioural, emotional difficulties and overall functioning and either the child, parent or teacher version was used in six of the twelve studies (Attwood et al., 2012, Berry et al., 2016, Stallard et al., 2007, Challen et al., 2014, Naylor et al., 2009, Chisholm et al., 2016). Studies varied according to the length of follow up ranging from 4 weeks (Chisholm et al., 2016), to 2 years (Stallard et al., 2013). Four of the twelve studies sought to obtain qualitative, as well as quantitative data (Attwood et al., 2012; Boniwell et al., 2016; Chisholm et al., 2016, Stallard et al., 2013). However, it is beyond the scope of this paper to comment on qualitative findings.

Due to the heterogeneity of studies, the effectiveness of each intervention approach will be discussed in turn. Overall, results suggested a trend whereby higher quality studies reported less positive effects.

**Studies trialling bespoke mental health education programmes** (n=3; Naylor et al., 2009; Chisholm et al., 2016; Boniwell et al., 2016 - all in secondary schools).

Two studies found small ( $d=0.11-0.22$ ) but significant improvements in total and subscale SDQ scores for those that received mental health education. However, it is noteworthy that Chisholm et al. (2016) did not employ a non-intervention condition. Boniwell et al. (2016) trialled a bespoke intervention based on Positive Psychology principles and found a decrease in outcomes of life satisfaction and an increase in negative affect for both groups. However, this was less so for the intervention group ( $d=-0.24$  compared to  $d=-0.79$ ) which was interpreted as the intervention having a 'buffering effect' at a time of stress for the pupils.

**Studies trialling CBT-based interventions** (n= 7; Stallard et al., 2007; Stallard et al. 2013; Stallard et al., 2014; Collins et al., 2013; Rice et al., 2015; Challen et al., 2014; Attwood et al., 2012; Berry et al., 2016). These are described by setting (Primary and then Secondary).

### *Primary schools*

All primary-school based studies trialled interventions pertaining to altering thinking styles akin to CBT principles. Four studies, three of which employed a control arm, reported statistically positive outcomes on anxiety-related measures following interventions including FRIENDS (Stallard et al., 2007; Stallard et al., 2014), 'Think Feel Do' (Attwood et al., 2012) and locally developed CBT programmes (Collins et al., 2013) with larger effects for those in 'high risk' groups ( $d=-1.26$ ; Stallard et al., 2007 - no control arm). Mixed results were found in relation to delivery, with stronger effects found in interventions led by health professionals ( $d=0.2$ ) versus school staff ( $d=0.02$ ) (Stallard et al., 2014) and no difference between psychologist or teacher-led interventions (Collins et al., 2013). Methodological issues such as small sample size and significant group differences at baseline (n=13; Attwood et al., 2012), failure to include those lost to follow-up in analysis (Collins et al., 2013), lack of controls

(Stallard et al., 2007), and small effect sizes for universal samples ( $d=0.01 - 0.2$ ) (Stallard et al., 2014) should be noted when taking inference from those results. A sufficiently powered, good quality study evaluating the use of PATHS within the curriculum found few, small significant results ( $d = 0.06 - 0.14$ ; teacher-rated intervention measure) at 12-month follow up, and no effects on any measure at 24-month follow up (Berry et al., 2016).

### *Secondary schools*

Fewer significant outcomes were found in trials based within secondary school populations. Small ( $d=0.093$ ), but short-lived positive outcomes were found on the CDI for those in the UKRP intervention (Challen et al., 2014). Mixed results were found for those in the UK-RAP intervention, with results indicating some beneficial and also potentially negative outcomes (Stallard et al., 2013) although all with small effect sizes. Both were high quality, longitudinal, well-powered studies employing robust methodologies. Further, no effects were found in the CBT group when compared with as-usual controls or other treatments in a smaller study looking at mechanisms of change (Rice et al., 2015). In the same study, a behavioural intervention (TRY) was found to have positive effects on reward-seeking behaviour and SMFQ measure ( $d=-0.8$ ) when compared with other treatments; however this finding did not transpire when compared with PHSE-as-usual controls.

**Studies using mindfulness based interventions** ( $n=2$ ; Kuyken et al., 2013; Rice et al., 2015 - both in secondary schools).

Positive outcomes were found in a feasibility study evaluating a mindfulness-based intervention (Kuyken et al., 2013) which yielded statistically significant, modest effects on both depression (CES-D:  $d=-0.24$ ) and wellbeing (WEMWBS:  $d=0.15$ ) measures. Due to small sample sizes this study was likely to be underpowered; however, outcomes were sustained at 3 month follow up and were associated with greater mindfulness practice. No significant outcomes were found in a smaller study trialling MBCT on measures of mood (SMFQ) or reward-seeking (Rice et al., 2015).

Table 2. Design and outcome characteristics of primary-school based studies.

| Study (% quality rating)      | Study Design  | Measures   | Follow-up   | Effects / Outcomes   |
|-------------------------------|---|--|---|--|
| Attwood et al., 2012 (34%)    | Randomised pre-post intervention evaluation using opportunistic sample. No blinding or randomisation procedure reported. 'cCBT' (n=6) x control group (n=7).                    | <ul style="list-style-type: none"> <li>Spence Children's Anxiety Scale - Parent &amp; Child version.</li> <li>SDQ - Parent version.</li> <li>Focus groups (n=8)</li> </ul>   | Baseline; 6-weeks post intervention.                                  | Significant reduction in SCAS-C 'social' (d=0.49*) and 'general anxiety' (d=0.48*) subscales (NB: Intervention group significantly higher on SCAS at baseline). No effects on parent rated measures.   |
| Berry et al., 2016 (68.8%)    | Randomised controlled trial; web randomisation system. 29 schools 'PATHS' intervention x 27 schools WL Control. <sup>1</sup>  | <ul style="list-style-type: none"> <li>SDQ - teacher version.</li> <li>PATHS teacher rating scale (PTRS).</li> <li>Teacher Pupil Observation Tool (T-POT).</li> </ul>  | Baseline; 12 mo post-intervention; 24 mo post intervention.           | No differences on SDQ at 12-month F-up. Some significant results on subscales of PTRS at 12 mo f-up (Social competence: d=0.09*; Aggression: d=0.14*; Inattention: d=-0.06*; Peer relations: -0.10*). Not maintained at 24 month follow up.  |
| Collins et al., 2013 (46.9%)  | Randomised 3 x 3 mixed design. No randomisation procedure reported. Psychologist led anxiety intervention (n=103) x Teacher led anxiety intervention (n=79) x Controls (n=135). | <ul style="list-style-type: none"> <li>Coping Strategy Indicator (CSI).</li> <li>SCAS -Child version administered by teachers.</li> </ul>  | Baseline; post-intervention; (within 3 weeks of end); 6 mo follow up. | Improvement in psychologist-led and teacher-led groups on SCAS-C (d=0.41*; d=0.31*) & CSI 'Avoidance' (d=0.31*; d=0.31*) and 'problem solving' (d=-0.66*; d=0.52*) subscales. No difference between psychologist or teacher-led groups. SCAS-C outcomes maintained at 6 mo follow up (d=0.39*; d=0.39*). NB: Those lost to follow up (n=155) not included in analysis. |
| Stallard et al., 2007 (43.4%) | Pre- post evaluation of pupils (n=106) from 3 schools taking part in the FRIENDS intervention. No controls employed.  | <ul style="list-style-type: none"> <li>SCAS-Child version.</li> <li>Culture-free Self-esteem questionnaire (CFSEQ).</li> </ul>   | 'T1': 6mo prior; 'T2': prior to intervention; 'T3': 3-mo f-up.        | Improvements in SCAS (d=-0.50*) and CFSEQ (d=0.58*) from T1 to T3 for whole sample; not between T2 and T3 (across intervention). Improvements on both measures (d=-1.26*; d=-1.27*) for 'high risk' group between T2-T3.   |
| Stallard et al., 2014 (75%)   | Cluster randomised controlled trial randomised through computer tool. Health-led FRIENDS (n=489) x School led FRIENDS (n=472) x Controls (n=401). <sup>1</sup>                  | <ul style="list-style-type: none"> <li>Revised Child Anxiety and Depression Scale (RCADS 30) - child &amp; parent.</li> <li>Penn State Worry Q'aire.</li> <li>Rosenberg Self Esteem Scale.</li> <li>Bully / victim q'aire.</li> <li>Subjective wellbeing assessment.</li> <li>SDQ- Parent version; teachers completed 'Impact scale'.</li> </ul> | Baseline; 6 mo f-up; 12 mo f-up.                                      | Improvement on total RCADS (d=0.20*) and social (d=-0.09*) & general anxiety subscales (d=-0.20*) - not depression. Smaller effect sizes in school led group (d=0.02*; d=0.11*; d=0.01*);. No statistical improvements on secondary outcome measures or teacher / parent rating scales.  |



<sup>1</sup> Study sufficiently powered to detect change. <sup>2</sup> Power calculation provided but proportion lost to follow up (>15%) reduced sample required for adequate power. \*Significant at p<0.5 level.

SCAS-C = Spence Children's Anxiety Scale; SDQ - Strength and Difficulties Questionnaire; PATHS = Promoting Alternative Thinking Strategies; CFSEQ = Culture-free Self-esteem questionnaire; RCADS = Revised Child Anxiety and Depression Scale; CSI = Coping Strategy Indicator

*Table 3. Design and outcome characteristics of Secondary school based studies.*

| Study (% quality rating)     | Study Design  | Measures  | Follow-up                                | Effects / outcomes   |
|------------------------------|---|---|--|--|
| Boniwell et al. 2016 (37.5%) | Non-randomised control group pre-post design. 'Personal Wellbeing' intervention group (n=211) x control group (n=85). | <ul style="list-style-type: none"> <li>• Students' Life Satisfaction Scale (SLSS).</li> <li>• Multidimensional Students Life Satisfaction Scale (MSLSS).</li> <li>• Positive &amp; Negative Affect Schedule for Children (PNASC).</li> <li>• Qualitative interviews.</li> </ul> | Baseline; Post-intervention (10 mo f-up) | No significant improvement on SLSS or MSLSS. Decrease in 'satisfaction with school' (d=0.4*) and 'friends' (d=-0.17) scores for whole sample. Decrease in positive affect for both intervention and control groups (d=-0.24*; -0.79*); increase in negative affect (d=0.54*) for control group. NB: Those lost to follow up (n=103) not accounted for in analysis. |

|                                |   |  |   |   |
|--------------------------------|---|--|---|---|
| Challen et al. 2014<br>(78.1%) | Non-randomised pragmatic controlled trial.<br><br>UKRP intervention (n=1016) group x Control (n=1894) group. <sup>1</sup>   | <ul style="list-style-type: none"> <li>• Children's Depression Inventory (CDI).</li> <li>• Revised Children's Manifest Anxiety Scale (RCMAS).</li> <li>• SDQ.</li> </ul>   | Baseline;<br>post intervention (4-9 mo);<br>1 yr f-up;<br>2 yr f-up.            | Small significant impact on CDI post-intervention (d=0.093*); not maintained at 1 or 2 year follow up. No significant effects on RCMAS or SDQ scores.   |
| Chisholm et al. 2016<br>(75%)  | Pragmatic cluster randomised controlled trial, randomised by independent researcher.<br><br>'Contact and MH Education' (n=354) group x MH Education (n=303) group. <sup>2</sup> No 'as usual' controls. | <ul style="list-style-type: none"> <li>• Reported and Intended Behaviour Scale (RIBS) (not validated for adolescents).</li> <li>• Mental Health Knowledge Schedule (MAKS) (not validated for adolescents).</li> <li>• SDQ.</li> <li>• Resilience scale.</li> <li>• Helpseeking Q.</li> <li>• Focus groups.</li> </ul>  | Baseline - 2 weeks prior to intervention day;<br>2 weeks post-intervention day. | Statistical sig. improvements on several scales post intervention day for both groups - 'contact and education' and 'education only': Attitudinal based stigma (d=0.23*; d=0.25*), knowledge based stigma (d=0.54*; d=0.59*), mental health literacy (d=0.05; d=0.13*); emotional wellbeing (d=0.16*; d=0.14*), and resilience (d=0.07; d=0.22*). No change in 'helpseeking'.   |
| Kuyken et al. 2013<br>(59%)    | Non-randomised controlled feasibility study.<br><br>MiSP intervention group (n=256) x control (n=266)   | <ul style="list-style-type: none"> <li>• Warwick- Edinburgh Mental Wellbeing Scale (WEMWBS).</li> <li>• Perceived Stress Scale (PSS).</li> <li>• Center for Epidemiologic Studies Depression Scale (CES-D).</li> <li>• Mindfulness practice rating.</li> </ul>   | Baseline;<br>Post-intervention (9 weeks);<br>3 mo f-up.                         | Lower depression scores post-intervention (d=-0.29*). Improvement on all measures at 3 mo f-up (WEMWBS: d=0.15*; PSS: d=-0.09*; CES-D: d=-0.24*). More mindfulness practice significantly associated with greater gains across all measures (unable to calculate E.S.).   |
| Rice et al. 2015<br>(50%)      | Non-randomised longitudinal design with three intervention conditions.<br><br>TRY intervention group (n=50) x CBT group (n=53) x MBCT group (n=54) x PHSE controls (n=99)                               | <ul style="list-style-type: none"> <li>• Short Mood &amp; Feelings Questionnaire (SMFQ).</li> <li>• Cambridge Gambling Task (CGT) to measure reward seeking.</li> <li>• Dysfunctional Attitudes Scale for Children (DASC) and corresponding response time.</li> <li>• Sentence completion for Events from the Past (SCEPT) to measure overgeneral memory.</li> </ul> | Baseline;<br>9 week f-up.   | Statistical sig. changes in reward seeking in TRY group (d=0.12*); no change after CBT or MBCT. Changes in negative belief response times and over-general memory did not reach significance. No statistically significant decrease in SMFQ across groups compared to PHSE controls. When comparing treatment groups only, TRY showed statistical reduction in SMFQ when compared with MBCT and CBT (d=-0.8*); reward-seeking moderated reductions in |

<sup>1</sup> Study sufficiently powered to detect change.

<sup>2</sup> Power calculation provided but proportion lost to follow up (>15%) reduced sample required for adequate power. \*statistically significant at p < 0.05 level.

SLSS – Student's Life Satisfaction Scale; MSLSS = Multidimensional Students Life Satisfactions Scale; PNASC = Positive and Negative Affect Schedule for Children; CDI = Children's Depression Inventory; RCMAS = Revised Children's Manifest Anxiety Scale; SDQ = Strength and Difficulties Questionnaires; RIBS = Reported and Intended Behaviour Scale; WEMWBS = Warwick Edinburgh Mental Wellbeing Scale; PSS = Perceived Stress Scale; CES-D = Center for Epidemiologic Studies Depression Scale; SMFQ = Short Mood and Feelings Questionnaire; CGT = Cambridge Gambling Task; DASC = Dysfunctional Attitudes Scale for Children

|  |  |   |  | SMFQs scores (d=1.62*).  |
|--|--|---|--|--|
| <i>Naylor et al. 2009</i><br>(56.3%)   | Non-randomised pre-post control group study.<br><br>MH intervention group (n=175) x Control group (n=242). <sup>1</sup>  | <ul style="list-style-type: none"> <li>• Mental Health Q'aire (unvalidated).</li> <li>• SDQ.</li> </ul>   | Baseline (1 week before intervention);<br>6 mo post-intervention | Improvement in MHQ with regards to awareness of depression causes (d=0.21*) and bullying (d=0.31*). Changes in specific SDQ subscales: 'conduct' (d=0.22*) and 'prosocial' (d=0.11*) but not on total difficulties.  |
| <i>Stallard et al. 2013</i><br>(81.3%) | Cluster randomised controlled trial, randomised by computer.<br><br>UK-RAP intervention group (n=1753) x Attention controls (n=1673) x PHSE controls (n=1604) <sup>1</sup> | <ul style="list-style-type: none"> <li>• SMFQ.</li> <li>• Children's Automatic Thoughts Scale (CATS).</li> <li>• Rosenberg Self Esteem Scale.</li> <li>• RCADS.</li> <li>• School connectedness Scale.</li> <li>• Attachment Q'aire for children.</li> <li>• European Quality of Life-5 dimensions.</li> <li>• Client Service Receipt Inventory (CSRI).</li> <li>• Focus groups.</li> </ul> | Screening - SMFQ only;<br>Baseline;<br>6 mo f-up;<br>12mo f-up.  | No significant effect on SMFQ at 12 mo f-ups. Some effect of intervention on bullying status at 12 mo, and Cannabis use at 6mo and 12 mo f-up. Intervention less useful than usual PHSE or attention controls for panic symptoms; less useful than usual PHSE on CATS 'personal failure' scores and general anxiety. Signs of benefits and harm of intervention found, all were reported to be small effect sizes (data unavailable to calculate effect size). |

<sup>1</sup> Study sufficiently powered to detect change. <sup>2</sup> Power calculation provided but proportion lost to follow up (>15%) reduced sample required for adequate power. \*Significant at p<0.5 level.

## IMPLEMENTATION ISSUES

Common issues relating to implementation were found across all studies.

### *Fidelity*

Fidelity to intervention delivery was highlighted as an issue both in terms of measurement and outcome. Studies used self-rated fidelity methods (Collins et al., 2013), external fidelity ratings on a proportion of sessions (Stallard et al., 2014; Stallard et al., 2013; Challen et al. 2014; Chisholm et al., 2016; Berry et al., 2016) or no fidelity rating methods reported at all. Studies commented variably on the possible effect of fidelity and 'treatment dosage' on outcomes. In Stallard et al.'s (2014) study the health-led condition with 100% fidelity (i.e. administered all pieces of homework and activity tasks) was associated with significantly better outcomes than the school-led group who achieved 60-80% fidelity. 'High quality' workshops were also found to be related to greater declines in CDI measures (Challen et al., 2014). Conversely, Berry et al. (2016) found that fidelity (when applying an arbitrary '80%' rate of 'high' fidelity) was not found to be related to outcome.

### *Attrition*

Investment from schools was raised as an issue as demonstrated by school participation and attrition (Stallard et al., 2013; Berry et al., 2016), and failure to administer follow up measures as per study procedures (Collins et al., 2013; Boniwell et al., 2016). All studies, with the exception of Stallard et al. (2013) provided little information about school or participant characteristics of those who dropped out. This confounding factor may have positively biased results. For instance, in Kuyken et al's (2013) study, teachers who delivered the mindfulness intervention had been invested in the intervention for approximately 2 years before the beginning of the study and attended regular supervision, demonstrating good motivation throughout the study which found positive outcomes.

### *Costs*

Two studies actively explored health economic costs involved (Berry et al., 2016; Stallard et al., 2013). Cost-effectiveness was not calculated by Berry et al. (2016) due to lack of impact, and Stallard et al. (2013) concluded that the

intervention was not cost-effective. Of note, both studies may have sustained high costs due to employing external facilitators to lead the intervention rather than teachers (Stallard et al., 2013) and hiring 'coach consultants' to monitor delivery (Berry et al., 2016).

## DISCUSSION

This review aimed to explore the effectiveness and study quality of universally delivered school based interventions within the UK which aim to promote mental and emotional wellbeing, or prevent mental ill health. Several clear conclusions can be drawn from this review, while other issues require further clarity from future research.

*How effective are universal school based interventions in the UK that promote mental health, emotional wellbeing, or psychological resilience and what tools are being used to measure effectiveness?*

Based on the studies included in this review, the effectiveness of universal school based interventions remains mixed, and at best, modest. Where there were several positive outcomes, effect sizes were small and methodological issues rendered many results to be interpreted with caution.

Studies based in Primary schools seemed to find more encouraging results from CBT-based interventions on measures of anxiety, although most studies had methodological limitations relating to use of appropriate controls, and failure to include of those lost to follow up in analysis. Positive results tended to fall in the older age range of Primary school pupils (9-12 years old).

Within the Secondary school population, the most positive results were obtained when delivering mental health education sessions, behavioural or mindfulness interventions. Two high powered, good quality studies evaluating CBT based interventions within secondary populations found few significant results and one study indicated possible detrimental impacts of the intervention compared to controls, although any effect sizes related to these findings were small.

It is curious that studies fail to detect promising effects in the older, secondary school, population. It could be argued that 2 year follow up is not sufficient to truly detect change or prevention during the developmentally-sensitive time that is adolescence. Arguably, the demands placed on adolescents merely change in nature rather than impact over time. Adolescent psychosocial development (Erikson, 1968) is particularly vulnerable as individuals are required

to manage academic demands as they progress through their school career, navigate friendships, seek to develop self-identities and deal with the physiological changes that occur as they transition through puberty. It could be that the existence of such pervasive and fluctuating stressors juxtaposed with measurement issues, discussed below, contribute to the failure to detect significant results in secondary school populations. Or, that such interventions simply have less impact for this population.

***What methodologies are being applied in UK schools when trialling interventions and what is the quality of these studies?***

Methodological issues were predominant in this review. Only four of the studies were of 'excellent' quality and findings indicated a trend towards higher quality papers finding fewer positive results. Studies were weakened largely due to their lack of randomisation and blinding of researchers, and small sample sizes which likely rendered them underpowered to detect true effects.

While it was encouraging that initial consenting rates were high and remained reasonable throughout, study quality would benefit from better reporting of those lost to follow up who, possibly, could be a population of particular interest when considering the objective of promoting mental and emotional wellbeing for all within the school setting. Further, statistical methods used to account for such missing data require careful consideration to ensure that more stringent and conservative methods, for example, intent-to-treat analyses, are applied in school-based research. Otherwise, studies that instead apply a 'defined completers' or 'completers' analysis expose themselves to the risk of yielding false positives.

Another issue was the use of controls. Few studies explicitly provided details of the content controls received. Some indicated that controls may have received materials already available in the school around social and emotional wellbeing, which could reasonably have confounded results. Additionally, considering the demographic data provided, it is unlikely that the included studies accurately represent the cultural diversity of schools across the UK,

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therefore caution should be taken when considering the generalizability of results.

The last prominent issue highlighted in this study was the diverse use of measures and length of follow up across studies, making it difficult to ascertain a coherent picture of measurement and effects in the current research base.

As commented in one study (Challen et al., 2014) and further afield (Reavley et al., 2015), measurement issues within universal populations are particularly problematic due to common floor effects which exist, particularly when using measures pertaining to the existence of mental health conditions. As has been well-documented, demonstrating improvement in 'high risk' groups is somewhat easier as baseline scores are often elevated providing scope for reduction (Stallard, 2013). Demonstrating change within a universal population is therefore inherently more difficult and requires careful thought when moving forward. Is it sufficient that the absence of a mental health condition equates to greater wellbeing or resilience as suggested by Boniwell et al. (2016), or should researchers direct attention to explicitly measuring wellbeing and resilience and mechanisms of change within such constructs in order to truly operationalise factors relating to the prevention of mental health difficulties.

Few studies in this review used wellbeing or resilience measures. However, those that did (Kuyken et al., 2013; Chisholm et al., 2016) found positive effects. While any meaning of these results must be taken with caution due to methodological issues, this nevertheless suggests that such measures are at least able to detect change within a universal population.

Only one study explored mechanisms of change (Rice et al., 2015) by using cognitive reasoning tests when comparing several interventions, and found that a behavioural intervention led to more reward-seeking and a reduction in mood symptoms. It would be of value to explore this further given the neurodevelopmental stage of adolescence when frontal lobes are still maturing and neuronal connections continue to grow (Spear, 2013). Consequently, the adolescent's ability to plan, problem solve and manipulate abstract information, as is arguably necessary in cognitive-based interventions, may be overridden by more disinhibited, emotionally driven impulses and the seeking of concrete



rewards, as may be seen in earlier adolescence and would potentially explain increased receptiveness to a behavioural, rather than cognitive intervention.

*What are the identified barriers in delivering and evaluating universal school based interventions?*

Implementation barriers relating to fidelity to intervention delivery and costs were also raised within this review. Variance in fidelity measurement to confirm reliable manualised delivery was a recurring issue, which is of particular salience when delivery has been consistently argued to be related to outcome (Durlak et al, 2011; Weare & Nind, 2011). Intervention delivery itself varied between studies where school staff or external researchers delivered the courses. While results in specific studies were mixed when comparing the effectiveness of teacher-led versus externally-led interventions, overall within this review the results were neutral suggesting, at best, that there is no negative impact of teacher delivery. While issues relating to treatment fidelity may be more prominent with teacher delivery, considering sustainability, it could be argued that this would be the optimal approach in school settings, especially considering the financial costs involved in bringing in external facilitators as demonstrated by two studies in this review (Berry et al., 2016; Stallard et al., 2013). Further, research has indicated that pupils prefer both that mental health education be delivered by someone with a thorough knowledge of the subject, and for it to be delivered by someone they know e.g., a teacher (Woolfson et al., 2008).

No study in this review explored the impact on any allied services such as CAMHS. For instance, it may be useful to audit local CAMHS referral-rates whilst reviewing the effectiveness of school-based interventions. Considering the absence of reliable positive outcomes at the individual level at this point, a systemic perspective could be of value when considering any cost benefits on the wider health and social care service.

Further, it was unclear from the review what political or strategic drivers instigated each study, and indeed, how much children and young people were consulted in the process, design and delivery of the interventions. It was outside

the scope of this review to explore the qualitative findings from the few studies that employed focus groups. Therefore, it is recommended that future qualitative reviews of school based research are conducted in order to ensure the children's and young people's views as stakeholders in this work are sufficiently represented.

### **Limitations**

This study was limited in its ability to source evaluations representative of the entire UK as the majority of studies were based in England. While efforts were made to source evaluations from elsewhere in the UK, the lack of validated measures or application of pre-post methodology meant that such evaluations from 'grey literature' could not be included in this review. It should therefore be noted that there is much relevant work being conducted in UK schools. However, schools and local authorities should be urged to reliably evaluate their valuable efforts and contribute to the literature area, thereby justifying and demonstrating the work being driven by teachers and policymakers nationwide.

This study was also limited in its date source in that only studies from the year 2000 were included in this review. While results from other systematic reviews suggested that little relevant research was done in the UK before this time, it could still be that some studies were missed due to this limit.

### **Implications**

This review highlighted the need to employ robust methodological designs within school-based research in order for any effects to be interpreted meaningfully. Measurement issues exist where they do not adequately detect change in universal populations, and there is a wide variety in measures used ranging from 'clinical' to wellbeing measures. This review concludes that school-based researchers across the UK should attempt to come together to discuss ways to address this issue and improve coherence in the literature.

An additional, imperative implication from this review is the proactive inclusion and involvement of teachers in this work. As has been commented elsewhere (Weare, 2015) without the 'buy-in' from teachers, any school based intervention is less likely to sustain or achieve positive outcomes. In a time of

additional pressures on teachers, the need to feel in control of initiatives is key. Of note, two of the studies in this review included adult-focused exercises for the teachers themselves as an adjunct to the intervention training. This approach may go further to assist teachers' own stress levels and understanding of mental health whilst attending to the needs of their pupils.

## Conclusions

The current evidence suggests there are neutral to small effects of universal, school-based interventions in the UK that aim to promote emotional or mental wellbeing or prevention of mental health difficulties. Whilst the real-world limitations of conducting research in schools exists, robust, long-term methodologies need to be attempted when conducting research in this area in order to explore the longitudinal impact of school-based interventions on wellbeing; academic attainment, school attendance and rates of high-risk presentations also need to be explored. This requires adequate recording of fidelity, the use of validated measures sensitive to mechanisms of change, reporting of those lost to follow up and any adverse effects, and the use of qualitative data to supplement quantitative outcomes. Interventions in the existing UK-based literature include educational, behavioural, cognitive and mindfulness components, each demonstrating variable results. Nevertheless, national and local policy (Department of Education, 2016; CYMRU, 2010; Education Scotland, no publication date) indicates that there remains an appetite to develop work in this area in order to promote wellbeing outcomes for children and young people. In this case, further research collaborations are required across the UK to demonstrate any benefits for pupils or on the wider system.

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## CHAPTER 2: Major Research Project

# A universally delivered CBT-based intervention in a Scottish Secondary school setting: Pilot feasibility study

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## PLAIN ENGLISH SUMMARY

**Background:** There is an expectation that secondary schools cover mental and emotional wellbeing within the curriculum, although this provision differs across schools and local authorities.

Living Life to the Full (LLTTF) is a series of booklets based on Cognitive Behavioural Therapy (CBT) principles (Williams, 2007). Recently, an adolescent version of LLTTF was developed. This study aimed to deliver this resource in classes in a secondary school setting and establish whether this works on a practical level, and also to explore any effects on pupils' wellbeing.

**Aims and Questions:**

1. To explore practical issues in delivering a CBT intervention for adolescents in a secondary school setting: participation rates; questionnaire suitability; relevance and applicability of the materials; issues relating to delivery.
2. To compare results from four questionnaires relating to overall wellbeing between pupils who receive LLTTF and those who receive their usual class.

**Methods:** Third year pupils (13-14 year olds) in a Scottish secondary school (105 pupils in total) were asked to take part. Two classes received LLTTF delivered by teachers and two classes received their usual lesson. Questionnaire results were compared between the beginning and end of the study (9 weeks) and between both groups. LLTTF participants were asked for brief feedback after each lesson regarding relevance and applicability of materials. They also took part in a group interview 3 months after the intervention finished.

**Main findings and conclusions:** Results found there were no statistically significant positive effects for those who took part in the intervention, although this was a small study and so effectiveness was not anticipated. Pupil feedback was largely positive and pupils reported the course was relevant for their age group and they had used strategies in their everyday lives. Overall, this study found that it is possible to deliver this intervention within a secondary school setting, and it was positively received by pupils. Long-term, larger-scale research is recommended in the future using different ways to measure improvement in pupils' wellbeing following school based mental health interventions.

## ABSTRACT

**Objectives:** To evaluate the feasibility of a universally delivered CBT-based programme for pupils within a Scottish secondary school setting.

**Design:** A pre-post, within and between groups design was utilised.

**Setting:** Religious Moral Citizenship and Education (RMCE) classes in a Scottish secondary school.

**Participants:** Four (n = 103) classes of third year secondary school pupils were arbitrarily allocated to two conditions: RMCE-as usual (RMCE-AU) controls, and LLTTF intervention.

**Intervention:** Living Life to the Full (LLTTF) is a series of Cognitive Behavioural Therapy (CBT)-based booklets and accompanying 8 classes to improve coping skills. An adolescent version of LLTTF was recently developed. This was delivered over nine weeks by school teachers trained in the approach.

**Outcome measures:** The Strengths and Difficulties Questionnaire, Rosenberg Self-Esteem scale, General Self-Efficacy Scale, and Locus of Control scale were administered at baseline and 9 week follow-up. To determine acceptability and utility of the materials course feedback was gathered weekly from the intervention group and a focus group (n=5) was conducted at 3 month follow up.

**Results:** Outcome measures showed no significant improvement in overall wellbeing of those in the intervention group compared with that of the control group. Weekly feedback suggested that the majority of pupils found the materials useful and relevant. Focus group feedback suggested that pupils found the intervention useful, had utilised strategies in everyday life and would welcome recurring provision of such interventions within the school setting.

**Conclusions:** Universally delivered CBT intervention is acceptable and feasible within the secondary school environment. However, objective measurement using standardised tools does not adequately corroborate qualitative feedback from pupils. Issues relating to measurement, study design and implementation of future interventions are discussed.

**Keywords:** Universal, school-based, wellbeing, resilience, CBT, evaluation

## INTRODUCTION

There are high rates of mental illness in children and young people in the UK. At any one time, approximately 2% of children aged 11-15 and 11% of young people age 16-24 have a major depressive disorder (Green et al., 2005). In an average classroom of thirty pupils, ten young people will have witnessed their parents separate, eight will have experienced severe physical violence, sexual abuse or neglect, one will have experienced the death of a parent and seven will have been bullied (Faulkner, 2011). The impact of such childhood adversities have been found to have strong associations with all categories of mental health disorders across all life-course stages in both high and low-income countries (Kessler et al., 2010).

### Current Policy

Promoting mental health and emotional resilience of children and young people is therefore high on the government's agenda. The Mental Health Strategy 2012-2015 (Scottish Government, 2012) led to the implementation of a national service standard which required that individuals accessing Child and Adolescent Mental Health Services (CAMHS) wait no longer than 18 weeks from referral to treatment. The Children and Young People's (Scotland) Act 2014 established a legal framework which places in statute the principles of 'Getting it Right for Every Child' (GIRFEC), in which the central focus is promoting, supporting and safeguarding the well-being of children and young people and that this is the responsibility of all stakeholders (Scottish Government, 2012). Service integration has been explicitly recommended further in local and national policy, whereby mental health and psychological wellbeing of children and young people is promoted and delivered in whole community systems that integrate health, social care, schools and the voluntary sectors (Faulconbridge et al., 2015), and that prevention is aided by implementing universal services at home, nursery and school (Ready to Act Consultation document, Scottish Government, 2015). This integrative and collaborative agenda for early intervention and prevention initiatives is also in line with wider objectives set out locally in the Scottish Government's *2020 Vision* (currently being reviewed and revised), and internationally, where targets recommend that 80% of

countries worldwide will have at least two functioning, national, multi-sectorial mental health promotion and prevention programmes by the year 2020 (WHO, 2013).

It has been suggested that schools have scope to provide an effective access point to mental health services for young people because of the near-universal participation in education (Masia-Warner et al., 2006). UK policy has further recommended that all secondary education establishments adopt an organisation-wide approach to promote the social and emotional wellbeing of young people (DoE, 2016; Scottish Government, 2010) and provide a safe environment which nurtures and encourages young people's sense of self-worth, reduces the threat of bullying and violence and promotes positive behaviour (NICE, 2009). Further, in Scotland, 'Health and Wellbeing' has been placed central to the Curriculum for Excellence (Education Scotland, no publication date) resulting in an increased onus on schools to ensure that the mental, emotional, social and physical wellbeing of children and young people is prioritised alongside academic attainment.

### **Systematic review outcomes**

There has therefore been widespread and growing interest worldwide in developing and researching school-based interventions to promote mental health over recent years. Systematic reviews in the area have indicated varying levels of effectiveness (Neil & Christensen, 2007, Blank et al., 2009; Durlak et al., 2011) and identified several characteristics for effective implementation including thorough training, quality control, well-defined goals (Weare & Nind, 2011) and a 'whole school' approach (Wells et al., 2003). Overall, the literature suggests that mental health promotion and prevention in schools be endorsed, continued and expanded, however, that this be conducted while considering the cost-effectiveness of approaches and methodological issues such as randomisation procedures, the use of attention controls and the application of a longitudinal design (Calear & Christensen, 2010; Cheney et al., 2014).

## School-based mental health programmes: the current picture in the UK

Several universal and targeted mental health initiatives have been implemented in schools in the UK. Targeted interventions aim to support vulnerable individuals. Examples include school-based counselling (Cooper et al., 2013, Lee et al., 2009), Social & Emotional Aspects of Learning (SEAL) (Humphreys et al., 2013) and Targeted Mental Health in Schools (TaMHS) (Humphreys et al., 2013). Universally delivered provision aims to generally promote resilience and wellbeing in all pupils. Recently implemented universal initiatives include: FRIENDS for Life (WHO, 2004), UK Resilience Programme (Challen et al., 2014), Resourceful Adolescent Programme- UK (RAP-UK; Stallard et al., 2013) and the Mindfulness in Schools Programme (Kuyken et al., 2013). Results of universal programmes have shown promise, but have been equally limited by methodological issues such as sample size, lack of appropriate controls and poor generalisability.

A model used in several of the universal programmes is Cognitive Behavioural Therapy (CBT), which is recommended by local and national guidance for use with young people experiencing depression (NICE, 2005; Scottish Government, 2015). At present, the evidence is mixed, with some studies supporting the use of universal CBT interventions in schools (Greig, 2007; Collins et al., 2013; Mychailyszyn et al., 2012) and others suggesting such initiatives be implemented with caution, as it may result in increased reporting of depressive symptoms (Stallard et al., 2013).

The local policy and legislative context continue to place impetus on schools to deliver mental health and wellbeing initiatives. However, the financial and practical costs associated with implementation, together with the conflicting evidence from the literature make it imperative that any proposed school-based mental health initiatives are based on the available evidence and piloted thoroughly using a robust methodology in line with research recommendations (Weare, 2015).

Further, as informed by guidance around implementing and evaluating complex interventions (MRC, 2008) it is crucial that school based interventions are firstly, informed by evidence and theory and then piloted systematically in order to establish any effectiveness, understand active ingredients involved and explore any implementation issues. Living Life to the Full (LLTTF) is one CBT-based intervention which has established positive outcomes for adults. LLTTF's feasibility for delivery as a school-based intervention delivered by teachers was explored by Boyle et al. (2010) who piloted the standard version of the booklets (unmodified for schools) within a Glasgow secondary school setting. An adolescent version of LLTTF was later piloted in British Columbia, Canada as part of a community youth mental health program and all participants indicated the course had been useful and they would recommend it to a friend. (Canadian Mental Health Association, 2014; <https://vimeo.com/119281129>). A UK-version of LLTTF for young people has since been developed in Scotland but has not yet been piloted within schools or in the community.

### **Present study**

In order to add to the literature around school based interventions and to further evaluate the feasibility and efficacy of LLTTF for young people in line with research guidance (MRC, 2008) the present study aims to test the feasibility of a future substantive study evaluating delivery as a universally-delivered CBT-based programme (LLTTF) for adolescents within a Scottish secondary setting while utilising a controlled methodological design.

Objectives:

- 1. To test the ability to recruit participants, gather feedback information and administer psychometric questionnaires within a universal secondary school sample.*
- 2. To test the ability to deliver teacher-led CBT-based classes in a Scottish secondary school setting.*
- 3. To explore consenting, recruitment and follow up rates within this setting.*
- 4. To explore outcome measure characteristics within this population.*

## METHOD

The methods adopted in this study aimed to capture both feasibility and pilot study objectives, as defined by NETSCC (National Institute for Health Research Trials and Studies Coordinating Centre).

### Design

*Feasibility:* Consenting, recruitment and follow up rates were monitored throughout the study. Participants in the intervention group were asked to complete a questionnaire (see appendix 6) after each lesson to evaluate the satisfaction, applicability and usefulness of the intervention topic. Additionally, a group semi-structured interview was completed at 3-month follow-up with five participants from the intervention arm to gain further qualitative feedback about the intervention.

*Pilot:* A pragmatic, non-randomised control trial methodology was utilised. The intervention was delivered as part of the school's Religious, Moral, Citizenship and Education (RMCE; equivalent to Personal, Health and Social Education) curriculum, with RMCE-as-usual classes acting as the control group. Outcome measures pertaining to overall functioning and emotional resilience were administered to all four groups (2x control; 2x intervention) at baseline and follow-up (nine weeks later) to provide characteristics of this population and test administration procedures in this setting.

### Procedures

#### *Setting*

This study took place in a catholic high school. The school is the top-performing school in its local authority. Under 10% of the school population are eligible for free school meals. The targeted year group had nine RMCE classes, of which four were approached to take part in this study. The school currently has no standardised curriculum around mental health and wellbeing.



### ***Ethical approval***

Ethical approval for the study was obtained via the University of Glasgow Medical and Veterinary and Life Sciences ethics panel (Reference number: 200140182; Approval date: 18 August 2015; see appendix 10), from the local authority education department (Approval date: 25<sup>th</sup> June 2015) and school head-teacher (Approval date: 11<sup>th</sup> June 2015, see appendix 11).

### ***Recruitment***

Third year high school pupils (13-14 year olds) were targeted for this study. This year group was deemed most suitable due to their stage in education and follow-up potential, and their developmental stage which would provide a useful perspective on the acceptability of the materials. Participants were recruited from August to September 2015.

### ***Consent***

Following recommendations from corresponding ethical committees, consent was sought from pupils and their parents / guardians. Pupils from the four RMCE classes were provided a pupil information sheet, parent information sheet and consent form (see appendices 2-5) by the Head of Pupil Support. Pupils were asked to return signed consent forms indicating whether or not their parents had consented to their participation. Pupils whose parents had consented and who were willing to participate then signed participant consent forms prior to completing baseline outcome measures and demographic information in class (see appendix 8). Those whose parents, or who themselves, did not consent to participate were allocated to another RMCE class not taking part in the study during these lessons.

### ***Allocation***

Two RMCE classes acted as the control arm of the study ('RMCE-as-usual') and two RMCE classes acted as the intervention arm. Allocation was completed by the school's RMCE department due to logistical reasons. Pupils were allocated according to their timetables. The teachers were advised by the research team on concepts of randomisation and selection bias prior to allocation.

### *Participants*

This study targeted a universal population in order to represent a typical mainstream school classroom. In total, 105 pupils were invited to participate.

### **Intervention**

#### *Content*

Living Life to the Full (LLTTF) is based on a series of eight CBT-based booklets developed to encourage individuals to consider how their low mood or anxiety affects them in five key areas of their life: people and events around them, altered thinking, altered feelings, altered physical symptoms and altered behaviour (Williams, 2007). The course incorporates thought-challenging, activity scheduling, problem-solving and mindfulness elements throughout and has been shown to improve mental health literacy (Day et al., 2007). The adolescent version of this intervention (Living Life to the Full for Young People) was piloted in this study (see appendix 9 for a summary of the intervention).

#### *Delivery and Fidelity*

The intervention was delivered over nine weekly RMCE lessons between October 2015 to December 2015 by pupil support teachers who were trained in the approach. One-day training was provided by an experienced LLTTF coordinator who provided the teachers with resources for implementation, access to an online support package for facilitators and a CD which contained speaker notes and un-editable slides for presentation during lessons. Both teachers completed self-rated fidelity forms (see appendix 7) after each lesson. Classes were delivered using a mixed format of didactic presentation, individual tasks using standardised worksheets, group discussions and class activities relating to the objectives of the specific lesson. Participants were provided with the option of taking home the accompanying booklets after each lesson.

#### *Control group*

The two RMCE classes that acted as controls were taught by their usual RMCE teachers. The classes followed their usual RMCE curriculum and content comprised religious and faith-based topics.

## Outcome measures

Outcome measures were selected based on their use in adolescent research and their relevance to the content and aims of the intervention. Measures were administered by the researcher (KM) who was blinded to group allocation.

Primary outcome measure of mental health and functioning:

*The Strength and Difficulties Questionnaire (SDQ)* (Goodman, 1997) is frequently used to assess and predict child and adolescent mental health and overall functioning (Goodman & Goodman, 2011). The total score from four subscales (Emotional, Conduct, Hyperactivity, Peer problems) range from 0-40. A Total score of 15 or above indicates potential clinical level of difficulty. A scale of prosocial skills is also calculated. The SDQ displays good internal consistency ( $r=0.73$ ), re-test stability ( $r=0.62$ ) and discriminant validity demonstrated by high problem scores being associated with increased psychiatric risk (Goodman, 2001.)

Secondary outcomes measures pertaining to resilience:

The *Rosenberg Self Esteem Scale (RSES)* (Rosenberg, 1965) was used to measure self-esteem which has been found to correlate with better functioning in adolescents (Nwanckwo et al., 2012). This scoring scale ranges from 0-30. Scores of 15 and above are deemed to be within 'normal' range. RSES displays good internal consistency ( $r=0.77$  to  $r=0.88$ ), test-retest reliability ( $r=0.82$  to  $r=0.85$ ) criterion ( $r=0.55$ ) and construct validity when correlated with anxiety ( $r=-0.64$ ), depression ( $r=-0.54$ ).

The *Generalised Self-efficacy Scale (GSES)* - Internal reliability: 0.76 to 0.90, Schwarzer & Jerusalem, 1995) was used to measure self-efficacy which has been associated with anxiety and depressive symptoms in adolescents (Muris, 2002). This 10-item self-report scale explicitly refers to personal agency and scores range from 10 to 40. There is no 'clinical' cut-off however higher scores indicate greater self-efficacy.

*The Locus of Control Scale (LoC Scale* - Internal consistency: 0.63 - 0.81; test-retest reliability: 0.63 - 0.71, Nowicki & Strickland, 1973) is a measure of individuals' sense of controllability of their circumstance. Internal locus of control has been associated with better mental health in youth (Shojaee & French, 2014). Total scores from this measure range from 0 to 40 and are coded into three categories: 'internal'; 'immediate' and 'external' attributional styles. A cut-off of 16 or above is deemed to be 'external'.

### **Statistical methods**

Descriptive statistics were used to describe sample demographics, including the presence of an anxiety or depression diagnosis, days off school due to stress, and professional help in the previous 6 months prior to baseline. Results from outcome measures were assessed at baseline and nine-week follow up in the RMCE-as-usual and LLTTF groups. Likelihood ratio chi-squared analyses were used to test whether the frequency of clinical caseness were consistent across time. Independent group t-tests were used to compare between change scores (calculated by subtracting 9 week follow up scores from baseline scores). Linear regression tested group differences in outcome measures while controlling for baseline scores and class effects. Descriptive statistics were used to explore participant acceptability and use of the course. Qualitative data was gathered from session feedback forms and focus group interview. Samples (5%) of scoring results and database entries were checked by external colleagues for accuracy. Statistical analyses were carried out using IBM SPSS version 22 with advice from Dr. Caroline Haig and Dr Martina Messow, statisticians at the Robertson Centre for Biostatistics, University of Glasgow.

## RESULTS

### Recruitment

Four RMCE classes comprising 105 pupils were invited to take part in this study. 103 consented to take part (98% uptake rate). There were two parental refusals. 51 participants were allocated to the control arm (RMCE-AU), 52 were allocated to the intervention arm (LLTTF).

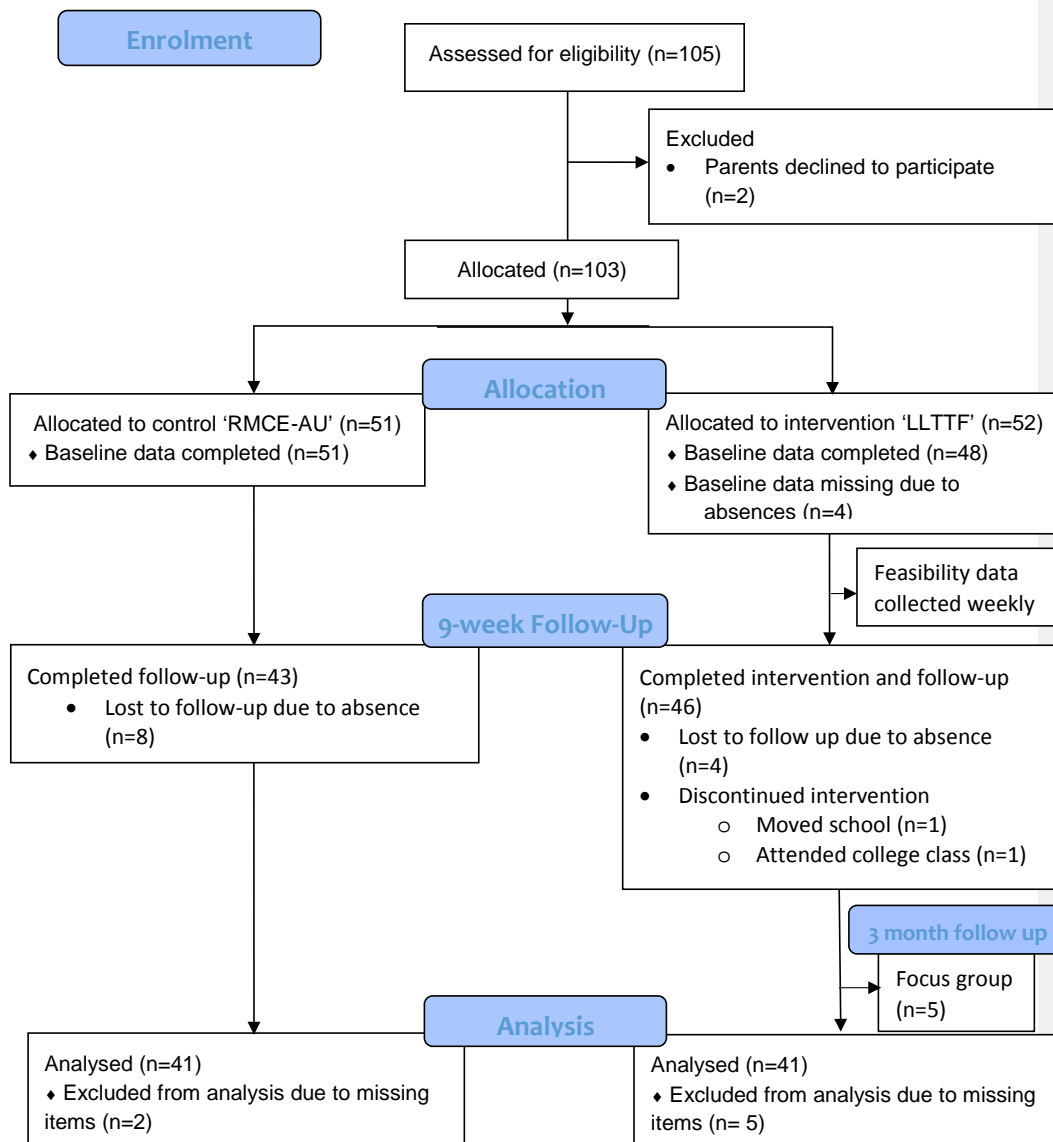


Figure 1: CONSORT diagram outlining the recruitment and follow up process.

### **Questionnaire completion**

Due to pupil absences on the day of baseline data collection, 99 participants completed the demographic information and baseline outcome measures. Due to absences on the day of follow-up data collection (the week before Christmas), a total of 89 sets of post-questionnaires were collected. Excluding datasets with missing data, 82 full sets of pre/post outcome measure data were available for statistical analysis (see Figure 1, above).

### **Sample characteristics**

Demographic data are outlined below in Table 1. Following data collection, it was apparent that some data were missing on both demographic and outcome measure items. Missing data will be indicated throughout this section. Based on completed data there were no statistically significant differences between group characteristics at baseline.

Table 1. Sample characteristics at baseline.

| Variable / level: Number of completed data (Missing)               | Total Sample (% of respondents)        | RMCE-AU                          | LLTTF                               |
|--|--|----------------------------------|-------------------------------------|
| Median age (IQR)   | 13yrs, 11mo (13yrs, 4mo; 14 yrs 11mo,) | 14 years (13yrs,4mo; 14yrs,10mo) | 13 yrs,11mo (13yrs,5mo; 14yrs,11mo) |
| Gender: N=103 (0)  |  | N=51                             | N=52                                |
| Male   | 49 (47.5%)                             | 26                               | 23                                  |
| Female   | 54 (52.5%)                             | 25                               | 29                                  |
| Ethnicity: N=96 (7)  |  | N=51 (0)                         | N=45 (7)                            |
| White Scottish   | 86 (89.6%)                             | 47                               | 39                                  |
| White (other)  | 8 (8.3%)                               | 3                                | 5                                   |
| Chinese  | 1 (1.04%)                              | 0                                | 1                                   |
| Mixed Race   | 1 (1.04%)                              | 1                                | 0                                   |
| Living situation: N=95 (8)   |  | N=50 (1)                         | n=43 (9)                            |
| Mother & Father  | 61 (64.2%)                             | 33                               | 28                                  |
| Mother only  | 22 (23.2%)                             | 12                               | 10                                  |
| Mother and partner   | 5 (5.3%)                               | 1                                | 2                                   |
| Father and partner   | 4 (4.2%)                               | 3                                | 1                                   |
| Between both parents / partners                                    | 3 (3.3%)                               | 1                                | 2                                   |
| Anxiety diagnosis <sup>3</sup> : N=92 (11)                         |  | N = 49 (1)                       | N=43 (9)                            |
| Yes  | 6* (6.5%)                              | 1*                               | 5*                                  |
| Depression dx: N=92 (11)   |  |                                  |                                     |
| Yes  | 6* (6.5%)                              | 3*                               | 3*                                  |
| *12 endorsements from 9 participants; 3 reported dual diagnoses.   |  |                                  |                                     |
| Medication for anxiety or depression: N=95 (8)                     |  |                                  |                                     |
| Yes  | 1 (1.1%)                               | 1                                | 0                                   |
| Days off school due to stress or worry in last 6 months: N=90 (13) |  |                                  |                                     |
| Yes ≤4   | 9 (10%)                                | 5                                | 4                                   |
| Yes 5+   | 8 (8.9%)                               | 5                                | 3                                   |
| Help sought for worry / stress in previous 6 months: N=95 (8)      |  |                                  |                                     |
| Yes - single professional (GP, nurse, teacher)                     | 11 (11.6%)                             | 3                                | 8                                   |
| Yes - multiple professionals                                       | 5 (5.3%)                               | 3                                | 2                                   |

<sup>3</sup> Anxiety and depression diagnoses were determined by self-report. Participants were asked whether they had a diagnosis of either, stipulated to have been given by a Doctor.

### Outcome measure characteristics

#### Primary outcome measures at baseline (n=97)

Tests of normality were carried out on primary outcome measures of the baseline sample. Kolmogorov-Smirnov tests, distribution histograms, and Q-Q plots suggested that the distribution of data approximated normality, and therefore parametric statistics could be used.

*Table 2: Means and S.D.s of primary outcome measures at baseline.*

| MEASURE                      | Condition group: Number observed (number missing) |               |                 |
|------------------------------|---|---------------|-----------------|
|                              | TOTAL: n=97 (6)                                   | RMCE-AU: n=51 | LLTTF: n=46 (6) |
| SDQ Total Difficulties       | 13.14 (6.61)                                      | 13.63 (6.24)  | 12.61 (7.03)    |
| Emotional                    | 3.84 (2.57)                                       | 4.02 (2.56)   | 3.63 (2.59)     |
| Conduct                      | 2.81 (2.15)                                       | 2.96 (2.20)   | 2.65 (2.11)     |
| Hyperactivity                | 4.66 (2.45)                                       | 4.94 (2.49)   | 4.35 (2.40)     |
| Peer problems                | 1.87 (1.69)                                       | 1.76 (1.69)   | 1.98 (1.71)     |
| Prosocial                    | 7.12 (1.77)                                       | 7.14 (1.80)   | 7.11 (1.77)     |
| Self Esteem Scale (RSES)     | 19.14 (5.14)                                      | 19.55 (4.92)  | 18.70 (5.40)    |
| Self-Efficacy Scale (GSES)   | 28.89 (4.48)                                      | 29.37 (3.66)  | 28.35 (5.24)    |
| Locus of Control Scale (LoC) | 15.21 (5.60)                                      | 15.18 (4.96)  | 15.24 (6.29)    |

At baseline, neither group mean fell in the clinical range for SDQ total difficulties ( $\geq 15$ ) or corresponding subscales (see Table 2, above). Group means on the RSES and GSES were in the normal and average range, respectively. LoC scale mean scores fell just below the 'External' range ( $\geq 16$ ) for each group.

#### Primary outcome measures at 9 week follow up (n=82)

*Table 3: Means and S.D.s of primary outcome measures at follow up.*

| MEASURE                      | Condition group: Number observed (number missing) |                    |                 |
|------------------------------|---|--------------------|-----------------|
|                              | TOTAL: n=82 (21)                                  | RMCE-AU: n=41 (10) | LLTTF: n=41(11) |
| SDQ Total Difficulties       | 11.66 (6.36)                                      | 12.12 (6.28)       | 11.20 (6.49)    |
| Emotional                    | 3.17 (2.58)                                       | 3.29 (2.87)        | 3.05 (2.28)     |
| Conduct                      | 2.40 (1.85)                                       | 2.48 (1.76)        | 2.32 (1.96)     |
| Hyperactivity                | 4.24 (2.50)                                       | 4.52 (2.43)        | 3.95 (3.56)     |
| Peer problems                | 1.84 (1.66)                                       | 1.81 (1.76)        | 1.88 (1.57)     |
| Prosocial                    | 7.06 (2.03)                                       | 7.29 (1.88)        | 6.83 (2.18)     |
| Self Esteem Scale (RSES)     | 19.24 (5.02)                                      | 19.67 (4.83)       | 18.80 (5.23)    |
| Self-Efficacy Scale (GSES)   | 28.90 (4.42)                                      | 29.12 (3.96)       | 28.68 (4.88)    |
| Locus of Control Scale (LoC) | 14.22 (5.91)                                      | 14.19 (5.51)       | 14.25 (6.36)    |



### Initial assessments of efficacy

Table 4 provides details of the between group comparisons of change scores between the RMCE-AU and LLTTF groups. There was no significant difference in the changes scores on any measure.

*Table 4: Means and S.Ds. of change scores and statistical estimates*

| Change: baseline to 9 week follow up |              |              |                 | Between group differences in change scores |       |       |
|--------------------------------------|--------------|--------------|-----------------|--|-------|-------|
| MEASURE                              | RMCE-AU:     | LLTTF:       | LLTTF - RMCE-AU | t-test                                     | df    | p     |
| SDQ Total Difficulties               | -1.36 (4.18) | -1.05 (4.11) | -0.31           | -0.335                                     | 80    | 0.738 |
| Emotional Conduct                    | -0.76 (1.96) | -0.50 (1.71) | -0.26           | -0.643                                     | 80    | 0.522 |
| Hyper-activity                       | -0.50 (1.61) | -0.15 (1.64) | -0.35           | -0.974                                     | 80    | 0.333 |
| Peer problems                        | -0.21 (2.36) | -0.25 (1.71) | 0.04            | 0.079                                      | 74.64 | 0.937 |
| Prosocial                            | 0.05 (1.23)  | -0.15 (1.14) | -0.2            | 0.753                                      | 80    | 0.454 |
| Self Esteem Scale (RSES)             | 0.29 (1.21)  | -0.15 (1.48) | -0.44           | 1.477                                      | 79    | 0.144 |
| Self-Efficacy Scale (GSES)           | -0.62 (3.18) | 0.03 (4.15)  | 0.65            | -0.787                                     | 79    | 0.433 |
| Locus of Control Scale (LoC)         | -0.24 (3.52) | 0.38 (2.81)  | 0.62            | -0.566                                     | 80    | 0.573 |
|                                      | -1.02 (5.07) | -0.51 (4.84) | -0.51           | -0.461                                     | 78    | 0.646 |

Further exploratory analysis using a Linear Regression model estimated the statistical significance of changes in mean scores whilst controlling for baseline scores and class effect. While both arms showed decreases in SDQ and LoC group means over time (see Tables 2 & 3), results showed no significant improvement in outcome measures between baseline and follow-up as a result of the intervention (see Table 5). Indeed, statistically significant effects found in both 'Peer Problems' and RSES scores indicated a small increase in the reporting of difficulties in those domains for those in the treatment group. However, subsequent Reliable Change Index (RCI) calculations showed that those increases were not clinically significant ('Peer Problems' R.C. Criterion >2.39; 'GSES' R.C. Criterion >5.82).

*Table 5: Statistical estimates of treatment effect from linear regression models adjusted for class and baseline scores.*

| MEASURE                         | TOTAL SAMPLE:<br>N Observed<br>(missing) | Difference from baseline |             |         |
|---------------------------------|--|--------------------------|-------------|---------|
|                                 |  | Estimate                 | 95% C.I     | P-value |
| SDQ Total Difficulties          | 82 (19)                                  | 1.30                     | -2.84, 5.43 | 0.53    |
| Emotional                       | 82 (19)                                  | 0.46                     | -1.37, 2.29 | 0.62    |
| Conduct                         | 82 (19)                                  | 0.02                     | -1.44, 1.48 | 0.98    |
| Hyperactivity                   | 82 (19)                                  | -0.26                    | -2.29, 1.76 | 0.80    |
| Peer problems                   | 82 (19)                                  | 1.25                     | 0.10, 2.39  | 0.03    |
| Prosocial                       | 82 (19)                                  | -0.91                    | -2.35, 0.53 | 0.21    |
| Self Esteem Scale<br>(RSES)     | 81 (20)                                  | -4.53                    | -7.99, 1.06 | 0.01    |
| Self-Efficacy Scale<br>(GSES)   | 81 (20)                                  | -0.74                    | -4.02, 2.53 | 0.65    |
| Locus of Control Scale<br>(LoC) | 81 (20)                                  | 3.78                     | -1.27, 8.82 | 0.14    |

#### High-scorers

At baseline, fifteen participants (15.5% of 97 total respondents) in the LLTTF group and nineteen participants (19.5% of total respondents) in the RMCE-AU group scored in the clinical range in the SDQ Total Difficulties scale ( $\geq 15$ ). At follow-up (F-U), these numbers fell to twelve in the LLTTF (14.6% of 82 F-U respondents), and fifteen (18.3% of F-U respondents) in the RMCE-AU group. This equates to a 0.9% reduction in those meeting clinical cut-off in the LLTTF group, and 1.2% reduction in RMCE-AU group. This reduction in scores may be due to regression to the mean effects, or fewer respondents at follow-up.

Within this clinical subgroup, eight of the LLTTF group (8.2%) and eleven of the RMCE-AU (11.3%) initially fell in the 'high' clinical range at baseline ( $\geq 18$ ), falling to seven (8.5%) and nine (10.1%) at follow-up, respectively. Similar patterns were observed in the GSES scores: at baseline, nine (9.3%) of the LLTTF group and six (6.2%) in the RMCE-AU group had scores which would indicate low self-esteem ( $\leq 14$ ). At follow up, from the 82 overall respondents, five (6.09%) participants in the RMCE-AU fell in this range however, paradoxically, this rose to eleven (13.4%) in the LLTTF group.

Subset analysis of this group (those who scored  $\geq 15$  SDQ 'Total Difficulties' clinical range at baseline) found no significant interaction effects of

treatment condition and those who scored in the clinical range at baseline on any outcome measure. Chi-squared analyses did not find any significant differences in the proportion of individuals meeting clinical cut-off on the SDQ measure at 9 week follow up in the LLTTF or RMCE-AU group (likelihood ratio  $\chi^2$  0.393,  $p=0.531$ )

#### **Course delivery, acceptability and satisfaction**

Course acceptability was measured via weekly feedback forms completed by each of the LLTTF participants who responded to five questions (see Charts 1 to 5). Results showed many 'neutral' responses when asked about the use of strategies in between sessions. The majority of respondents found the lessons helpful, learnt new skills, and expected to use their learning in their daily life. Using recommendation rates as an indicator, the most endorsed session was "Why Does Everything Always Go Wrong"; the least endorsed session was "I Can't Be Bothered Doing Anything".

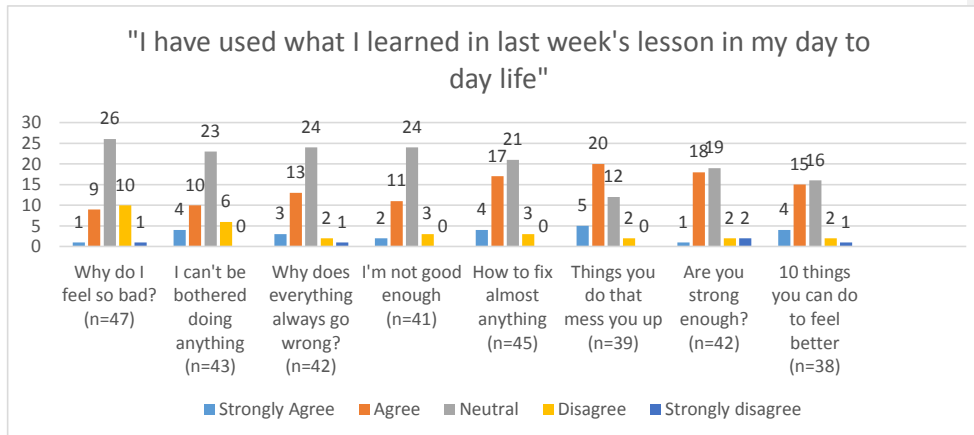


Chart 1: Pupil use of course strategies between sessions, per weekly class.

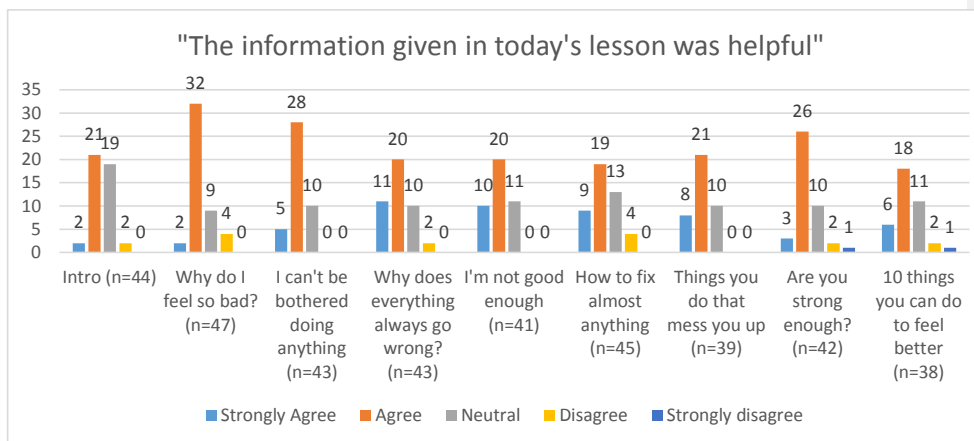


Chart 2: Pupil reports of helpfulness of course information, per weekly class.

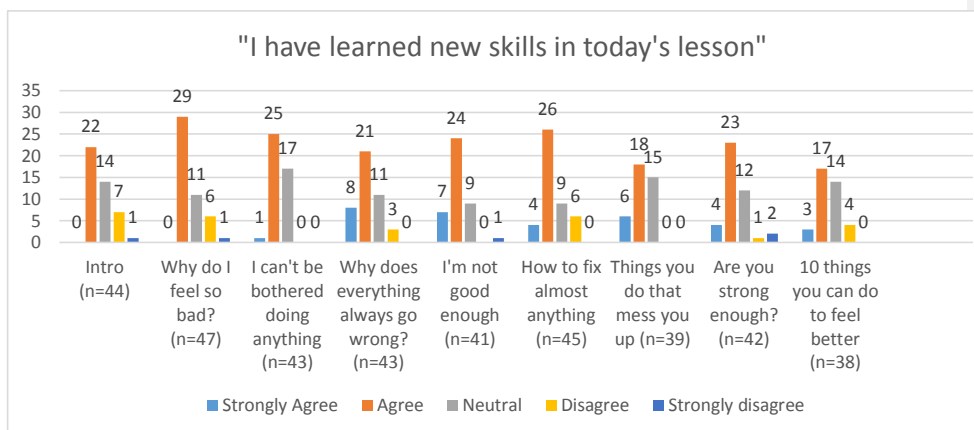


Chart 3: Pupil reports of new learning, per weekly class.

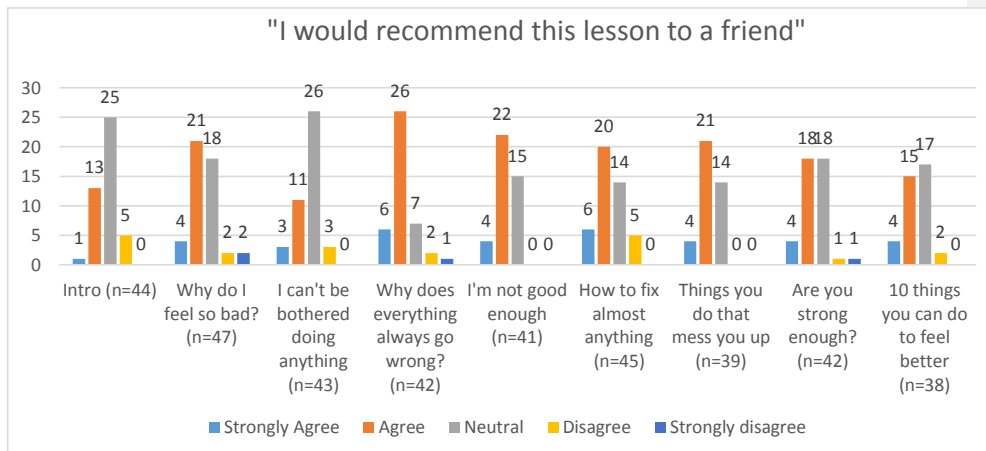


Chart 4: Pupil reports of recommending the lesson to a friend, per weekly class.

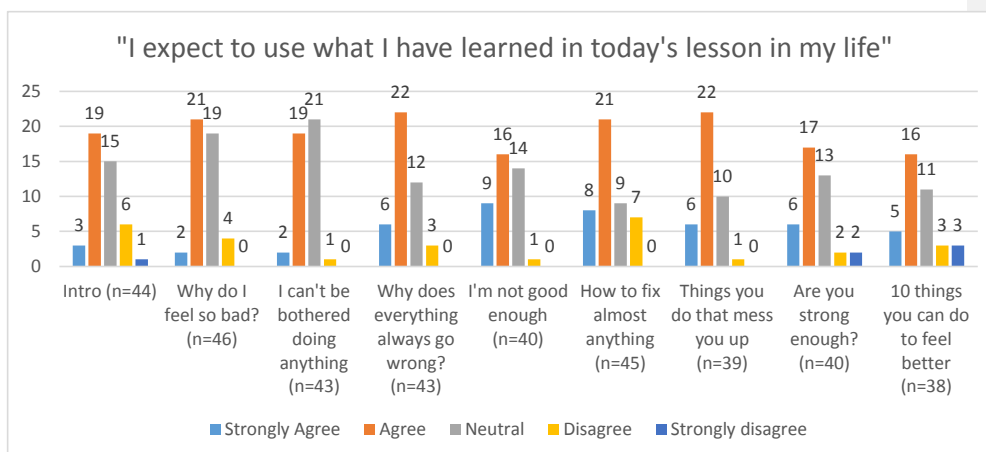


Chart 5: Pupil expectation to use materials in their life, per weekly class.

### Session attendance and dropout rates

Of all 52 consenting participants in the LLTF group, two dropped out due to a change in personal circumstance (n=1) and ensuing timetable clashes with the local college (n=1). Teachers reported that the majority of pupils attended all sessions although exact attendance numbers were not recorded due to practical issues.

### Fidelity

Fidelity was monitored weekly via self-rated forms completed by the teachers. Scores indicated that both teachers agreed that all classes largely covered the content relating to the delivered PowerPoint slides, that lessons stayed on topic and group discussion was facilitated throughout. Additional

feedback from teachers suggested instances where material was not covered due to time constraints: *"we ran out of time so I didn't get to "x" slide; "had no time for a 'WOW' walk"*. Direct feedback from teachers also suggested that material was delivered differently between classes, e.g. one teacher used the 'aeroplane' task to introduce problem solving (Session 5 - 'How to fix almost everything'), the other did not; one teacher asked the class to rip up unhelpful comments when portraying coping with negative thinking, the other did not (Session 4 - 'I'm not good enough'). These stylistic differences were likely due to the flexibility granted to deliverers of the programme during training, however such flexibility may have reduced fidelity for the purposes of this study.

### **Pupil qualitative feedback**

A semi-structured interview was conducted with five LLTTF participants at 3-month follow up. Feedback suggested that pupils found the LLTTF course helpful and understood its aim:

*P1: "It taught you to think of the more positive side of things rather than the negative side of stuff".*

*P2: "It had good ideas in it for helping people".*

#### **Usefulness:**

Feedback indicated the pupils had used strategies learned in the course since completion:

*P3: "Is it 'eating an elephant'? [LLTTF problem-solving analogy] Just, like, if something comes up and I'm worried about it, just break it down and it helps."*

*P2: "Like if I was upset, using things like counting to 10 and remembering better things."*

*P1: "Just like the positive side, coz, like, I get really nervous going into maths tests and I used the books for that."*

Further, they could see that they could use such strategies in the future:

*P1: "Like if you're older and that, and if you're working and getting stressed and worked up about it, like, you might remember stuff you'd done at school."*

**Setting:**

Pupils indicated that school was an appropriate setting to receive this material, and that the timing was suitable:

*P4: "You would hardly get anyone to do it [in the community]. More interesting if you do it in school rather than outside."*

*P4: "Don't know if people would care that much to take time out from your pals and see how they feel, if you feel confident and that...more likely to do it in school."*

*P1: "I think we did it at a good time coz people start to be worried now about big exams coming up."*

**Teacher delivery:**

Pupils identified issues relating to delivery by teachers:

*P5: "It was awkward. The fact that they would know everything about you afterwards."*

*P2: "[it would help] if they were less like a teacher and more like a normal teacher so you could feel like you could say more stuff in the class, coz if they're 'teachery' it's a bit uncomfortable."*

And issues relating to safety and confidentiality:

*P2: "I think doing it in a school was good but you should do it like outside of the class. Coz some of the stuff was a bit more personal and you don't want to discuss it with people you're not so close with."*

**Pupil recommendations:**

Pupils gave recommendations for future delivery, including greater use of activities, more engaging materials through various media, and a strengths-based focus:

*P2: "The books were a bit like, not that they were boring, but there was so much reading."*

*P3: "We did a poster; had to write all the words of what makes you happy - could have had more things like that."*

*P4: "I think there was too much PowerPoints. Found it quite boring. Too plain, would have quite liked videos."*

*P2: "Could be more like things to help with your confidence, coz like most of it's just helping if you're unhappy."*

**Relevance for adolescents:**

Feedback suggested the pupils thought that the course is relevant to their age group and developmental stage:

*P2: "I think everyone should do it. Coz, like, everyone might go through bad things...coz, like, when you're a teenager you're a bit more like all over the place kinda thing so it's better for everyone to do it, in case anything was to happen."*

*P4: "Teenagers are going to, like, need to work out how they feel and who they are and that, coz, like, adults have already been through that stage."*



## DISCUSSION

This study aimed to test the feasibility of a universally-delivered, mental health intervention in a Scottish secondary school. Key issues and findings are addressed below according to the study objectives.

**Objective 1: To explore consenting, recruitment and follow up rates within this setting.**

Consenting and recruitment rates were high (98%) in this sample demonstrating an appetite from both pupils and their parents to participate in this study. It should be noted that a teacher from the school introduced the study and there may have been feelings of obligation to participate. However, the voluntary nature of participation was explicitly emphasised to participants by the research team throughout the study to account for this.

**Objective 2: To test the ability to deliver teacher-led CBT-based classes in a secondary school setting.**

The course was delivered in nine weeks by two of the school's teachers trained in the approach. While teachers agreed that time pressures were an issue, results are encouraging and suggest it is possible for trained school teachers to deliver mental health interventions as 50 minute lessons, and the majority of pupils would be accepting of this provision. However, it should be noted that this school is a high-performing school and under 10% of the school roll are eligible for free school meals. The majority of participating pupils were white Scottish (89.6%) and lived in two-parent households (64.2%). Therefore, it is difficult to ascertain whether these results would generalise to poorer performing, ethnically diverse schools in more deprived areas.

**Objective 3: To test the ability to gather feedback information and administer psychometric questionnaires within a universal secondary school sample.**

This study achieved a high response rate of completed questionnaires (94.2% of consenting participants) at baseline. This reduced at follow up yet

remained at a reasonable level (81.2%), by which time two pupils had dropped out from the study due to change in circumstances. Data collection took place in the classroom and, notably, a proportion of questionnaires contained missing items. While participants were explicitly informed of the importance to maintain and respect their own and others' privacy, the completion of sensitive measures in a public classroom setting is not ideal, and may have impacted participant response styles. Nonetheless, these results demonstrate that it is feasible to administer psychometric measures within the school setting, and all outcome measures were acceptable for completion by the majority of this age group. Qualitative data was largely positive, and pupils provided insightful responses into the intervention's utility and relevance for their age group.

**Objective 4: To explore outcome measure characteristics with this population.**

Demographic information showed that a proportion of responding participants had a diagnosis of anxiety and/or depression (9.8%) in line with rates in the existing literature (Green et al. , 2005). However, it was interesting to compare this rate of diagnoses along with the sizeable sample of total participants who scored at 'clinical cut-off' in the SDQ at baseline (35%) and follow-up (32.9%). Further, a proportion of participants indicated low self-esteem at baseline (15.5%), had sought a form of help in the 6 months prior to study commencement (16.9%) and had taken at least one day off school due to worry or stress (18.9%).

These findings are particularly pertinent and may support the provision of mental health and emotional wellbeing initiatives within a school setting. Moreover, the discrepancy between those with a diagnosis (stipulated to be from a Doctor) and those who scored in the clinical range suggests that a proportion of individuals are experiencing emotional difficulties, but not at the level to seek professional help or get a diagnosis. Therefore, these results may indicate that this is a population who would perhaps particularly benefit from low-level early intervention or prevention approaches.

As this was a small pilot study, treatment effectiveness was not anticipated and, as expected, the intervention was not found to produce statistical improvements in scores. Interestingly, analysis indicated a statistically significant increase in reported difficulties on two domains in the treatment group (self-esteem and peer problems). It may be that the course has stimulated young people to try and address issues within their lives, which lead to peer problems. This is in line with other large-scale studies which have also shown a short-term increase in reporting of difficulties when undertaking a school-based intervention (Stallard et al., 2013).

While increased reporting of difficulties is undoubtedly a concerning outcome and cannot be ignored, it should be noted that the statistical change in scores lacked clinical significance. It could also be argued that there is a point in any treatment whereby increased reporting of difficulties is expected, and perhaps, invited. It would be unwise for any mental health intervention to aim for recipients to never encounter difficulties, but rather, normalise and foster acceptance of those experiences and explore coping mechanisms. Therefore, it could be that while some measures used in this study (SDQ, RSES) are sensitive to increased reporting of difficulties, others (LoC scale, GSES) are insensitive in identifying new ways of coping, as was conveyed qualitatively by pupils. This measurement issue is particularly salient for universal populations, the majority of whom may not come with clinical-level difficulties at the start of an intervention, and for interventions underpinned in CBT which, as a therapy, assumes a certain level of dysfunction in order to be effective.

Additionally, time pressures over the brief delivery duration (9 weeks) meant that teachers could not cover all material which calls into question treatment dosage. It appears that sessions need to be shortened and standardised, and discussions are underway to standardise this by providing online presentations of the resource content. It could also be that over a longer delivery period response styles may have evolved further and provided additional time for new skills to be internalised.

### **Objective 5: Pilot a controlled design**

In line with recommendations from the literature (Stallard, 2013; Durlak et al., 2011), this study aimed to pilot a robust methodological design. While it was positive that the use of controls could feasibly be achieved due to large year group numbers, methodological challenges of using in-school controls remain. It was not possible to ensure that 'contamination' between treatment groups did not take place, and so those in the control arm may have heard about LLTTF. Further, one of the LLTTF teachers was also the teacher for one of the RMCE-AU classes. Clearly, this is not optimal and future studies would benefit from whole-school recruitment and randomisation with appropriately matched populations to reduce these effects.

Further, while this study sought to maintain fidelity through the use of self-rated forms, it would have been ideal for LLTTF-trained observers to objectively assess course fidelity across the two treatment classes. The course training encourages creative delivery and flexibility within each module which appealed to the participating teachers, however, for research purposes this potentially weakened fidelity and any effects that could be attributed to treatment rather than to individual teacher styles.

### **Limitations**

Key limitations of this study relate to the methodological issues whereby treatment fidelity and contamination were poorly controlled, and randomisation procedures were lacking. Not enough is known about what was happening in the 'RMCE as usual' classes, or in the wider school and home lives of participants in both arms across the study period. Although outcome measures were successfully administered, their results when combined with qualitative feedback suggest that their sensitivity to the mechanisms of change is somewhat limited. Additionally, unexpected timetabling issues meant that some pupils were absent on days when data was collected resulting in missing data which may have influenced results.

## Recommendations

Based on these findings, it is recommended that future similar studies use a mixed methodology including quantitative and qualitative aspects, and a longer term follow up. Course fidelity should be objective and ideally, future controlled studies could be at the matched-school level to minimise any contamination or bias effects. It is crucial that, should school based interventions be implemented on a wider scale, they are supported by evidence and that sensitive outcome measures with strong psychometric properties are firstly piloted with the target population. Given the lack of objective improvement based on measures used in this pilot study, it is recommended that culturally-sensitive, validated tools able to measure increases in 'resilience', or more widely 'wellbeing', are developed and utilised, rather than relying on measures that merely report decreases in difficulty which is a subtly different objective. This area would benefit from research that focusses not only on treatment effectiveness but also the mechanisms of change. Further, research that focusses on teachers' experiences in parallel would provide a valuable added perspective to the current literature base. Comparisons of treatment modality and across diverse school populations would also be helpful in order to guide accurate measurement and appropriate intervention design.

## Conclusions and implications

This study was successful in its collaboration between research and school staff. Promising results were found in the feasibility of delivering a universal, CBT intervention in a Scottish secondary school. Non-significant findings were found on outcome measures used, whereas qualitative feedback was positive and indicated pupils found the intervention helpful. High consenting and reasonable recruitment rates indicated an appetite and willingness to participate from both parents, pupils and school staff, and recommendations relating to the intervention content and delivery will be incorporated. This study is in line with current governmental policies and legislation. It speaks to topical service level issues relating to integration between education and health sectors and the use of training and consultation models. Results raise questions as to the wider roll-out of school based interventions while quantitative findings lack statistical

significance. This therefore warrants careful monitoring of quantitative and qualitative outcomes should school-based interventions be trialled in the future, while considering any ethical issues of such implementation. The methodological issues highlighted in this study will hopefully inform any future school-based study conducted in Scotland and further afield.

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## CHAPTER THREE: APPENDICES

### APPENDIX 1: BMJ Author Guidelines

#### Title page

The title page must contain the following information:

Title of the article. Full name, postal address, e-mail and telephone number of the corresponding author. Full name, department, institution, city and country of all co-authors. Up to five keywords relevant to the content of your manuscript. This will enable us to identify the most suitable reviewers for your manuscript. Word count, excluding title page, abstract, references, figures and tables.

#### Manuscript format

The manuscript must be submitted as a Word document. PDF is not accepted. The manuscript should be presented in the following order:

Title page. Abstract, or a summary for case reports (Note: references should not be included in abstracts or summaries). Main text separated under appropriate headings and subheadings using the following hierarchy: BOLD CAPS, bold lower case, Plain text, Italics. Tables should be in Word format and placed in the main text where the table is first cited. Tables must be cited in the main text in numerical order. Acknowledgments, Competing Interests, Funding and all other required statements. Reference list.

#### Style

Abbreviations and symbols must be standard. SI units should be used throughout, except for blood pressure values which should be reported in mm Hg.

Whenever possible, drugs should be given their approved generic name. Where a proprietary (brand) name is used, it should begin with a capital letter.

Acronyms should be used sparingly and fully explained when first used.

#### Figures/illustrations

Images must be uploaded as separate files. All images must be cited within the main text in numerical order and legends should be provided at the end of the manuscript.

#### Tables

Tables should be in Word format and placed in the main text where the table is first cited. Tables must be cited in the main text in numerical order. Please note that tables embedded as Excel files within the manuscript are NOT accepted. Tables in Excel should be copied and pasted into the manuscript Word file.

Tables should be self-explanatory and the data they contain must not be duplicated in the text or figures. Any tables submitted that are longer/larger than 2 pages will be published as online only supplementary material.

## References

Authors are responsible for the accuracy of cited references and these should be checked before the manuscript is submitted.

### Preparing the reference list.

Only papers published or in press should be included in the reference list. Personal communications or unpublished data must be cited in parentheses in the text with the name(s) of the source(s) and the year. Authors should request permission from the source to cite unpublished data.

### BMJ reference style

Use one space only between words up to the year and then no spaces. The journal title should be in italic and abbreviated according to the style of Medline. If the journal is not listed in Medline then it should be written out in full.

### Journal article

Koziol-McLain J, Brand D, Morgan D, et al. Measuring injury risk factors: question reliability in a statewide sample. *Inj Prev* 2000;6:148-50.

### Chapter in book

Nagin D. General deterrence: a review of the empirical evidence. In: Blumstein A, Cohen J, Nagin D, eds. *Deterrence and Incapacitation: Estimating the Effects of Criminal Sanctions on Crime Rates*. Washington, DC: National Academy of Sciences 1978:95-139.

### Book

Howland J. *Preventing Automobile Injury: New Findings From Evaluative Research*. Dover, MA: Auburn House Publishing Company 1988:163-96.

### Abstract/supplement

Roxburgh J, Cooke RA, Deverall P, et al. Haemodynamic function of the carbomedics bileaflet prosthesis [abstract]. *Br Heart J* 1995;73(Suppl 2): P37.

### Electronic citations

Websites are referenced with their URL and access date, and as much other information as is available. Access date is important as websites can be updated and URLs change. The "date accessed" can be later than the acceptance date of the paper, and it can be just the month accessed.

### Electronic journal articles

Morse SS. Factors in the emergency of infectious diseases. *Emerg Infect Dis* 1995 Jan-Mar;1(1). [www.cdc.gov/nciod/EID/vol1no1/morse.htm](http://www.cdc.gov/nciod/EID/vol1no1/morse.htm) (accessed 5 Jun 1998).

### Electronic letters

Bloggs J. Title of letter. *Journal name* Online [eLetter] Date of publication. url eg: Krishnamoorthy KM, Dash PK. Novel approach to transseptal puncture. *Heart Online* [eLetter] 18 September 2001. <http://heart.bmj.com/cgi/eletters/86/5/e11#EL1>

### How to cite articles with a DOI before they have appeared in print

Alwick K, Vronken M, de Mos T, et al. Cardiac risk factors: prospective cohort study. *Ann Rheum Dis* Published Online First: 5 February 2004.  
doi:10.1136/ard.2003.001234

### How to cite articles with a DOI once they have appeared in print

Vole P, Smith H, Brown N, et al. Treatments for malaria: randomised controlled trial. *Ann Rheum Dis* 2003;327:765-8 doi:10.1136/ard.2003.001234 [published Online First: 5 February 2002].

### Permissions

If you are using any material e.g. figures, tables or videos that have already been published elsewhere, you must obtain permission to reuse them from the copyright holder (this may be the publisher rather than the author) and include any required permission statements in the figure legends. This includes your own previously published material, if you are not the copyright holder.

It is the author's responsibility to secure all permissions prior to publication.

### Statistics

Statistical analyses must explain the methods used.

### Research reporting guidelines

Authors are encouraged to use the relevant research reporting guidelines for the study type provided by the EQUATOR Network. This will ensure that you provide enough information for editors, peer reviewers and readers to understand how the research was performed and to judge whether the findings are likely to be reliable.

The key reporting guidelines are:

Randomised controlled trials (RCTs): [CONSORT guidelines](#)

Systematic reviews and meta-analyses: [PRISMA guidelines](#) and [MOOSE guidelines](#)

Observational studies in epidemiology: [STROBE guidelines](#) and [MOOSE guidelines](#)

Diagnostic accuracy studies: [STARD guidelines](#)

Quality improvement studies: [SQUIRE guidelines](#)

## APPENDIX 2: Participant Information Sheet



St Andrew's and St Bride's High school are taking part in a pilot study to trial the Living Life To the Full course as part of a research project run by researchers at the University of Glasgow.

***Project title: Evaluation of a life skills course in a Scottish secondary school setting: a pilot feasibility study.***

We would like to invite you to take part in this study. 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. Feel free to discuss with family and friends if you wish. Please contact us if there is anything that is not clear or if you would like more information (see 'who to contact' section).

### ***What is the purpose of the study?***

Living Life to the Full (LLTTF) is a life skills course teaching skills to cope with life stresses. LLTTF has been recently developed for teenagers but has not yet been researched in Scotland.

We are interested to find out whether this LLTTF course would work in a secondary school setting as part of RMCE lessons. In particular, whether it would have any impact on young people's coping skills and overall wellbeing.

### ***How will the study take place?***

Four third year RMCE classes in St Andrew's and St Bride's High School are going to take part in this study - two classes will have RMCE as usual, and two classes will receive LLTTF.

### ***How long will this take?***

The LLTTF classes is eight classes - one class a week for eight weeks.

### ***What exactly is LLTTF?***

LLTTF provides information on life skills. Topics covered include problem solving, tackling low confidence, boosting mood and challenging negative thinking. It has been shown to be helpful for adults in the UK. The version we will use has been researched with teenagers in Canada, but not yet in Scotland.

### ***Why have I been asked to take part?***

The version of LLTTF we will use is designed for people your age and addresses common themes in adolescence. Taking part in the research will help us find out whether LLTTF is helpful for young people in school settings.

### ***What am I consenting to?***

The LLTTF classes will be starting in September 2015. If you consent, you will be expected to attend those as normal. All four classes (the two LLTTF classes and

two RMCE-as-usual classes) will be asked to complete additional research questionnaires.

We are asking for your consent to take part in this study by attending your RMCE class and completing questionnaires.

If you agree to participate, you will be asked to:

- Attend your RMCE class as normal (we do not know yet whether you would be in LLTTF or RMCE-as-usual class; this is randomly decided by the timetable).
- Complete the consent form (attached) during a lesson when the researchers come to the school.
- Complete a sheet asking for general information, e.g. your gender, age, and whether you've received any specific health and wellbeing support before.
- Complete four questionnaires that ask about the different ways people cope with everyday problems, self-esteem and overall wellbeing. You'll complete these questionnaires twice: once before the classes start, and again at the end when the classes have finished.
- Agree to be contacted in the future to possibly take part in a one-off group discussion with the researcher if you were in the LLTTF classes.

If you consent, you are saying that you are aware of what you are taking part in. All information will be made anonymous.

#### ***What are the next steps?***

Those in the LLTTF classes will receive the classes at the end of September 2015 until the beginning of December 2015. Access to the LLTTF materials will be available to pupils from all RMCE classes at the end of the study (about 10 weeks later).

#### ***Parental consent?***

Your parents also need to agree to you taking part. Please give your parents / guardians the accompanying sheets and ensure that they complete and return the consent form to indicate whether or not they give their consent.

#### ***Do I have to take part?***

You do not have to take part in this study. If you consent you are still free to change your mind at any time, without giving a reason. If you do not consent you will be placed in another class not related to this study and your education will not be affected.

#### ***Are there any potential benefits of taking part in this study?***

By taking part in this study, you are helping us find out more about whether these classes are helpful for people your age, and why. Your feedback will also help us make any changes so it is more suitable for other teenagers. We need to do studies like these to see if this work is helpful, and so other young people may benefit from your taking part in this study.



***Are there any disadvantages of taking part in this study?***

The research questionnaires will take up to 15 minutes to complete. The questionnaires ask about your emotional wellbeing and thoughts about yourself. The questionnaires are widely used and may be thought provoking.

***Getting extra support***

As usual in school, further support is available via your Pupil Support Teacher who is aware this study is happening. Telephone support services such as The Samaritans or ChildLine are also available if you are feeling distressed or if you are struggling.

***Will my taking part in the study be kept confidential?***

The information you give is entirely confidential and will not be disclosed to anyone outside the research team without your permission.

All the information collected will be stored securely according to the Data Protection Act 1998.

***What will happen to the results of the research study?***

We will look at all responses to questionnaires and the feedback to assess how effective the LLTTF course is. We plan to present the results of the study as a scientific paper. Also, a copy of the results will be sent to your school. No individuals will be identified in the research publications which will contain only anonymous information.

***Who is organising and funding the research?***

The study is organised by the University of Glasgow and is part of a research thesis for the Doctorate in Clinical Psychology course.

***Who has reviewed the study?***

This study has been reviewed and approved by the College of Medical, Veterinary & Life Sciences Ethics Committee at the University of Glasgow and South Lanarkshire Council Education Resources Department.

***Who do I contact for further information?***

If you'd like to know more about the study, please make contact with:

- Lyndsay Malley, Principal of Pupil Support via the school office,
- Karen Mackenzie, University of Glasgow, by email: [k.mackenzie.2@research.gla.ac.uk](mailto:k.mackenzie.2@research.gla.ac.uk), or
- Professor Chris Williams, University of Glasgow, by email: [Chris.williams@glasgow.ac.uk](mailto:Chris.williams@glasgow.ac.uk)

Thank you for considering taking part in this research.

APPENDIX 3: Participant consent form



*Project title: Evaluation of a life skills course in a Scottish secondary school setting: a pilot feasibility study.*

**Consent Form**

I confirm that I have read and understand the participant information for the above study and have had the opportunity to contact the research team to ask questions.

Yes  No

I understand that my participation to take part in this study is voluntary and that I am free to withdraw at any time, without giving any reason.

Yes  No

I agree to take part in the above study by attending my class (either RMCE-as-usual or LLTTF)

Yes  No

I agree to complete the questionnaires as part of this study.

Yes  No

I agree to be contacted in the future to take part in a one-off group discussion about the study

Yes  No

Signed:

Date:

## APPENDIX 4 - Parent information sheet



Dear Parent / Guardian,

Please take the time to read the following information carefully. Parental consent is required for pupils to be able to participate in the study outlined below. Therefore, please complete and return the 'Consent Form' form at the end to indicate whether or not you consent for your child to take part in this study. Contact us anytime if there is anything that is not clear or if you would like more information (see 'who to contact' section).

***Project title: Evaluation of a life skills course in a Scottish secondary school setting: a pilot feasibility study.***

St Andrew's and St Bride's High school are taking part in a pilot study to trial the Living Life To the Full course as part of a research project run by researchers at the University of Glasgow. The classes are already routinely available for some pupils in the school, and we are interested in seeing whether the content is more widely helpful.

### ***What is the purpose of the study?***

Health and Wellbeing is a core component of the school curriculum and is delivered during RMCE. Living Life to the Full (LLTTF) is a life skills course teaching skills to cope with life stresses. LLTTF has been recently developed for teenagers and is delivered in community settings, and this is the first time it is being delivered and evaluated in a Scottish school.

This study will help us find out whether LLTTF may be useful for young people and will help future research in the area.

### ***How will the study take place?***

Four third year RMCE classes in St Andrew's and St Bride's High School are going to take part in this study - two classes will have RMCE as usual, and two classes will receive LLTTF. At the end of the study, the LLTTF resources will be available for all pupils to access.

### ***How long will this take?***

The LLTTF course is eight classes - one class a week for eight weeks.

### ***What will my child have to do?***

If your child takes part, your child will be expected to attend their RMCE lesson as usual. Pupils in the LLTTF class will be asked for their opinions at the end of each class - no consent is required for this part as it is routine class feedback.

Pupils from all four classes who take part in the study will be asked to complete short questionnaires at the start and the end of the eight classes.

They will be asked to:

- Attend their RMCE class as normal (either the LLTTF class or RMCE as usual - this will be randomly decided by timetabling).
- Complete their own consent form during a lesson when the researchers come to the school.
- Complete a sheet asking for general information e.g. gender, age, and whether they have had any other health or wellbeing support.
- Complete four questionnaires that ask about the different ways people cope with everyday problems, their self-esteem and overall wellbeing. They will complete these questionnaires twice: once before the classes start, and again when the classes have finished.
- Agree to be contacted in the future to possibly take part in a one-off group discussion with the researcher if they were in the LLTTF class.

All information will be made anonymous. Only the impact of the course on the whole class will be summarised. No individual results will be made available.

***What exactly is LLTTF?***

Living Life to the Full (LLTTF) provides information on life skills. Topics covered include problem solving, tackling low confidence, boosting mood and challenging negative thinking. It has been shown to be helpful for adults in the UK. The version of the course we will use has been designed for young people, and will touch on common themes in adolescence e.g. peer pressure, exams. It has been researched before in Canada but not in Scotland. The course has been used successfully in the school since 2013 but has not been evaluated yet.

***What do I need to do?***

The classes will be starting in September 2015. Please complete and return the attached consent form to indicate whether or not you consent for your child to participate. (N.B. Your child also has a separate consent form that they complete if they consent to take part in the study.)

***What are the next steps?***

Those in the LLTTF course will receive the classes at the end of September 2015 until the beginning of December 2015. Access to the LLTTF materials will be available to all pupils at the end of the study (10 weeks later). We do not know at this point who will receive which class - this will be randomly decided by timetabling at the beginning of next year.

***Does your child have to take part in the research?***

Your child does not have to take part in this study. If your child decides to participate, they are still free to change their mind at any time, without giving a reason. If they do not wish to take part, this will not affect any education they receive and they will be placed in a similar class not related to the study.

***Are there any potential benefits of taking part in this study?***

By taking part, your child is helping us find out more about whether these classes are helpful for young people, and why. The feedback will help inform

how the classes are delivered in the school. We need to do studies like these to see if this work is helpful, and so other young people may benefit from your child taking part in this study.

***Are there any disadvantages of taking part in this study?***

The research questionnaires will take up to 15 minutes to complete. The questionnaires ask about your child's emotional wellbeing and thoughts about themselves. The questionnaires are widely used and may be thought provoking.

***Getting extra support***

As usual in school, further support is available via your child's Pupil Support Teacher. Telephone support services such as The Samaritans or ChildLine are also available if your child is feeling distressed or struggling.

***Will my child's taking part in the study be kept confidential?***

The information your child gives is entirely confidential and will not be disclosed to anyone outside the immediate research team without their permission.

All the information collected will be stored securely according to the Data Protection Act 1998.

***What will happen to the results of the research study?***

We will look at all responses to questionnaires and the feedback to assess how effective the LLTF course is. We intend to present the results of the study as a scientific paper. Additionally, a copy of the results will be sent to the school and you can access them if you wish. No individuals will be identified in the research publications which will contain only anonymous information.

***Who is organising and funding the research?***

The study is organised by the University of Glasgow and is part of a research thesis for the Doctorate in Clinical Psychology course.

***Who has reviewed the study?***

This study has been reviewed and approved by the College of Medical, Veterinary & Life Sciences Ethics Committee at the University of Glasgow and South Lanarkshire Council Education Resources Department.

***Who do I contact for further information?***

If you'd like to know more about the study, please make contact with:

- Lyndsay Malley, Principal of Pupil Support via the school office at St Andrew's and St Bride's High School.
- Karen Mackenzie, University of Glasgow, by email: [k.mackenzie.2@research.gla.ac.uk](mailto:k.mackenzie.2@research.gla.ac.uk)
- Professor Chris Williams, University of Glasgow, by email: [chris.williams@glasgow.ac.uk](mailto:chris.williams@glasgow.ac.uk)

Thank you for your time.

APPENDIX 5: Parent consent form



*Project title: Evaluation of a life skills course in a Scottish secondary school setting: a pilot feasibility study.*

**Consent Form**

I **give consent** for my child to take part in the above study.

I **do not** wish my child to take part in the above study.

Child's name: \_\_\_\_\_

Child's Class: \_\_\_\_\_

Parent / guardian name: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

APPENDIX 6: Weekly feedback form for pupils in the intervention group



(Please circle your response).

1). *I have used what I learned in last week's lesson in my day-to-day life.*

Strongly agree                  Agree                  Neutral                  Disagree                  Strongly disagree

2). *The information given in today's lesson was helpful.*

Strongly agree                  Agree                  Neutral                  Disagree                  Strongly disagree

3). *I have learned new skills in today's lesson.*

Strongly agree                  Agree                  Neutral                  Disagree                  Strongly disagree

4). *I would recommend today's lesson to a friend.*

Strongly agree                  Agree                  Neutral                  Disagree                  Strongly disagree

5). *I expect to use what I have learned in today's lesson in my life.*

Strongly agree                  Agree                  Neutral                  Disagree                  Strongly disagree

6). What was the most useful part of the lesson?

7). What was the least useful part of the lesson?

APPENDIX 7: Teacher fidelity form



Please circle your response)

1. Every slide was presented in this lesson.

*Strongly agree*    *Agree*    *Neutral*    *Disagree*    *Strongly disagree*

2. All content relating to each slide was covered.

*Strongly agree*    *Agree*    *Neutral*    *Disagree*    *Strongly disagree*

3. The lesson stayed on topic.

*Strongly agree*    *Agree*    *Neutral*    *Disagree*    *Strongly disagree*

4. Group discussion was facilitated about the materials.

*Strongly agree*    *Agree*    *Neutral*    *Disagree*    *Strongly disagree*

5. The material was presented clearly and in an engaging manner.

*Strongly agree*    *Agree*    *Neutral*    *Disagree*    *Strongly disagree*

Any additional comments about delivering the LLTTF materials for this lesson:

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APPENDIX 8: Study assessment pack for participants



## STUDY FORMS

Date of birth (*month and year only*):   /

Class: \_\_\_\_\_

Gender: Male  Female

## You and your family

Please tick the box that best describes you and your parents' ethnicity (cultural group):

|                                 | Me                       | My mother                | My father                |
|---------------------------------|--------------------------|--------------------------|--------------------------|
| White (Scottish)                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| White (other; please say _____) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Black African                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Black Caribbean                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Western European                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Eastern European                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Indian                          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Pakistani                       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Chinese                         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Mixed race                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Other (please say _____)        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

### Who do you live with?

- My mum & dad
- My mum and her partner / husband
- My dad and his partner / wife
- My mum
- My dad
- Relatives / friends
- Other (please describe \_\_\_\_\_)

Over the next few pages are questions about ways you think about yourself and managing day-to-day life.

There are **no right or wrong answers.**

Please read the statements, and select the answer that feels most right for you.

**Responses will be made anonymous.**

| READ STATEMENT |   | CIRCLE YOUR ANSWER |             |                 |                |
|----------------|---|--------------------|-------------|-----------------|----------------|
| 1              | On the whole, I am satisfied with myself.   | Strongly Disagree  | Disagree    | Agree           | Strongly Agree |
| 2              | At times, I think I am no good at all.  | Strongly Disagree  | Disagree    | Agree           | Strongly Agree |
| 3              | I feel that I have a number of good qualities.                                      | Strongly Disagree  | Disagree    | Agree           | Strongly Agree |
| 4              | I am able to do things as well as most other people.                                | Strongly Disagree  | Disagree    | Agree           | Strongly Agree |
| 5              | I feel I do not have much to be proud of.   | Strongly Disagree  | Disagree    | Agree           | Strongly Agree |
|                |   |                    |             |                 |                |
| 6              | I certainly feel useless at times.  | Strongly Disagree  | Disagree    | Agree           | Strongly Agree |
| 7              | I feel that I'm a person of worth, at least on an equal level with others.          | Strongly Disagree  | Disagree    | Agree           | Strongly Agree |
| 8              | I wish I could have more respect for myself.  | Strongly Disagree  | Disagree    | Agree           | Strongly Agree |
| 9              | All in all, I am inclined to feel that I am a failure.                              | Strongly Disagree  | Disagree    | Agree           | Strongly Agree |
| 10             | I take a positive attitude toward myself.   | Strongly Disagree  | Disagree    | Agree           | Strongly Agree |
|                |   |                    |             |                 |                |
| 11             | I can always manage to solve difficult problems if I try hard enough.               | Not at all true    | Barely true | Moderately true | Exactly true   |
| 12             | If someone goes against me, I can find ways to get what I want.                     | Not at all true    | Barely true | Moderately true | Exactly true   |
| 13             | It is easy for me to stick to my aims and achieve my goals.                         | Not at all true    | Barely true | Moderately true | Exactly true   |
| 14             | I am confident that I could deal well with unexpected events.                       | Not at all true    | Barely true | Moderately true | Exactly true   |
| 15             | Thanks to my quick thinking, I know how to handle unexpected situations.            | Not at all true    | Barely true | Moderately true | Exactly true   |
|                |   |                    |             |                 |                |
| 16             | I can solve most problems if I put in the necessary effort.                         | Not at all true    | Barely true | Moderately true | Exactly true   |
| 17             | I can stay calm when facing difficulties because I can rely on my coping abilities. | Not at all true    | Barely true | Moderately true | Exactly true   |
| 18             | When I am faced with a problem, I can usually find several solutions.               | Not at all true    | Barely true | Moderately true | Exactly true   |
| 19             | If I am in a dilemma, I can usually think of something to do.                       | Not at all true    | Barely true | Moderately true | Exactly true   |
| 20             | No matter what comes my way, I'm usually able to handle it.                         | Not at all true    | Barely true | Moderately true | Exactly true   |

|       |  |     |    |
|-------|--|-----|----|
| 21    | Do you believe that most problems will solve themselves if you just don't mess with them?                        | Yes | No |
| 22    | Do you believe that you can stop yourself from catching a cold?  | Yes | No |
| 23    | Are some people just born lucky?   | Yes | No |
| 24    | Most of the time, do you feel that getting good grades meant a great deal to you?                                | Yes | No |
| 25    | Are you often blamed for things that just aren't your fault?   | Yes | No |
| <hr/> |  |     |    |
| 26    | Do you believe that if somebody studies hard enough he or she can pass any subject?                              | Yes | No |
| 27    | Do you feel that most of the time it doesn't pay to try hard because things never turn out right anyway?         | Yes | No |
| 28    | Do you feel that if things start out well in the morning that it's going to be a good day no matter what you do? | Yes | No |
| 29    | Do you feel that most of the time parents listen to what their children have to say?                             | Yes | No |
| 30    | Do you believe that wishing can make good things happen?   | Yes | No |
| <hr/> |  |     |    |
| 31    | When you get punished does it usually seem it's for no good reason at all?                                       | Yes | No |
| 32    | Most of the time, do you find it hard to change a friend's mind or opinion?                                      | Yes | No |
| 33    | Do you think that cheering, more than luck, helps a team to win?   | Yes | No |
| 34    | Do you feel that it is nearly impossible to change your parent's mind about anything?                            | Yes | No |
| 35    | Do you believe that parents should allow children to make most of their own decisions?                           | Yes | No |
| <hr/> |  |     |    |
| 36    | Do you feel that when you do something wrong there's very little you can do to make it right?                    | Yes | No |
| 37    | Do you believe that most people are just born good at sports?  | Yes | No |
| 38    | Are most of the other people your age stronger than you are?   | Yes | No |
| 39    | Do you feel that one of the best ways to handle most problems is just not to think about them?                   | Yes | No |
| 40    | Do you feel that you have a lot of choice in deciding who your friends are?                                      | Yes | No |
| <hr/> |  |     |    |
| 41    | If you find a four leaf clover, do you believe that it might bring you good luck?                                | Yes | No |
| 42    | Do you often feel that whether or not you do your homework has much to do with what kind of grades you get?      | Yes | No |
| 43    | Do you feel that when a person your age is angry at you, there's little you can do to stop him or her?           | Yes | No |
| 44    | Have you ever had a good luck charm?   | Yes | No |

|    |  |     |    |
|----|--|-----|----|
| 45 | Do you believe that whether or not people like you depends on how you act?   | Yes | No |
|    |  |     |    |
| 46 | Do your parents usually help you if you ask them to?   | Yes | No |
| 47 | Have you felt that when people are angry with you it is usually for no reason at all?  | Yes | No |
| 48 | Most of the time, do you feel that you can change what might happen tomorrow by what you do today?                               | Yes | No |
| 49 | Do you believe that when bad things are going to happen they just are going to happen no matter what you try to do to stop them? | Yes | No |
| 50 | Do you think that people can get their own way if they just keep trying?   | Yes | No |
|    |  |     |    |
| 51 | Most of the time, do you find it useless to try to get your own way at home?   | Yes | No |
| 52 | Do you feel that when good things happen they happen because of hard work?   | Yes | No |
| 53 | Do you feel that when somebody your age wants to be your enemy there's little you can do to change matters?                      | Yes | No |
| 54 | Do you feel that it's easy to get friends to do what you want them to do?  | Yes | No |
| 55 | Do you usually feel that you have little to say about what you get to eat at home?   | Yes | No |
|    |  |     |    |
| 56 | Do you feel that when someone doesn't like you there's little you can do about it?   | Yes | No |
| 57 | Do you usually feel that it is almost useless to try in school because most other children are just plain smarter than you are?  | Yes | No |
| 58 | Are you the kind of person who believes that planning ahead makes things turn out better?  | Yes | No |
| 59 | Most of the time do you feel that you have little to say about what your family decides to do?                                   | Yes | No |
| 60 | Do you think it's better to be smart than to be lucky?   | Yes | No |

|    | READ STATEMENT  | TICK YOUR ANSWER |               |                |
|----|---|------------------|---------------|----------------|
|    |   | Not true         | Somewhat true | Certainly true |
| 61 | I try to be nice to other people. I care about their feelings.        |                  |               |                |
| 62 | I am restless. I cannot stay still for long.                          |                  |               |                |
| 63 | I get a lot of headaches, stomach-aches or sickness.                  |                  |               |                |
| 64 | I usually share with others (games, pens, food, etc.).                |                  |               |                |
| 65 | I get very angry and often lose my temper.                            |                  |               |                |
|    |   |                  |               |                |
| 66 | I am usually on my own. I generally play alone or keep to myself.     |                  |               |                |
| 67 | I usually do as I am told.  |                  |               |                |
| 68 | I worry a lot.  |                  |               |                |
| 69 | I am helpful if someone is hurt, upset or feeling ill.                |                  |               |                |
| 70 | I am constantly fidgeting or squirming.                               |                  |               |                |
|    |   |                  |               |                |
| 71 | I have one good friend or more.                                       |                  |               |                |
| 72 | I fight a lot. I can make other people do what I want.                |                  |               |                |
| 73 | I am often unhappy, down-hearted or tearful.                          |                  |               |                |
| 74 | Other people my age generally like me.                                |                  |               |                |
| 75 | I am easily distracted. I find it difficult to concentrate.           |                  |               |                |
|    |   |                  |               |                |
| 76 | I am nervous in new situations. I easily lose confidence.             |                  |               |                |
| 77 | I am kind to younger children.  |                  |               |                |
| 78 | I am often accused of lying or cheating.                              |                  |               |                |
| 79 | Other children or young people pick on me or bully me.                |                  |               |                |
| 80 | I often volunteer to help others (parents, teachers, children, etc.). |                  |               |                |
|    |   |                  |               |                |
| 81 | I think before I do things.   |                  |               |                |
| 82 | I take things that are not mine from home, school or elsewhere.       |                  |               |                |
| 83 | I get on better with adults than with people my own age.              |                  |               |                |
| 84 | I have many fears. I am easily scared.                                |                  |               |                |
| 85 | I finish the work I am doing. My attention is good.                   |                  |               |                |

86 -Overall, do you think you have difficulties in one or more of the following areas  
(please circle):

|   |    |                          |                             |                           |
|---|----|--------------------------|-----------------------------|---------------------------|
| EMOTIONS                                  | No | Yes – Minor difficulties | Yes – Definite difficulties | Yes – severe difficulties |
| CONCENTRATION                             | No | Yes – Minor difficulties | Yes – Definite difficulties | Yes – severe difficulties |
| BEHAVIOUR                                 | No | Yes – Minor difficulties | Yes – Definite difficulties | Yes – severe difficulties |
| BEING ABLE TO GET ALONG WITH OTHER PEOPLE | No | Yes – Minor difficulties | Yes – Definite difficulties | Yes – severe difficulties |

If you have answered 'yes', please answer the following questions about these difficulties.

If you have answered 'no', skip to question 91.

87 - How long have these difficulties been present? (Please circle).

|                   |              |               |             |
|-------------------|--------------|---------------|-------------|
| Less than a month | 1 - 5 months | 6 - 12 months | Over a year |
|-------------------|--------------|---------------|-------------|

88 - Do the difficulties upset or distress you? (Please circle).

|            |               |             |              |
|------------|---------------|-------------|--------------|
| Not at all | Only a little | Quite a lot | A great deal |
|------------|---------------|-------------|--------------|

89 - Do the difficulties interfere with your everyday life in the following areas?  
(Please tick)

|                    |            |               |             |              |
|--------------------|------------|---------------|-------------|--------------|
|                    | Not at all | Only a little | Quite a lot | A great deal |
| HOME LIFE          |            |               |             |              |
| FRIENDSHIPS        |            |               |             |              |
| CLASSROOM LEARNING |            |               |             |              |
| LEISURE ACTIVITIES |            |               |             |              |

90 - Do the difficulties make it harder for those around you (parents, teachers, friends, Etc.)?

(Please circle)

|            |               |             |              |
|------------|---------------|-------------|--------------|
| Not at all | Only a little | Quite a lot | A great deal |
|------------|---------------|-------------|--------------|

91 - Has a doctor ever told you that you have depression? Yes   
No

92 - Has a doctor every told you that you have anxiety? Yes   
No

93 - Are you taking any medication for anxiety of depression? Yes   
No

94 - Have you had any days off school in the last 6 months? Yes   
No

If yes, how many? \_\_\_\_\_

95 - How many of these days were due to being worried or unhappy or stressed?  
\_\_\_\_\_

96 - Have you seen anyone about problems such as worry or unhappiness or stress in the last 6 months?  
Yes  No

If yes, please say who you have seen out of the options below. Write the amount of times you have seen this person:

|  |  |
|--|--|
| GP   |  |
| School nurse                                     |  |
| School teacher                                   |  |
| Child & Adolescent mental health service (CAMHS) |  |
| Social worker                                    |  |
| Psychologist                                     |  |
| Someone else (please say who _____)              |  |

**THANK YOU VERY MUCH FOR FILLING IN THESE  
FORMS FOR THE RESEARCH STUDY.**

**IF YOU WOULD LIKE TALK TO SOMEONE ABOUT THE  
QUESTIONS ON THIS FORM, PLEASE SEE THE  
CONTACT PERSON ON YOUR INFORMATION  
SHEET.**



## APPENDIX 9: Living Life to the Full - Intervention Overview.

# LLTTF For Young People

Our popular Living Life to the Full classes have proved popular and effective for adults. Due to this, we are excited to announce the launch of Living Life to the Full classes for Young People, targeted for 11-18 year olds.



The course has been adapted from feedback gathered in school focus groups. Key features include:

- Same 8 session course topics as the adult Living Life Course.
- Content, worksheets and booklets adapted based on young persons' feedback.
- Content and support scripts highlight life worries and challenges relevant to teenagers and other young people.
- Artwork updated to suit this age group.
- Powerpoint slides to run the course with all resources you need in PDF format, including worksheets to highlight learning from the sessions.
- Adapted speaker notes to help throughout every stage of the course.

### Course Topics

1. **Why do I feel so bad?** – How to use the Five Areas Assessment.
2. **I can't be bothered doing anything** – Teaches behavioural activation to help increase activity.
3. **Why does everything always go wrong?** – How to combat negative thoughts.
4. **I'm not good enough** – How to overcome low confidence.
5. **How to fix almost everything** – Problem solving for practical problems.
6. **The things you do that mess you up** – Problem solving for unhelpful behaviours.
7. **1, 2, 3 Breathe?** – Taking Control of irritability and anger.
8. **10 things you can do to help you feel happier straight away.**

## APPENDIX 10: University Ethics Approval



18 August 2015

Professor Christopher Williams  
Institute of Health and Wellbeing  
Gartnavel Royal Hospital  
1055 Great Western Road  
Glasgow G12 0XH

Dear Professor Williams

### MVLS College Ethics Committee

**Project Title: Universally delivered CBT course in a Scottish secondary school setting: a pilot feasibility study**  
**Project No: 200140182**

The College Ethics Committee has reviewed your application and has agreed that there is no objection on ethical grounds to the proposed study. It is happy therefore to approve the project, subject to the following conditions:

- Project end date: December 2016.
- The data should be held securely for a period of ten years after the completion of the research project, or for longer if specified by the research funder or sponsor, in accordance with the University's Code of Good Practice in Research:  
[http://www.qia.ac.uk/media/media\\_227599\\_en.pdf](http://www.qia.ac.uk/media/media_227599_en.pdf)
- The research should be carried out only on the sites, and/or with the groups defined in the application.
- Any proposed changes in the protocol should be submitted for reassessment, except when it is necessary to change the protocol to eliminate hazard to the subjects or where the change involves only the administrative aspects of the project. The Ethics Committee should be informed of any such changes.
- You should submit a short end of study report to the Ethics Committee within 3 months of completion.

Yours sincerely

A handwritten signature in black ink, appearing to read 'William Martin', is written over a light blue horizontal line.

Professor William Martin  
College Ethics Officer

Approval200140182.docx

Professor William Martin  
Professor of Cardiovascular Pharmacology  
R507B Level 5  
School of Life Sciences  
West Medical Building  
Glasgow G12 8QQ Tel: 0141 330 4489  
E-mail: [William.Martin@glasgow.ac.uk](mailto:William.Martin@glasgow.ac.uk)

APPENDIX 11: Council ethics approval



EDUCATION RESOURCES  
Executive Director **Jim Gilhooly**

**St Andrew's and St Bride's High School**  
Head Teacher **Fiona M Mullen MSc, BEd**

Our ref:  
Your ref:  
If calling ask for: Pupil Support Teacher  
Phone: 01355 574110  
Date: 11 June 2015

Dear Sir/Madam

I am writing to give my permission to carry out the proposed research study:

**"A Universally Delivered CBT Course in a Scottish Secondary School Setting: A Pilot Feasibility Study"**

I understand that the project will involve researching how S3 pupils may develop their Life Skills and resilience through the intervention of The Living Life to the Full programme. The research will be conducted using four S3 classes, two of which will receive the Living Life to the Full sessions. The eight sessions will be delivered to two classes (sixty pupils) within their RMCE class one period a week for eight weeks. All four classes will complete pre and post programme questionnaires and comparisons will be made to evaluate if the programme has impacted on the pupils' health and wellbeing.

I am satisfied that pupils and parents or carers will receive an explanation of what the project involves and that they will be asked to give their written consent. I know that it will be made clear that they are under no obligation to take part, that they may withdraw at any time and that this will have no bearing on the supports typically offered to the pupils at St. Andrew's and St. Bride's High School.

I grant my permission for Glasgow University to conduct the research project at St. Andrew's and St. Bride's High School from September to December 2015.

Yours faithfully

A handwritten signature in cursive script, appearing to read 'Fiona Mullen'.

Mrs F Mullen  
Head teacher

Platthorn Drive, East Kilbride, G74 1NL Phone: 01355 574110 Fax: 01355 574111  
Email: [office@st-a-and-st-b.s-lanark.sch.uk](mailto:office@st-a-and-st-b.s-lanark.sch.uk)



## APPENDIX 12: Major Research Proposal

Universally delivered CBT course in a Scottish secondary school setting: a pilot feasibility study.

2110654m

Supervisor: Professor Chris Williams

27<sup>th</sup> April 2015

Version 4

Word Count: 3623

## **Abstract**

There has been widespread interest in developing school-based interventions to promote mental health in children and young people. Living Life to the Full (LLTTF) is a series of Cognitive Behavioural Therapy (CBT)-based booklets and accompanying 8 classes to improve coping skills in adults. An adolescent version of LLTTF was recently developed. This project aims to evaluate the feasibility and efficacy of this CBT programme for adolescents within a Scottish secondary school setting.

Four Personal Health and Social Education (PHSE) classes ( $n =$  approx. 120) of third year secondary school pupils will be randomised; two classes will act as *PHSE-as usual* (PHSE-AU) controls, and two classes will receive LLTTF. A pretest-posttest, within and between groups design will be utilised. Feedback will be gathered from the intervention group to determine acceptability as well as the impact of the LLTTF materials. Further evaluation will compare pre- and post-outcomes on standardised measures (Strength & Difficulties Questionnaire, Locus of Control, Self Esteem and Self-efficacy Scales) within the LLTTF group and between the LLTTF and PHSE-AU groups.

This study will help determine the feasibility, acceptability and utility of an early intervention CBT course for adolescents and add to the literature on mental health promotion in Scottish secondary school settings.

### **1. Introduction:**

There are high rates of mental illness in children and young people in the UK. At any one time, approximately 2% of children aged 11-15 and 11% of young people age 16-24 have a major depressive disorder (Green et al., 2005). In an average classroom of thirty pupils, ten young people will have witnessed their parents separate, eight will have experienced severe physical violence, sexual abuse or neglect, one will have experienced the death of a parent and seven will have been bullied (Faulkner, 2011). Early identification of a problem and early intervention to provide support are key to improving outcomes and yet many people wait more than ten years after the first onset of a disorder before seeking treatment (Wang et al., 2007).

Mental health of children and young people is therefore high on the government's agenda (Scottish Government, 2012) and it has been posited that schools have scope to provide an effective access point to mental health services for young people, because of their near-universal participation in education (Masia-Warner et al., 2006). This is also in line with local and national strategies which recommend secondary schools integrate social and emotional skills into all aspects of education (NICE, 2008) and that every Scottish school is a 'Health Promoting School' (The Scottish Executive, 2003). More recently, in Scotland 'Health and Wellbeing' is central to the Curriculum for Excellence (Education Scotland, 2011). This has resulted in an increased onus on schools to ensure that all children and young people learn about mental, emotional, social and physical wellbeing, and that this responsibility falls under all stakeholders in line with governmental policy (GIRFEC, Scottish Government, 2012).

### **School-based interventions – the evidence base**

There has been consequent interest in developing and researching school-based interventions to promote positive mental health. Reviews of the research in this area have recommended that programmes are most effective under a 'whole school' approach (Wells et al., 2003). Further suggested characteristics for effective implementation of school-based interventions include thorough training, quality control and well-defined goals and rationale (Weare & Nind, 2011). All reviews found varying levels of effectiveness and suggest that work on mental health promotion and problem prevention in schools be endorsed, continued and expanded. However, given the paucity of robust research in the area, that this be conducted while considering the cost-effectiveness of approaches and methodological issues such as randomisation procedures and the use of

attention controls (Calear & Christensen, 2010). Additionally, that school-based research involve the training and evaluation of teachers and apply a longitudinal design (Calear & Christensen, 2010; Cheney et al., 2014).

Woolfson et al. (2008) explored Scottish secondary school pupils' perspectives on mental health education. They found gender and developmental differences on several aspects of mental health education, and emphasised a need for future research to consult with adolescents when designing such programmes. Of note, Woolfson's team found that their sample of young people preferred that mental health education be delivered by someone with a thorough knowledge of the subject, and younger pupils indicated a preference for it to be delivered by someone they knew e.g., a teacher. These findings compliments existing evidence that self-help is more effective when accompanied by supportive encouragement (i.e. guided self-help); and this is regardless of the therapist's training and background (Gellatly et al., 2007). Teachers' effectiveness in delivering mental health education was further corroborated by a recent study that found no difference in outcomes between teacher and psychologist-led mental health classes (Collins et al., 2014). Results suggested that teacher-led classes may indeed be favourable due their longer-lasting relationships with pupils and knowledge of a pupil's personal circumstances.

### **School-based mental health programmes: the current picture**

There are currently several existing initiatives running in UK schools to promote wellbeing including: FRIENDS for Life (WHO, 2004), Bounce Back (Noble & McGrath, 2009), Penn Resilience Programme (Gillham et al., 2007), UK Resilience Programme (Challen et al., 2014), Social & Emotional Aspects of Learning (SEAL) (Department for Children, Schools and Families, 2005), Resourceful Adolescent Programme- UK (RAP-UK; Stallard et al., 2013), but none of these have yet been incorporated into the Scottish national curriculum, due to insufficient evidence or prohibitive costs.

There is emerging evidence supporting the use of universal Cognitive Behavioural Therapy (CBT) interventions in schools (Greig, 2007; Merry et al., 2004; Collins et al., 2014). The aims of those interventions being: promoting self-awareness and coping skills e.g., problem-solving, conflict management and resolution, and promoting social skills and emotional literacy e.g., collaborative working, understanding of feelings, and management of relationships with parents, carers and peers. CBT is also recommended by the National Institute for Clinical Excellence for depression and anxiety in young people (NICE, 2005).

Promising results have also been demonstrated recently in Scotland. Collins et al. (2014) evaluated the effectiveness of a manualised, CBT-based, locally developed anxiety programme for use with primary school aged children. Collins' research team found positive outcomes with regards to a reduction in anxiety levels from the high-risk to healthy range and a decrease in maladaptive coping skills. These encouraging results may suggest there is a place for CBT-based mental health education within the Scottish primary school environment. In order to maintain any positive outcomes as pupils move through their school career, the current study provides added impetus to research affordable and applicable evidence-based approaches to target adolescents' mental wellbeing in Scotland's secondary schools.

### **Living Life to the Full**

Living Life to the Full (LLTTF) is a series of CBT-based booklets developed to encourage adults to consider how their low mood or anxiety affects them in five key areas of their life: people and events around them, altered thinking, altered feelings, altered physical symptoms, altered behaviour and to incorporate practical tasks to aid learning (Williams, 2007). Originally designed for people with specific mental health disorders, these resources have been shown to improve mental health literacy (Day et al., 2007).

LLTTF's feasibility as a preventative life-skills school-based intervention delivered by teachers was investigated by Boyle et al. in 2010, in a secondary school in Glasgow. The

intervention was based on select LLTTF booklets and delivered by existing teachers during Personal and Social Education (PSE) lessons. It was largely well-received by both pupils and teachers who offered insightful suggestions as to how the programme could be better delivered for the adolescent population. Overall, this study found that the intervention had the potential to be a popular, affordable and effective approach to school-based mental health interventions. Boyle's team also recommended that future pilot studies include measures of mental health, well-being or academic performance, and that a randomised controlled trial would be essential to determine efficacy.

An adolescent version of Living Life to the Full was piloted in British Columbia, Canada as part of a community youth mental health program. This pilot evaluation project involved youth during development, delivery and evaluation and suggestions were made regarding the format and content of sessions. Results demonstrated that all attendees agreed the course was useful and would recommend it to another, and the majority agreed that the course helped improve their self-esteem, their ability to deal with stress and improved social relationships (Canadian Mental Health Association, 2014).

### **Present study**

Feedback from Boyle et al's (2010) pilot which suggested that LLTTF materials may be suitable in secondary school settings and responses from the evaluation in Canada (CMHA, 2014) led to the recent development of an adolescent version of LLTTF in Scotland. This is yet to be trialled in a Scottish secondary school. This project therefore aims to evaluate the feasibility and efficacy of a universally-delivered CBT programme for adolescents within a Scottish setting. The CBT-based booklets will be delivered as part of 8 lessons, each lasting the length of the normal Personal Health and Social Education (PHSE) lesson (50 minutes), and jointly delivered by intervention trainer and a teacher from the school. This will be a standard aspect of PHSE teaching for that year, and evaluation will take place in two ways:

- 1). A routine evaluation of feedback regarding the LLTTF lessons (to be collected from each pupil after each lesson). This will ask routine assessment questions concerning content, structure, utility and acceptability of the lessons.
- 2). A research evaluation where pupils (with their parents' consent) can opt to take part in a more detailed assessment of the impact of the classes on their attitudes and life experience.

Both evaluations will be recruited within the same classes at St Andrew's and St Bride's school in East Kilbride.

#### **a) Aims and Hypotheses:**

Aim 1: Feasibility study. To evaluate the feasibility of an early intervention CBT course for adolescents delivered in a school setting.

#### **Feasibility study sub-aims:**

- We will test the ability to recruit and gather feedback information from pupils about the LLTTF teaching sessions.
- We will test the ability to deliver the classes in a secondary school PHSE setting.
- We will test pupil satisfaction following participation of the LLTTF classes. This will be achieved by using Likert scale questions pertaining to the helpfulness of the materials and whether they would recommend the course to others.
- We will test the ability to administer psychometric questionnaires with a secondary school sample and establish an estimate of the effect on measures of

self-esteem, self-efficacy, locus of control and wellbeing in pupils who agree to be evaluated.

Aim 2: RCT. To compare psychological constructs (e.g. self-esteem / locus of control / self-efficacy) of emotional resilience / wellbeing between groups of adolescents who receive an early intervention CBT course to those receiving mental health education (PHSE) as usual.

RCT Hypotheses:

- o Pupils attending the LLTTF classes will experience greater gains in mental health literacy, internal locus of control, self-esteem, self-efficacy and improved strengths and difficulties questionnaire (SDQ) scores than two control classes from the same year which do not receive the classes.

**2. Plan of investigation**

a. Participants: Third year pupils (13 and 14 year olds) attending PHSE classes in a local high school in East Kilbride.

b. Inclusion and Exclusion Criteria: This study will recruit four classes (n = approx. 120) of third year pupils attending routine PHSE classes. Any pupils absent from school on a long-term basis or who do not attend PHSE for personal reasons will be excluded from the study.

c. Recruitment Procedures: This study will take place in a local high school who have agreed to participate and trial this intervention as part of their regular PHSE mental health curriculum. LLTTF is already offered in this school to 'high-risk' pupils in the form of small groupwork (see Appendix 4 for details of correspondence and project meetings to date). However, in the current study we will instead examine a "universal" application of the resources offered as a life skills training to classes in one school year. Two of the four year classes will be randomly allocated to receive the LLTTF classes.

There will be two elements of this evaluation:

- i). Delivery of the LLTTF classes, and pupil completion of the routine LLTTF class evaluation questions (regarding learning, attitudes towards content etc). For this no specific consent is required as this is a routine part of the usual class/teaching evaluation.
- ii). Agreement (pupil and parent/guardian) for the pupil to complete research evaluations to assess impact on mood and locus of control to evaluate the impact of the classes on pupils attending LLTTF lessons (intervention), compared to a group of pupils in classes not receiving LLTTF lessons (control).

Participant information and consent forms will be provided to pupils. Parents will be also be informed via letter about the study and that their child will be in either control / intervention group: the control group will be receiving PHSE classes as usual, and intervention group will be attending routine LLTTF classes. Those in the intervention group will take part in its evaluation by responding to additional questions asked before, during and after the classes to monitor the impact of the classes. Consent to the routine evaluations is assumed. Due to the age of the participants, they are deemed competent to provide consent to participate in the research evaluation (ScotCRN, 2012). Parents will be asked to sign a form to opt-out of the study if they wish. This consent design is widely used, for example, in the similar study in a school setting (Stallard et al., 2010).

Consent to participate in the study will also be required from the school head-teacher and South Lanarkshire council.

- d. Measures (see Appendices 5-8 for examples):



All pre-post questionnaires below aim to measure psychological constructs previously researched with adolescent populations as indicators of mental wellbeing and overall functioning.

- Locus of Control Scale (Nowicki & Strickland, 1973) – Higher internal locus of control has been found to be related to indicators of wellbeing in adolescents (Shojaee & French, 2014). Total scores from this measure range from 0 to 40 and are coded into a two categories: 'internal' and 'external' attributional styles, using a cut-off score of 13.
- Rosenberg Self Esteem scale (Rosenberg, 1965) – Higher rates of self-esteem have been found to be protective mediators to emotional stress in adolescents (Moksnes et al., 2010). This scoring scale ranges from 0-30. Scores between 15 and above are within normal range; scores below 15 suggest low self-esteem.
- Strength and Difficulties Questionnaire (SDQ) (Goodman, 1997) – This measure is frequently used to assess and predict mental health in children and adolescents (Goodman & Goodman, 2011). The total score of the five subscales range from 0-40, 19 or above indicating potential clinical level of difficulty. An impact score is also calculated. This ranges from 0-10, a score of 3 or above indicating clinical level of impairment.
- Generalised Self-efficacy scale (Schwarzer & Jerusalem, 1995) – It has been suggested that low levels of self-efficacy are associated high levels of trait anxiety/neuroticism, anxiety disorders symptoms, and depressive symptoms in adolescents (Muris, 2002). This 10-item self-report scale measures general self-efficacy and explicitly refers to personal agency, i.e., the belief that one's actions are responsible for successful outcomes. Scores range from 10 to 40, with the highest score indicating high self-efficacy. There is no cut-off, however median group scores will be used for comparisons in this study.

After each lesson: Brief feedback form to evaluate feasibility (See Appendix 9 for draft feedback form). This method has been used routinely to evaluate previous LLTTF courses and will provide a descriptor of the acceptability and utility of the course content.

e. Design: Routine class evaluations (all intervention participants). Randomised control design: between / within groups to compare outcomes of emotional resilience between classes who receive the intervention compared with those who receive PHSE classes as usual (all except those whose parents of the pupils themselves has declined consent).

f. Research procedures:

Feasibility study: All children in the intervention group will be asked to complete a brief questionnaire at the end of each lesson (8 lessons) to evaluate the applicability and relevance of the intervention topic. They will also be asked to complete standard feedback forms at the end of the course pertaining to the intervention as a whole.

RCT: The intervention will take place over 8 PHSE lessons, each 50 minutes long. The classes will be run twice weekly and the intervention will be completed over a 4 week duration. There are eight third-year PHSE classes in total. Two classes will be randomly selected to trial the intervention. Another two classes will be randomly selected to be the control group. The two intervention classes will be run by the usual PHSE teacher along with an LLTTF trained facilitator. Questionnaires to look at psychological factors / provide demographic information as to the psychological characteristics of the group will be provided by the field researcher to all consenting participants in control and intervention

group before the first class is delivered (Week 1). The same questionnaire tools will be administered after the last class (Week 4).

g. Data Analysis: Descriptive statistics (attrition, gender, ethnicity, home status, etc.); questionnaire return (frequency); before-after within group analysis (LLTTF); between groups analysis using t-test or ancova.

h. Justification of sample size: This convenience sample of up to 120 participants will be used primarily to test the study design, with data being collected over the course of 4 weeks. A recent, longer term local study (Collins et al., 2014) successfully recruited 16 primary school classes with a similar study design; all 16 classes took part in the study and 8 classes provided full datasets at 6 month follow up.

Power calculation will be carried out using the results of the feasibility study to evaluate the sample size needed for any future substantive study. This will examine both scores in the classes as a whole, and also the impact on people who are higher scoring in terms of baselines distress on the SDQ.

i. Settings and Equipment: This will take place in a school setting. The intervention will be delivered in PHSE classes that are scheduled twice weekly. The classes will be delivered jointly by a trained facilitator and PHSE teacher. The intervention resources and questionnaires will be provided to the school from the intervention team.

### 3. Health and Safety Issues:

a. Researcher safety: The field researcher will not be taking part in the delivery of the intervention to ensure blinding of the study, and so there are no perceived risk to researcher safety.

b. Participant safety: The intervention will take place in the usual school classroom environment. This will be a familiar, comfortable environment for all participants and all will be aware of fire / safety procedures. The classes are presented as an education content, and avoid asking people to contribute their own personal experiences, examples are designed to avoid creating distress. Should any emotional distress occur during procedures, the participant will be directed to their teacher / school nurse as per school procedures. The research team will be available for consultation by staff should this occur.

4. **Ethical issues:** As it is a community population local council approval and approval by the head teacher will be required as well as University of Glasgow ethics approval. Consenting procedures are outlined in section 3)c)ii), above. All participants will be given a participant ID to protect anonymity and ensure confidentiality for research purposes. A protected database containing participants ID's will be accessible in the event of any questionnaire responses that indicate that a participant is at high risk and referral to school counsellor / nurse is warranted.

5. **Financial Issues:** Selected questionnaires will be printed off by the University of Glasgow. Lead researcher, Professor Chris Williams (CW) is a licence holder of a variety of mental health research questionnaires, and additional questionnaires will be purchased if needed using CW's waived fees account. The cost of letters to the parents will be paid for by CW's waived fee account. Resources and trainer time will be provided at no charge. Researcher travel time to / from the school will be reimbursed by the local health board.

6. **Timetable:** A full research proposal will be submitted for the University of Glasgow academic team in March 2015. Following approval from the Academic team and University of Glasgow MVLS ethics committee, this will then be sent to the head teacher and South Lanarkshire Council for review. Recruitment will begin at the start of the school year, August 2015, when participant information and parental consents

will be distributed. Randomisation of classes will take place in August 2015. The intervention will be delivered over 8 classes (4 weeks) from October to December 2015. Data collection will take place over the same time period and all data will be gathered by December 2015. Analysis will be carried out in early January 2016. The study will be written up for submission to the University in July 2016.

7. **Practical applications:** This study will help determine the feasibility, acceptability and utility of an early intervention CBT course in high school settings. This would inform the provision of PHSE classes and mental health curriculum in schools. This study would also serve as a pilot of a new, adolescent version of LLTTF and would provide insight into the utility of these resources with this demographic. This project would add to the literature on emotional resilience in adolescents, mental health promotion in school settings and the effectiveness of an early intervention CBT for adolescents.

8. **Issues for consideration:** Should insufficient consents be returned from parents or pupils that the RCT component is unfeasible, this study would instead explore the option of using focus groups to gather both pupil and teacher feedback. A consent item for interviews will be included in the initial consent form. Focus group data would be analysed using qualitative analyses such as Thematic Analysis. The researcher has limited experience in qualitative approaches and so consultation with academic staff experienced in this approach would be helpful if this approach was taken.

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