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ORIGINAL PAPER

A Mixed-Methods Study of Compassionate Mind Training for Pupils (CMT-Pupils) as a School-Based Wellbeing Intervention

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Abstract

Objectives Mental health difficulties in children are increasing, especially following transition from elementary to high-school education. In attempts to mitigate risk of these difficulties, proactive wellbeing interventions are becoming increasingly explored in school settings. Recently, Compassionate Mind Training (CMT) has been shown to be well-accepted and efficacious in promoting school staff wellbeing and prosocial behaviours. This paper outlines the impact of CMT as a pupil wellbeing intervention.

Method Sixty-seven pupils aged 11–12 took part in either Personal, Social, Health and Economic (PSHE) lessons as usual (n=30), or CMT-Pupils (n=37) as their PSHE lessons, over a 5-week period. A mixed-methods quantitative and qualitative design was utilised to explore implementation and curricula effectiveness across several wellbeing parameters (e.g., anxiety, self-compassion, perfectionism, moods and feelings, self-esteem).

Results Pupils reported positively on their experiences of the CMT-Pupils lessons, content and practices. Quantitative analyses revealed a significant time-by-group interaction effect for anxiety, reflecting differences in anxiety post CMT-Pupils vs. PSHE as usual. No further interactions reached significance. Qualitative analyses revealed benefits of CMT-Pupils for pupil and classroom behaviour, including emotion regulation, kindness to others and feelings of inclusion. Benefits were also found to extend to the class teachers.

Conclusions CMT-pupils could be a promising school-based wellbeing intervention for improving prosocial behaviours, the classroom environment and protecting against deteriorations in child mental health. Larger scale explorations of CMT-Pupils across wider demographics, including investigation of who can deliver the curriculum efficaciously (e.g., teachers vs. external facilitators), are suggested as next steps for investigation.

Preregistration This study was not preregistered.

Keywords Compassionate Mind Training · Education · SEAL · Wellness · Anxiety · Emotion regulation

According to NHS Digital (2020), in the UK, one in seven primary school aged children, and almost one in five secondary school aged pupils suffer from a probable mental disorder. This represents an increase of almost 6% in 3 years (i.e., since 2017). Rising rates of child mental health difficulties are a major international challenge for educators and mental health professionals (Barker et al., 2022; de Miranda et al., 2020) and have been exacerbated by COVID-19 (Newlove-Delgado et al., 2021). Thus, a current focus of many governments is access to effective mental health and wellbeing support in schools (e.g., Department for Education, UK, 2021; Ministry of Health, New Zealand, 2021; Public Health Agency of Canada, 2021).

Reasons for poor child and adolescent mental health are multi-fold. For example, the transition from childhood to adolescence includes rapid periods of cognitive, physiological and neurological changes (e.g., Griffin, 2017;

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Yurglen-Todd, 2007), alongside changes in key relationship structures, which predicate vulnerability to mental health disorders (Horwitz et al. 2011). Additionally, more recent increases in mental health disorder rates may in part reflect competitive pressures children and youth face in school. For example, the introduction of open performance league tables at societal (e.g., gov.uk: https://www.find-school-performance-data.service.gov.uk/) and school levels encourages and orients both parents and teachers to overly prioritise and reward student academic achievement at the expense of more prosocial development (Gilbert et al., 2020). Relatedly, classrooms that foster social comparison, competitive self-interest and fear of failure, in contrast to cooperative and mutually supportive learning, are associated with greater bullying (Di Stasio et al., 2016; Moyano et al., 2019). Thus, it is perhaps not surprising that schools have been cited as the number one stressor for most teens (Bethune, 2014), and that 96% of young people in the UK expressed that exam pressures affected their mental health (Policy Commons, 2017; see also Pascoe et al., 2020).

Recognising that schools are a place where mental health problems can emerge (or be exacerbated), but that schools can also be an effective place for the introduction and teaching of coping skills, several grassroots movements have emerged with the aim of introducing initiatives to improve student wellbeing through curricula that promote self-care and reflection. For example, Mindfulness in Schools (www.mindfulnessinschools.org), Anna Freud Schools in Mind (www.annafreud.org/schools-and-colleges/) and the Council of Europe project *Free to Speak – Safe to Learn* (https://www.coe.int/en/web/campaign-free-to-speak-safe-to-learn) contain programmes all designed to promote better wellbeing. Not all of these programmes, however, have been empirically investigated to demonstrate their effectiveness (see Laurens et al., 2022) and, of those that have been robustly investigated (e.g., the Myriad Trial, Kuyken et al., 2022), findings suggest that no one single approach is a panacea.

Schools, nevertheless, should also be an environment where children learn how to communicate, develop the motivation to share and care, acquire empathy skills and develop ethical values (Maratos et al., 2022; Weisz et al., 2022; Yeager et al., 2018). In keeping with this, several studies have shown that promoting these qualities in children, e.g., empathy, compassion and altruism, can improve social integration, cognitive function and general wellness (e.g., Berger et al., 2018; Carro et al., 2022; Carro & Lozada, 2020; Spinrad & Gal, 2018). In adults, an established method of promoting these qualities, with promising evidence of its psychological and physiological benefits, is Compassionate Mind Training (Matos et al., 2017; Santos et al., 2022; Sinclair et al., 2021). Importantly, research has shown that empathy, mindfulness and compassion training can all have powerful behavioural and neurophysiological effects, but are also different (Favre et al., 2021; Singer & Engert, 2019). Empathy and mindfulness are competencies that can be used to support various motives, whereas compassion encompasses the development of pro-social motivation (Gilbert, 2019).

Compassionate Mind Training (CMT) is based on an "evolution-informed, biopsychosocial approach" (Gilbert & Simos, 2022, p. 24). It focuses on how evolved motivational systems (e.g., threat, drive and soothing) are linked to key (evolved) psychophysiological systems that organise mental states and social behaviour. Competitive behaviour and compassionate behaviour organise the mind very differently (Gilbert & Simos, 2022). The aim of CMT is to help individuals understand the organising properties of compassion and guide individuals through practises that stimulate and integrate the psychophysiological mechanisms of compassion into processes of self-identity, emotion regulation and pro-social behaviour (Gilbert, 2014, 2019; Kirby, 2016; Singer & Bolz, 2012). Hence, CMT includes education as to mind/body emotional systems, with insights into the nature of compassion, its impact on mind and body, and practises for stimulating the psychophysiological mechanisms of the evolved caring motive system (Gilbert et al., 2020; Gilbert & Simos, 2022). Effects found include improved wellbeing, such as reductions in the symptoms of depression, anxiety, and stress; increases in individuals' levels of compassion and mindfulness; and the promotion of prosocial behaviour (Kirby et al., 2017; Kirby & Gilbert, 2017; Kotera & Van Gordon, 2021). In accord with these findings, within school-settings, Maratos et al. (2019, 2020) and Matos et al. (2022b); Matos et al. (2022a) have found that a 6-Module CMT curriculum for school staff (CMT-Teachers) improves psychological capacity/health (e.g., improves positive affect and compassion, and decreases vulnerability to anxiety and depression); emotional regulation (e.g., closure and work/life balance); and physiological health (e.g., heart rate variability). However, much less researched are the effects of embedding CMT curricula in pupil-based learning.

Whilst there is promising evidence of the effects of compassion-based practices with school pupils to promote personal growth and emotion-regulation strategies (Bach & Guse, 2015; Karr et al., 2019), these small-scale qualitative studies explored the introduction of specific practices versus a compassion-based curriculum in full. Moreover, where specific compassion-based curricula have been introduced, via either full class trial or randomised control methods, the focus has been on self-compassion or mindful self-compassion per se (Bluth et al., 2015, 2016; Bluth & Eisenlohr-Moul, 2017; Seekis et al., 2023), rather than the much wider perspective of the flows of compassion, including compassion for self,

compassion for others and receiving compassion from others (Gilbert et al., 2011; Gilbert & Simos, 2022; Kirby et al., 2019; Tarrasch et al., 2020). The results of these self-compassion and mindfulness trials have been promising, with the self-compassion curricula introduced to (early) adolescents resulting in improved mindfulness, self-compassion and improved wellbeing, including improved life-satisfaction and/or resilience (Bluth et al., 2015, 2016; Bluth & Eisenlohr-Moul, 2017; Seekis et al., 2023), and reduced perceived stress, depression and/or anxiety (Bluth et al., 2016; Seekis et al., 2023). However, in promoting the motivation to share and care, acquire empathy skills and develop ethical values, further investigation of wider perspective compassion-based (vs. self-compassion based) curricula is required. Recently, Kappelmayer et al. (2023) have demonstrated that an elementary-aged intervention more focused on promoting empathy, compassion and loving-kindness improved both individual and collective wellbeing of those (Argentinean) children that took part. That is, their curricula resulted in not only improved affective responding, but also altruism and social integration.

Importantly, whilst *mental health* and *wellbeing* are umbrella terms covering a wide range of health metrics, in children and adolescents, anxiety is a prototype child mental health/wellbeing indicator. This is because anxiety disorders are the most frequent psychiatric disorders affecting nearly 1 in 12 children and 1 in 4 adolescents (Kowalchuk et al., 2022). Additionally, anxiety disorders are found to have an adverse effect on psychosocial functioning (Teubert & Pinquart, 2011), school attendance (Allen et al., 2018) and school performance/academic achievement (Essau et al., 2000; Ialongo et al., 1995). Flett et al. (2022); see also Ashra et al., 2021) have further argued that socially prescribed perfectionism should be measured in studies of child wellbeing, as they argue it is a significant public health concern of children, adolescents and young adults of our time. They suggest that as socially prescribed perfectionism contributes to poor long-term mental wellbeing (including affective disorders, eating disorders and personality disorders), physical health and interpersonal adjustment, it requires urgent prevention efforts. Therefore, it could be argued that any school grassroots or proactive approach to child and adolescent wellbeing, if argued to be efficacious, should meaningfully impact upon one, or both, of these key child/adolescent wellbeing metrics (see also Jones et al., 2019 for further specific arguments related to anxiety). Added to this, as transition from primary/elementary (Year 6) to secondary/high-school education (Year 7) is one of the most stressful events in a child's life (Zeedyk et al., 2003), and can have a negative impact on both psychological wellbeing and academic achievement (Evans et al., 2018), interventions targeted at those who are, or who have, just transitioned schools may be advantageous. Indeed, as evidence suggests that adolescents experience more frequent and intense negative (and positive) emotions (Bailen et al., 2019), in a proactive approach to wellbeing, introducing pre-teens to emotion regulation techniques that could help with emotion regulation could be beneficial. To expand, emotion regulation techniques introduced at this critical period of school/life transition could stem the observed downward mental health trajectories discussed above.

Thus, the overarching aims of the present research was to investigate if a specific CMT curricula based on the tenets of CMT-Teachers (Maratos et al., 2019, 2022; Matos et al., 2022, b) could impact upon wellbeing (including anxiety and perfectionism) and prosocial behaviour in pupils who have just transitioned from primary to secondary school, given there is limited robust trial or efficacy demonstration of using compassion as part of wellbeing curriculums delivered in Western schools (Perkins et al., 2022). To meet these aims, the specific objectives of this study were, first, to develop a short, novel, child-friendly CMT-Pupils intervention that captured essential content of CMT-Teachers as its key elements (and could be conducted during one school term as part of UK Personal, Social, Health and Economic (PSHE) education lessons). Second, to evaluate the intervention in respect to acceptability (i.e., participant responsiveness), and reach, as these factors affect outcomes achieved (Durlak & DuPre, 2008; Wilde et al., 2019). Third, to evaluate effectiveness via quantitative and qualitative indices of wellbeing and prosocial behaviour. For the quantitative data, we hypothesised interaction effects, with group differences on child measures of anxiety, perfectionism and self-compassion (but we also included more general measures of moods and feelings; perceived stress; and wellbeing) *post* pupils undertaking CMT-Pupils as compared to PSHE as usual. That is, we expected CMT-Pupils to stem observed downward mental health trajectories as compared to PSHE as usual. For the qualitative data, our aim was to explore participant experiences of the CMT-Pupils intervention in more depth, including acceptability, and effects, if any, on emotion regulation abilities and pro-social behaviours.

Our third objective mapped directly onto curriculum contents. Specifically, as with CMT-Teachers, the CMT-pupils curriculum included (i) an understanding of threat, drive and soothing (the three systems model), and learning related to how to regulate emotions associated with these systems. This encompassed relevant breathing and imagery practices (e.g., calm place imagery). The curriculum also included (ii) an understanding of compassion including its three flows, i.e., compassion for the self, accepting compassion from others and compassion for others. This encompassed relevant related imagery practices and class exercises to embed these flows (e.g., compassionate self/other

imagery; the compassionate compliments game). Whilst the curriculum was delivered as a whole, we expected learning and practices related to the threat, drive and soothing three systems element to impact upon emotion regulation; and learning and practices related to the compassion element to impact upon self-compassion, pro-social behaviours and perfectionism. We further expected all elements of the curriculum (e.g., threat and compassion to self) to impact upon anxiety.

Method

Participants

A mixed-methods design was used to investigate the development, feasibility and effectiveness of Compassionate Mind Training as a school-based wellbeing intervention for pupils (Fig. 1). Sixty-seven pupils in Year 7 (aged 11–12 years), all from the same school, took part in the study. Thirty-seven

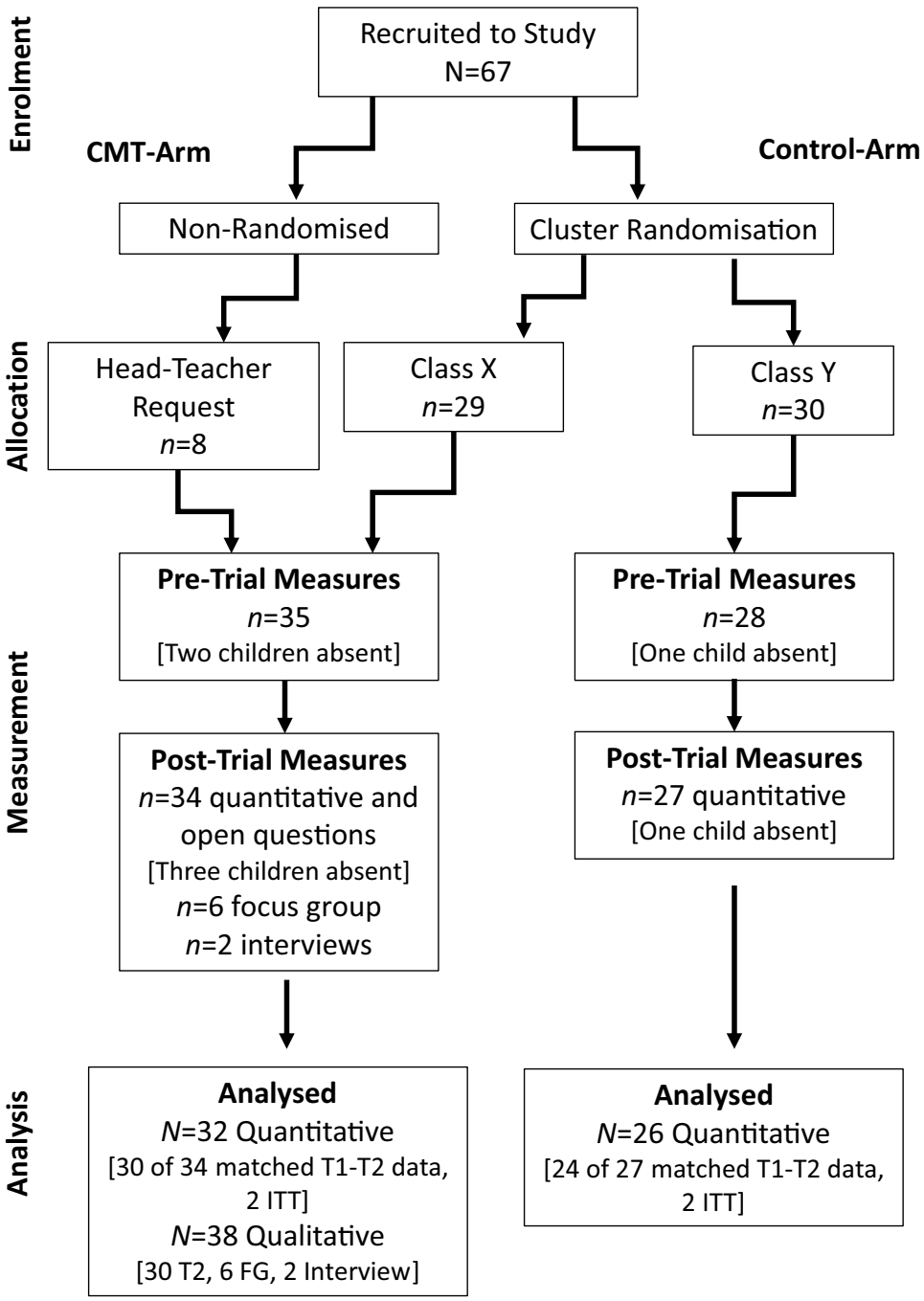

Fig. 1 CONSORT diagram representing recruitment, methods and analyses for this mixed-methods trial of Compassionate Mind Training as a school-based pupil wellbeing intervention

pupils were assigned to the experimental CMT-Pupils condition (17 female). These were 29 from the same specific class and eight from a variety of classes, as requested by the head-teacher. Thirty pupils were assigned to the control PSHE as usual (15 female). These pupils were all from the same class. The classes selected to participate were randomly chosen based upon time-tabling constraints. Sample size was calculated using G*power (Faul et al., 2007). To obtain an interaction effect for this mixed-measures design, with time (pre, post) and group (CMT-Pupils, PSHE as normal) as the independent variables, a medium effect size (Cohen's $f = 0.25$) and acceptable power (i.e., 0.9; with alpha set at 0.05, two-tailed), the calculated sample size required was 46. Thus, recruitment of 60–70 pupils was considered a sensible medium when considering standard class sizes and allowing for attrition. As with Kappelmayer et al. (2023), as an element of our design was to investigate the effects of CMT-pupils on prosocial behaviours in existing situations, this precluded random assignment of participants to each group.

Six pupils (2 females, 4 males) from across the sample of 37 further took part in a focus group to discuss their experiences of CMT-Pupils in more detail. The two relevant teachers also took part in interviews for the same ends.

Procedure

CMT-Pupils

The compassion wellbeing PSHE (CMT-Pupils) consisted of five lessons, each lasting circa 50 min, conducted over one school half-term (5 weeks). The lessons were led by RC, a psychotherapist specialising in CFT/CMT, supported by FM, a doctoral psychologist specialising in emotion research and CMT; between them RC and FM had over 15 years' experience of leading compassion- and emotion-based initiatives and research. The lessons were developed and produced by FM, RC and PG, a clinical psychologist specialising in CFT/CMT; thus, between them, over 35 years' experience of leading emotion/compassion-based initiatives and research. A brief description of lesson content is described in Table 1 (Column 1). However, in grounding the approach, and a deeper understanding of emotion regulation, Lesson's 2–5 always began with a reflection on the three emotions systems model and discussions as to which system/s each pupil had been in since the last lesson (named the "check-in"). The main form teacher and supporting teacher observed delivery of all lessons and participated where relevant.

Standard PSHE

The standard (control) PSHE also consisted of five lessons, each lasting circa 50 min, conducted over one school half-term (5 weeks). These materials were delivered by the Year 7 class teacher as they formed part of the school's standard Year 7 PSHE provision. A brief description of lesson content is described in Table 1 (Column 2).

Data Collection

To investigate acceptability and reach of CMT-Pupils (i.e., intervention quality), at the end of each lesson, pupils completed a single-sided anonymous feedback form with six questions. The first three questions probed: how enjoyable they found the lesson; how helpful they found the lesson; and how the pupils found the lesson overall. For these questions, the response format was a 10-point Likert scale (ranging from *poor*, through *ok*, to *excellent*). Two further questions were open-ended and probed: (i) what part of the lesson they found most interesting or useful and (ii) if there was any way in which the lesson could be improved. A final question required a simple *yes*, *no*, *don't know* response to whether pupils thought the lesson would be useful for all pupils in Year 7. We did not explore intervention quality of the control lessons, as the focus of this research was not a judgement on the school's standard PSHE provision, but rather the acceptability and appropriateness of CMT-Pupils by the pupils themselves, to enable judgement on the utility of more widespread adoption and implementation of this curricula across education sectors.

To investigate wellbeing effects of CMT-Pupils, a questionnaire pack, containing seven standardised measures (outlined below), was completed by all pupils at two time points. When possible, time point 1 was exactly 1 week before (i.e., same day and time) pupils took part in either CMT-Pupils or their standard PSHE curriculum lessons. When possible, time point 2 was exactly 1 week post Lesson 5 for both curricula. These are referred to as T1 and T2, respectively. At T2, pupils in CMT-Pupils also answered up to four open-ended questions or were invited to take part in a post-intervention focus group, to explore the effects of CMT-Pupils more comprehensively. In additional qualitative investigation, the two relevant teaching staff who observed delivery of CMT-Pupils also took part in semi-structured interviews, 2 weeks post Lesson 5.

Ethical Considerations

Consent to participate in T1 and T2 data collection was obtained at two levels. Firstly, parental consent was obtained (with a deadline of) 1 week prior to any T1 data collection. Secondly, pupil consent was obtained before completion of the T1 data and again before completion of the T2 data. For the focus group and interview data, parents, children and teachers were sent the consent information and example questions 48–24 hr ahead of the data collection. Written consent was gained prior to the commencement of these data collection phases, with verbal consent gained at

Table 1 *Curriculum content for the experimental (CMT-Pupils) and control (standard) PSHE curricula*

Lesson	CMT-Pupils	Standard PSHE
1	This lesson introduced pupils to the three emotion systems of the mind (threat, drive and soothing). As part of this, pupils explored what things/situations make them or others feel threatened, motivated and/or good, and calmed/soothed. It was explained to pupils' how over the next few weeks we'd be working on how to achieve balance between these different systems.	Lesson 1 focused on what pupils want to achieve by age 40, by first considering what they want to achieve by the end of Year 7, and how they will achieve that. As part of this lesson, pupils were introduced to a growth mindset to enable them to identify what they would like to achieve by age 40, describe how they might achieve this goal and how they envision themselves in 28 years' time.
2	Following a three-systems check-in activity (see main text), Lesson 2 focused on understanding fear, worry and anxiety, including how we feel fear in the body, what triggers fear for each of us, and how we can use calm place imagery (practice 1) and soothing breathing techniques (practice 2)—introduced in this lesson—to help us manage fears, worry and anxiety.	Lesson 2 focused on dreams and ambitions, but with a focus on strengths and weaknesses. Richard Branson and Adam Peaty were used as examples and it was explained that one person's strengths can be another's weakness. As with Lesson 1, pupils were asked to identify their strengths and weaknesses, describe ways to improve their weaknesses and explain how their strengths could help them in the future.
3	Following the three-systems check-in activity, the focus of Lesson 3 was "What is Compassion?" As such, the "Flows of Compassion" were introduced, with the trainers working with the pupils to enable them to develop compassionate imagery through drawing and imagination, using compassionate other (practice 3). Lesson 3 ended with encouragement of pupils to progress an act of compassion towards others before the next lesson.	The focus of Lesson 3 included a crossword quiz. By the end of the lesson, pupils were expected to be able to identify at least ten different jobs, describe what makes people happy in their job and create a job advertisement poster for their dream job.
4	Following the three-systems check-in activity, Lesson 4 focus was returned to the three emotion systems of the mind, getting pupils to consider in more detail not only fear, but also anger (part of threat), as well as drive and soothing. In one of the lesson activities pupils reflected on how these systems were balanced for them (by sketching them out). Trainers progressed the three imagery techniques already introduced (soothing breathing, calm place imagery and compassionate other imagery) as a technique to balance the three emotion systems. Lesson 4 ended with encouragement of pupils to progress an act of compassion towards themselves before the next lesson.	Lesson 4 was focused on different types of careers, with a quiz related to nine different career paths (ranging from car park attendant to lawyer). The aim of this lesson was for pupils to identify a variety of different careers, describe what different careers entail and explain at least two careers that they might like to pursue in the future.
5	Following the three-systems check-in activity, the focus of Lesson 5 was the development of the three flows of compassion. Trainers introduced a second compassionate imagery practice (practice 4—compassionate self), before progressing a "compassionate compliments" game to encourage pupils to be accepting of compassion from others as well as provide compassion to others. The final challenge for pupils was to continue work on being compassionate and the three flows of self-compassion, compassion towards others and being accepting of compassion from others.	The focus of Lesson 5 was creating a table-top display, which provided an overview of a career each pupil would like to do in the future. Table display items could include a PowerPoint printed out, Poem, Poster, Display, Speech, Mini Models, Fact File, Card sort, Photographs, an interview and/or quotes from people who had done that job. The aim of this session was for pupils to describe different aspects of their chosen career and explain the importance of their chosen career in the world today.

the beginning of the focus groups/interviews. The study received full local Ethical Committee approval.

Measures

Child and Adolescent Perfectionism Scale (CAPS)

The CAPS (Flett et al., 2016) consists of 22 items structured around two dimensions: Self-Oriented Perfectionism (SOP; 12 items), which measures motivation and efforts to be a perfectionist as well as the tendency to self-criticise; and Socially Prescribed Perfectionism (SPP; 10 items), which captures beliefs about the perfectionist demands of the environment. Children are asked to respond to sentences using a 5-point Likert scale (from 1 = *not true of me at all* to 5 = *very true of me*). Higher scores reflect greater perfectionism. In respect to validity, Ashra et al. (2021), in their systematic review of negative self-referential emotional measures developed for non-clinical child and adolescent samples, identified the CAPS to have the strongest psychometric properties of all non-clinical child measures of negative self-referential emotions. Original validation of the scale revealed Cronbach alphas across nine different populations to be between $\alpha = 0.68$ (Russian) and 0.82 (Israeli) for SOP, and between 0.71 (Chinese) and 0.89 (Israeli) for SPP. For the present study, $\alpha = 0.76$ for SOP and $\alpha = 0.83$ for SPP.

Moods and Feelings Questionnaire – Short Version (MFQ-SF)

The MFF (Messer et al., 1995) consists of 13 items measuring how a child has been feeling or acting recently. Children are asked if a sentence is true about themselves using a 3-point Likert scale (where the response *not true* is scored 0, *sometimes* is scored as 1 and *true* is scored as 2). Higher scores reflect a tendency towards a depressed state. Internal reliability of the scale in adolescents in New Zealand showed Cronbach's alpha coefficients were excellent for each time point (α = 0.91 to 0.93). In the same population, strong correlations with two recognised measures of child and adolescent depression indicate good content, convergent and concurrent validities, respectively (Thabrew et al., 2018). For the present study, $\alpha = 0.92$.

Perceived Stress Scale – Child (PSS-C)

The PSS-C (White, 2014) consists of 13 items to measure perception of stress, including feelings of being rushed/worried, pressures associated with academic performance, friendships, and parents etc. Children are asked to pick the answer that best describes their thoughts and feelings during the past week using a 4-point Likert scale (where the response *never* is scored as 0 and *a lot* is scored as 3). Higher scores reflect a tendency towards greater perceived stress and anxiety. Internal consistency of this scale is reported as acceptable $\alpha = 0.78$ (Marie et al., 2022). For the present study, $\alpha = 0.84$.

Rosenberg Self-Esteem Scale (RSE)

The RSE (AbilityLab, 2024) is a10-item self-report measure of global self-esteem. It consists of items capturing overall feelings of self-worth and self-acceptance. For each statement, children are asked to report their general feelings towards themselves using a 4-point Likert scale (with responses coded as *strongly agree*, *agree*, *disagree*, or *strongly disagree*). Higher scores reflect greater self-esteem/feelings of self-worth. Test/rest reliability for this scale has been shown to be good (0.88, Robins et al., 2001), as has internal consistency (α = 0.84–0.86, Tinakon & Nahathai, 2012). This scale has previously been recommended for use with children by the Child Outcomes Research Consortium (n.d.). For the present study, $\alpha = 0.80$.

Self-Compassion Scale for Children (SCS-C)

The SCS-C (Sutton et al., 2018) consists of 12 items measuring positive and negative compassion. Children are asked to read the statements and click on the answer that applies most to how they usually feel using a 5-point Likert scale (from 1 = *Never* to 5 = *Always*). The questionnaire has a two-factor structure, with higher scores on the positive self-compassion subscale reflecting greater self-compassion. Sutton et al. (2018) argued that the negative self-compassion subscale potentially reflects a tendency towards psychopathology and negative feelings towards the self. Sutton et al. (2018) further reported that both subscales have acceptable internal consistency (Cronbach's α = 0.81–0.83 in their bi-factor model). For the present study, $\alpha = 0.74$ for the positive self-compassion subscale and $\alpha = 0.85$ for the negative self-compassion subscale.

Trait Anxiety Inventory for Children (STAIC-T)

The STAIC-T forms part of the wider State-Trait Anxiety Inventory for Children (Spielberger et al., 1973). The T-Anxiety Scale measures relatively stable individual differences in anxiety proneness, that is, differences between children in the tendency to experience anxiety states. Children are asked to read sentences and decide using a 3-point Likert scale (1 = *hardly ever*, 2 = *sometimes*, and 3 = *often*) which is true/best describes them. Higher scores reflect higher trait anxiety. The STAIC-T is considered the gold standard child anxiety measure with established clinical validity (Kirisci et al., 1997). For the present study, $\alpha = 0.93$.

Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS)

The WEMWBS (Stewart-Brown et al., 2009) is a 14-item positively worded questionnaire to measure mental wellbeing and feelings. Children are asked to describe the feelings and thoughts that best describe their experiences over the past 2 weeks, using a 5-point Likert scale (where 1 = *none of the time* and 5 = *all of the time*). Higher scores indicate greater positive wellbeing. Clarke et al. (2011) reported the WEMWBS has strong internal consistency ($\alpha = 0.87$) and acceptable test-retest reliability (intraclass correlation coefficient (ICC) 0.66 (95% CI [0.59; 0.72], $n = 212$). This scale is recommended for use with children by the Child Outcomes Research Consortium (n.d.). For the present study, $\alpha = 0.94$.

Four Open-Ended Questions

Four optional open-ended questions were included with the T2 measures for the CMT-Pupils condition. These were designed to more fully access the lived/everyday experience of pupils assigned to CMT-Pupils. The questions focused upon how the compassion-based wellbeing lessons may have (i) affected how the pupil was feeling, their understanding of emotions or their general wellbeing; (ii) affected their behaviour, including if they had tried/were using the practices introduced; and (iii) affected their class, including how they behave with others and vice-verse. A final question (iv) probed what they enjoyed best or would have liked more or less of. The actual questions used can be found in the supplementary materials.

Pupil Focus Group (CMT-Pupils only)

To explore pupil experience of CMT-Pupils in greater depth, a single focus group was undertaken. Opening questions were centred upon the pupils' overall experiences of the initiative; how useful they found it; their engagement with specific exercises and if there was anything they struggled with. The focus group was audio recorded for transcription purposes and lasted 24 min. The focus group was conducted and transcribed by an independent graduate research assistant, experienced in child data collection. The focus group guide and starter questions can be found in the supplementary materials.

Teaching Staff Semi-Structured Interviews (CMT-Pupils only)

The two-teaching staff (1 male, 1 female) who observed delivery of CMT-Pupils were invited to participate in separate interviews. Opening questions were centred upon if the teachers had noticed any effects of CMT-Pupils on the wellbeing of pupils in their class and emotion understanding; and the behaviour of the class or specific individuals. Opening questions further probed what the teachers thought were the general and specific benefits of the curriculum, if anything was not beneficial (i.e., could be removed) and what could be improved for whole-class delivery. Final questions probed if the teachers themselves had learnt anything about their own emotions or themselves, and if CMT-Pupils had had any effects on their own wellbeing. Each interview lasted 15 min and 23 min, respectively. The interviews were conducted by WW and transcribed by an independent graduate research assistant. The interview guide and starter questions can be found in the supplementary materials.

Data Analyses

Intervention Quality Data

For the Likert scale data, frequency tables were produced, and descriptive statistics used to explore this entirely anonymous data. Ratings of 1–3 were coded as poor, 4–7 as average and 8–10 as excellent.

Quantitative Measure Data

Questionnaire data were initially screened for biased responding and normality, including skewness and kurtosis. Screening revealed data to meet parametric assumptions. Additionally, all Z scores fell between −3 and +3. Data were then matched by participant code, with intention to treat (ITT) methodology applied (i.e., the carrying forward of T1 data when T2 data is missing). ITT is an imputation approach that limits bias to a greater extent than further imputation methods as, by carrying T1 data over to T2 (as compared to calculating new data), change is deflated. It is therefore recommended as a best practice data analysis method when using controlled trial designs (McCoy, 2017). This led to a total sample size of 32 in the experimental CMT-pupils group (containing 30 matched data sets and two ITT participants); and 26 in the control PSHE group (containing 24 matched data sets and two ITT participants). In all cases, all T1 data were carried over, as missing data reflected the 4 children being absent from school on the date T2 data were collected. To preclude effects of potential differences in initial values between groups, as per Kappelmayer et al. (2023), between-groups *t*-tests were used to establish if the groups significantly differed at T1 (i.e., baseline). If differences at T1 were not significant, a mixed-measures ANOVA, with time (T1, T2) as the within-subject factor and group (CMT-Pupils, PSHE as Usual) as the between-subject factors, was used to explore each quantitative wellbeing measure. This is a well-accepted analysis procedure for controlled trial designs. For any significant interaction, the predicted interaction effect was then explored via a planned simple

effects analysis, with Cohen's *d* calculated as the measure of effect size (i.e., magnitude of intervention effect for that specific measure).

Qualitative Data

The pupil focus group and teacher interview recordings were transcribed verbatim and a word file containing written responses to the four open-ended questions from the online survey was created. In all cases, identifying details of the participants were removed during the transcription process and pseudonyms added. All transcripts were coded inductively for meanings and patterns using the six phases of thematic analysis developed by Braun and Clarke (2013). Themes were developed by two of the researchers (JAT, WW) independently coding the data. The data were coded with an emphasis on data-driven codes, which are semantic in nature as opposed to latent coding (Braun & Clarke, 2013). The two researchers then came together to discuss their coding and develop an agreed set of codes. In ensuring consensus (and to minimise bias), the first coder JAT, whilst an expert in qualitative analysis, was blind to the study's purpose and new to the field of Compassion research.

Results

Pupil Evaluation of Initiative (Including Acceptability and Reach)

In total, 171 evaluation forms were completed across the five CMT-Pupils PSHE lessons. This comprised 36 forms from Lesson 1, 36 from Lesson 2, 33 from Lesson 3, 32 from Lesson 4 and 34 from Lesson 5. Descriptive data pertaining to pupil evaluation of each specific PSHE wellbeing lesson are presented in Table 2. This demonstrated that the majority of pupils found each and every lesson excellent (mean 85%), as well as every lesson excellent in terms of both enjoyableness (mean 79%) and helpfulness (mean 67%). Additionally, on average, 68% of pupils thought that the curriculum would be useful for all Year 7 pupils, and whilst 32% were unsure, only one pupil in one lesson (Lesson 2) indicated that content would not be useful for all.

Quantitative Wellbeing Indicators

For all measures, descriptive statistics are presented in Table 3. Analyses of T1 data revealed no differences between groups at baseline (in all cases $p > 0.10$). Therefore, mixed-measures ANOVA's, with condition (CMT-Pupils, PSHE as Usual) as the between-subject variable and Time (T1, T2) as the repeated-subject variable, were conducted for each dependent questionnaire variable.

For the STAIC-T, these analyses revealed a main effect of time ($F(1,56) = 4.493$, $p = 0.038$, $\eta p2 = 0.74$), but more importantly a condition by time interaction ($F(1,56) = 4.470$, $p = 0.035$, $\eta p2 = 0.077$). This interaction is displayed in Fig. 2 and demonstrates, at T2, higher STAIC-T scores for the PSHE as usual group compared to the CMT-Pupils group. This was confirmed by the planned T2 independent-samples *t*-test comparison ($p = 0.033$, two-tailed; Cohen's $d = 0.55$). In further supplementary exploration, a paired samples *t*-test revealed that STAIC-T scores significantly increased from T1 to T2 for the PSHE as usual group ($p = 0.011$, two-tailed, Cohen's $d = 0.48$, Bonferroni corrected).

Table 2 Pupil ratings of the CMT-Pupils initiative on a lesson-by-lesson basis and overall frequency counts (and percentage)

	Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5	Overall (%)
How did you find the lesson overall?						
Poor (1–3)	0	1	1	0	2	2 (1)
Average (4–7)	5	6	9	7	1	22 (14)
Excellent (8–10)	31	29	23	25	31	139 (85)
How enjoyable did you find today's lesson?						
Poor (1–3)	0	2	3	0	2	4 (2)
Average (4–7)	4	6	7	12	3	32 (19)
Excellent (8–10)	32	28	23	20	29	132 (79)
How helpful did you find today's lesson?						
Poor (1–3)	3	2	3	1	2	6 (4)
Average (4–7)	8	9	10	11	10	48 (29)
Excellent (8–10)	25	24	21	20	22	112 (67)
Do you think today's lesson would be useful for all Year 7 pupils?						
Yes	25	26	20	18	23	112 (68)
No	0	1	0	0	0	1 (0)
Don't know	11	8	12	13	8	52 (32)

Table 3 Mean (and standard deviation) scores for the Wellbeing Questionnaire Measures as a function of time and RCT condition

Measure	Condition	Assessment time	
		Time 1	Time 2
CAPS-SOP	Compassion PSHE	32.55 (6.83)	33.41 (10.71)
	Control PSHE	35.69 (8.47)	36.31 (7.96)
CAPS-SSP^{+}	*Compassion PSHE*	*23.45 (7.85)*	*22.07 (8.66)*
	Control PSHE	*25.00 (8.19)*	*27.77 (7.82)*
MFQ-SF	Compassion PSHE	19.59 (6.52)	20.21 (6.27)
	Control PSHE	21.35 (6.67)	23.08 (6.71)
PSS-C	Compassion PSHE	24.66 (7.32)	24.59 (8.13)
	Control PSHE	27.12 (7.29)	27.85 (7.35)
RSE	Compassion PSHE	29.79 (4.25)	28.66 (5.20)
	Control PSHE	27.81 (5.33)	27.00 (5.88)
SCS-C Pos	Compassion PSHE	19.00 (4.80)	18.06 (4.63)
	Control PSHE	18.58 (4.32)	18.50 (3.76)
SCS-C Neg^{+}	*Compassion PSHE*	*16.38 (5.26)*	*15.62 (6.06)*
	Control PSHE	*17.04 (6.46)*	*18.15 (6.42)*
STAIC-T	Compassion PSHE	**35.38 (8.80)**	**35.34 (9.36)***
	Control PSHE	**38.00 (10.98)***	**40.88 (11.17)***
wemwbs	Compassion PSHE	48.07 (12.30)	47.31 (11.18)
	Control PSHE	47.69 (10.45)	47.96 (10.45)

Legend: Emboldened texts indicate measures where time (1, 2) by group (control compassion) significant interactions were observed ($p < 0.05$). *Significant T2 between-group or, pre-post within-group, differences for these significant interactions

Italicised $^{+}$texts represent marginally significant interaction effects (i.e., $p > 0.05$ but < 0.10)

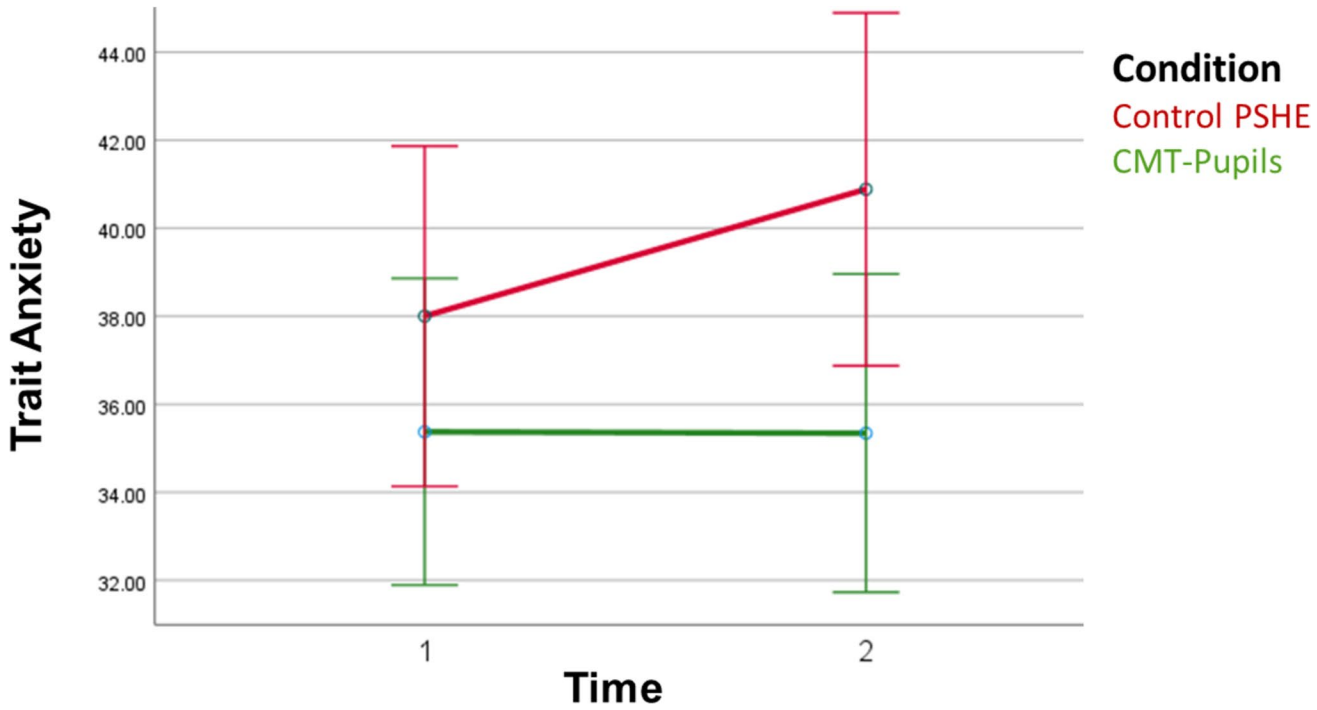

Fig. 2 Group by time interaction for trait anxiety (the STAI-T). Standard error bars represent 95% confidence intervals

For the CAPS socially prescribed perfectionism scale, analyses revealed no effects of time, but a marginally significant condition by time interaction ($p = 0.053$, $\eta p2 = 0.069$). Given this result was only marginally significant, further information/analyses are presented in the supplementary materials only.

For the negative self-compassion subscale measure, analyses revealed no effects of time but, again, a marginally significant condition by time interaction ($p = 0.082$, $\eta p2 = 0.051$). Given this result was only marginally significant, further information/analyses are presented in the supplementary materials only.

For all further measures, analyses returned no significant or marginally significant interaction effects. However, for both the MFQ and RSE, a main effect of time was observed ($F(1,53) = 7.144$, $p = 0.010$, $\eta p2 = 0.119$; $F(1,53) = 4.048$, $p = 0.049$, $\eta p2 = 0.071$, respectively). These main effects reflect that for the MFQ, scores for all pupils increased from Time 1 to Time 2, and that for the RSE, scores for all pupils decreased from Time 1 to Time 2.

Qualitative Analyses

Seven themes were identified by the coders and are presented below. The overarching message from these themes was that CMT-Pupils resulted in pupils having greater awareness of their emotions and, leading on from this, were better able to regulate their own emotions using the techniques introduced in the lessons (Theme 1: Growing situational and emotional awareness via understanding and practice, and Theme 2: The development of inter-and intra-connectedness). Additionally, CMT-Pupils allowed for development of inter-connectedness and compassionate flow, reflected in kinder behaviours and a more positive classroom environment where pupils felt better accepted and more self-confident (Theme 2: The development of inter- and intra-connectedness, and Theme 3: Noticing increased kindness to others). Pupils noticed an improvement in their own behaviour (Theme 4: Noticing improvements in behaviour) and both pupils and staff noticed improvements in the class as a whole (Theme 5: Noticing improvements in the classroom). Engaging with the curriculum proved challenging for some pupils and this was noted by both teachers and pupils (Theme 6: Challenges in progressing Compassion in the Classroom). As part of this theme, teachers also noted that the curriculum did result in unexpected disclosures, which presented their own challenges. A further theme related to teachers' personal experience of the curriculum was drawn solely from the teacher interviews (Theme 7: Teachers' personal experience of the curriculum). The seven themes are presented below.

Theme 1: Growing situational and emotional awareness via understanding and practice

Several pupils were able to describe examples of how they had understood and begun to use the Compassionate Mind Training techniques they had engaged with as part of the CMT-Pupils curriculum. This included specific situations where they had consciously used techniques and how they could be used in any situation, as discussed in the focus group (FG) by Charlotte and Callum:

"Outside of the lessons when people are like bullying me" (Charlotte, FG)

"Once you remembered how to do them, you can do them like anywhere." (Callum, FG)

The sentiment of using the techniques in any situation was echoed in the anonymous written comments (WC) of further pupils:

> "This has been helpful -. I have tried compassionate imagery at home myself." (WC)

Some participants further articulated as to how engaging in CMT-Pupils had developed awareness of their own emotions and how they could use the practice techniques introduced to regulate specific emotions, using emotional language such as stressed, angry and calm:

> "When I am stressed I use techniques that I was taught and it has helped me" (WC)

"When I've got upset or angry I take myself away for a while and taken a few deep breaths and practised some of the exercises to calm myself down." (WC)

In the focus group, Charlotte further commented on how she used the techniques introduced to regulate her mood more generally:

> "So basically, the imagery, helped me like to concentrate on more stuff and it makes me relaxed and makes me forget about the bad stuff at school" (FG)

Thus, this theme demonstrated pupils emerging awareness of the utility of the techniques introduced and how they could use these techniques to regulate their emotions. This included the application of the techniques beyond the classroom, i.e., across different situations and contexts.

Theme 2: The development of inter-and intra-connectedness

Several pupils reflected on aspects of the curriculum they enjoyed and how CMT-Pupils had enabled them to connect with others and their own emotional feelings. Callum experienced the lessons as helpful, in that they helped him to understand that he was not the only one to feel the way he felt:

"Yeah, because sometimes when you feel anxious you feel like you're the only person that feels like, like your trapped in a dream and like you feel like no one else feels that way and no one else gets those symptoms, and you sometimes… you worry about the symptoms. But then, when everyone mentions that they have that too, it just makes you feel at ease." (FG)

Several pupils further reflected on how they really enjoyed the sense of connection with each other.

"I liked when we could relax and talk about everyone's fallings" [sic] (WC)

"I think it has been quite fun and I mostly liked when we talked about what we did at the weekend because I find out what people have been doing." (WC)

"I liked the check in because you know how everyone feels" (WC)

"How we all felt safe talking to each other about things that give us anxiety and things like that and we felt like we wouldn't be judged" (WC)

This sense of connection also involved developing a greater understanding of the emotions of others:

"I think it has helped me with understanding my emotions but not as much understanding other's." (WC)

"it has sort of made me see and understands peoples [sic] emotions when I am mad at them." (WC)

"I understand my and other peoples [sic] emotions a lot more clearer [sic] than I used to." (WC)

Some pupils gave specific examples of aspects of the curriculum that resonated for them:

"I liked the lesson where we complimented each other because I think it boosted others and mines confidence" (WC)

"Drawing the systems because it makes you feel better by showing your insides and how you feel and it makes me feel happy" (WC)

The CMT-Pupils curriculum therefore enabled pupils not only to better understand and reflect upon their own emotional wellbeing, including the notion of *I am not alone* (akin to common humanity, Neff, 2012), but also the emotional wellbeing of others; and through all the former, one's sense of connectedness.

Theme 3: Noticing increased kindness to others

This theme captured two aspects. Firstly, improvements in confidence and positive emotions at the level of the self and, secondly, improvements in emotional behaviour at the level of the class. In respect to self-identified improvements, several pupils described how they noticed that they were kinder to others after the lessons:

"It has kind of helped my emotions and has made me be kinder to others I don't always speak to." (WC)

"I am a lot kinder the [sic] friends and family" (WC)

"Yes, I have been kinder and thinking about others felling [sic] when we have arguments" (WC)

Theme 4: Noticing improvements in behaviour

Some pupils further noticed a change in their sense of positivity and improvement in their own behaviour:

"I think it has helped helped [sic] my behaviour [sic] and my emotions are mostly positive." (WC)

"It has helped me feel a lot more positive about myself. My behaviour has improved even more after the project." (WC)

Theme 5: Noticing improvements in the classroom

As well as noticing changes in their own behaviour, pupils noticed positive changes in class behaviour per se. This was well articulated in the written comments of pupils:

"Some people are calmer and confident it has affected the [sic] behaviour." (WC)

"My class behaves a lot more better [sic] than what they used too [sic]" (WC)

"I have felt more welcomed in class I have been more accepted by the students in my class "(WC)

"I have noticed that our class has learned to take things more seriously when someone shares something personal." (WC)

"People have became [sic] more friendlier as the [sic] express their feelings" (WC)

Positive changes in class behaviour were also noticed and reflected upon by the teaching staff. For example, Teacher 2 reported observing an increase in confidence in the whole class, but also noticeably, in the normally quieter pupils:

"I feel like they're (class) more confident generally" (Interview)

"I would have noticed, growing in confidence and so I would say there was probably just like a couple in particular that I noticed them very much being quite quiet and withdrawn and then being able to really talk about the things they enjoy I suppose" (Interview)

Teacher 2 also reflected upon how the compassion wellbeing PSHE was having longer-term effects on class behaviour:

> "I have noticed that there's a kind of calmer atmosphere, erm you know, and I think that was maybe throughout the sessions and then continuing on afterwards." (Interview)

Without explicit reference to it, this theme, through articulation of kindness and acceptance, captures the development and emergence of the three flows of compassion: compassion for others; self-compassion and compassion from others. The result of these flows is a calmer, more welcoming, positive classroom environment where pupils feel they are accepted. Additionally, a positive ramification of such is the engendering of self-confidence both generally and in quieter pupils.

Theme 6: Challenges in progressing Compassion in the Classroom

In progressing CMT-Pupils as part of PSHE provision however, some expected and unexpected challenges emerged.

Regarding expected challenges, this included how the curriculum could be emotionally challenging for certain pupils, who may be unaccustomed to thinking about their emotions. Teacher 2 noticed how some pupils found the group emotionally challenging and needed support during the lessons, sometimes by removal from the classroom:

> "I think that was challenging for some students, we had to take one out at times, but I think it was really useful for just them to be able to have that time to sort of like calm and reflect and think" (Interview)

Another expected challenge was that some pupils found it hard to engage with the curriculum. This is exemplified in the written comments of one pupil:

> "Sometimes listening to when we had to breathe or imagining a calming place made me feel really tired and sometimes I got a bit bored and it might of been a bit more better [sic] if we played games in every lesson we had." (WC)

Progressing the compassionate wellbeing PSHE also resulted in some wider challenges. Indeed, Teacher 1 noted that although personal development (PD) is a normal part of the curriculum, CMT-Pupils resulted in unexpected disclosures or behaviours that triggered safeguarding issues:

> "it wasn't what I'd seen in PD, they were very much, did what I expected, and this brought out different things. And hopefully actually will enable, you know, those five or six key pupils who we've referred on to our counselling department within school and to the safeguarding, members. I'm hoping that because of your sessions, you know, the kids will get some real help you know, because of the things that, that, came out." (Interview)

In sum, this theme demonstrates the different emotional maturity of the pupils (despite their being of the same age) and the challenges/consequences of this recognised by the teachers. For example, some pupils struggled to engage fully with the compassion PSHE curriculum, and therefore needed greater teacher support or potentially a longer curriculum. However, for other pupils, the curriculum allowed them the space needed to articulate their personal and/or emotional challenges. Whilst this created safe-guarding issues it also, positively, enabled those specific pupils access to the help/support they needed.

Theme 7: Teachers' personal experience of the curriculum

As a result of being present during CMT-Pupils delivery, the teachers talked about a growing awareness of how self-compassion could be beneficial for them, For Teacher 1, when the class were asked what have you done to be kind to yourself? This was a powerful moment of personal reflection, noticing how the busyness and complexity of life can result in neglecting personal needs.

> "when we were asked what have you done to be kind to yourself, that was much more difficult. And that, that struck me, I sat there and I thought, oh, that's a good question. Have I actually, you know, in our hugely busy lives, rushing around and you know, at the age we are, we've got responsibilities, haven't we? We've got children, we've got, you know, partners and we have our parents and our friends." (Interview)

There were also examples of how this reflection then resulted in changes in behaviour for both Teachers. Teacher 1 stated:

> "there's not a lot of time in the week to do things for yourself but, I, it made myself think, right, I'm going to make sure I have a bath at least once a week. Because when I have a bath, you can go into the bathroom, put some bubbles in and have some music on and just have 20 minutes, 15 minutes, you know, to yourself." (Interview)

Whilst Teacher 2 reflected:

> "it was good to have that opportunity myself in the, in the lessons really… And, and, just like to take time to, to stop and think about yourself and how you are, because I think something I personally probably would've been, start of this academic year actually, umm, would've been a bit more sceptical about the idea, erm, but then I, I started to use, erm, 'Headspace', er, as it, it was a free kind of tool, that I, so I just thought oh I'll try that." (Interview)

In the quote above from Teacher 2, what also becomes apparent was that his initial scepticism before the intervention developed into curiosity and a willingness to explore ways he could find to stop and think.

In sum, this theme illustrates how both teachers were willing to reflect on the ideas of self-compassion, move beyond initial scepticism, develop curiosity and engage in specific behavioural changes.

Discussion

CMT is rapidly accumulating evidence of helpfulness and effectiveness across a range of populations, including teachers (Maratos et al., 2019, 2020; Matos et al., 2017; 2022a, b; Santos et al., 2022; Sinclair et al., 2021). Given this, the aims of the present research were, firstly, to develop a child-friendly CMT curriculum that captured essential content of CMT-Teachers and could be conducted during one school term. Secondly, to evaluate the intervention in respect to acceptability and reach and, thirdly, to evaluate effectiveness of the child-friendly CMT intervention via quantitative and qualitative indices of wellbeing and prosocial behaviour. Results revealed that development and delivery of a child-friendly CMT curriculum, referred to as CMT-Pupils, was feasible and could be conducted over the period of one term. Additionally, the curriculum was well received, with pupil feedback demonstrating excellent acceptability and reach. Finally, in terms of pupil wellbeing, quantitative analyses revealed CMT-Pupils, as compared to control PSHE as usual, protected against increases in anxiety, and qualitative analyses revealed both inter- and intra-individual benefits of the curricula. To expand, qualitative analyses revealed CMT-Pupils to result in pupils having greater awareness and knowledge of their emotions, which enabled them to better regulate their own emotions (using the techniques introduced), not only for the benefit of the pupils themselves, but also their classmates. Qualitative analyses further revealed CMT-Pupil curricula positively impacted class teacher wellbeing. Results will now be discussed in turn.

A current focus of many countries and governments (Department for Education, UK, 2021; Ministry of Health, New Zealand, 2021; Public Health Agency of Canada, 2021) is access to effective mental health and wellbeing support in schools, given that rising rates of child mental health difficulties are a major international challenge for educators and mental health professionals (Barker et al., 2022; de Miranda et al., 2020). This is especially true for children transitioning from primary/elementary education to secondary/high-school education, where rises in indicators of poor mental health are noted more frequently (e.g., Evans et al., 2018; NHS Digital, 2020); perhaps because transitioning from elementary to high-school is argued to be one of the most stressful events in a child's life (Zeedyk et al., 2003). Considering CMT interventions have been found to improve wellbeing, including reducing depression, anxiety and stress, and increasing compassion, mindfulness and prosocial behaviour (Kirby et al., 2017; Kirby & Gilbert, 2017; Kotera & Van Gordon, 2021), our first aim was to develop and deliver a child-friendly schools-based CMT intervention, grounded on an already accepted and trialled school-based educators curriculum demonstrated to improve wellbeing (i.e., CMT-Teachers; Maratos et al., 2019, 2020, Matos et al., 2022a, b; Matos, Albuquerque, et al., 2022). This aim was met, CMT-pupils included similar core content to CMT-Teachers (e.g., understanding of emotion regulation, including threat, drive and soothing; and understanding of compassion, including self-compassion, compassion for others and accepting compassion from others). CMT-pupils further included similar core practices (e.g., soothing breathing, calming imagery, compassionate self/other and compassionate acts) and, like CMT-Teachers, was delivered over the course of one school term. Thus, embedding CMT curricula in pupil-based learning was not only met, but quite feasible.

However, if an intervention is to be effective, acceptability (including responsiveness) and reach are important factors to investigate, as these factors can affect outcomes achieved (Durlak & DuPre, 2008; Wilde et al., 2019). To this end, and in respect to the second aim of the research, results revealed that the majority of pupils found core curriculum content excellent (85%), and that pupils rated the lessons as excellent in terms of enjoyability (79%) and usefulness (67%). Moreover, 68% of pupils suggested the lessons would be useful to all pupils in Year 7 (i.e., those aged 11–12). It is also noteworthy that no child nor parent chose not to consent to the research study, nor withdrew data. Together, these results demonstrate good acceptability and reach of CMT-pupils, which is important when one considers that high-quality implementation is argued to be an essential condition of any effective social and emotional learning programme (Wilde et al., 2019).

To be effective, nonetheless, a further requirement of any wellbeing intervention is that it should effect change, or protect against detrimental change. Thus, the final aim of the current research was to investigate the effects of CMT-Pupils on quantitative and qualitative indicators of wellbeing and prosocial behaviour. In focusing first on our quantitative data, we found CMT-Pupils, as compared to PSHE as usual, to protect against increased anxiety symptomology. To expand, our results demonstrated that those pupils who took part in the CMT-Pupils PSHE, as compared to PSHE as usual, demonstrated stable levels of anxiety across the 7-week period, whereas those pupils who took part in PSHE

as usual demonstrated significant increases in anxiety (with effect sizes between the two groups at Week 7 medium). As anxiety disorders are the most frequent psychiatric disorders in children and adolescents (Kowalchuk et al., 2022), and have an adverse effect on psychosocial functioning (Teubert & Pinquart, 2011), school attendance (Allen et al., 2018) and school performance/academic achievement (Essau et al., 2000; Ialongo et al., 1995), we argue that any school, grassroots or proactive approach to general child and adolescent wellbeing should meaningfully impact upon anxiety as one key child/adolescent wellbeing metric. This is consistent with the research of Jones et al. (2019) who suggest that effective in-school wellbeing programmes should be delivered to students regardless of the presence of anxiety symptoms or diagnoses, with the goal of tempering the occurrence of anxiety and/or lessening the need for additional services related to children developing anxiety disorders (see also Lowry-Webster et al., 2001). Therefore, Jones et al. (2019) have argued that in-school anxiety prevention programmes are key. Consistent with this, our data indicate that CMT-Pupils may be one appropriate prevention programme suitable for children aged 11–12 years as a future proactive approach to anxiety symptoms (and/or reducing future diagnosis).

Why CMT-Pupils impacted upon anxiety likely reflects key content of the curriculum, and CMT curricula more generally, including understanding of threat emotions; that these emotions are common to all (e.g., the weekly check-in activity); and the introduction of practices to target sympathetic nervous system (SNS) and vagus nerve activity. Importantly, SNS and vagus nerve activity contribute to, or protect from, hyper-arousal and the fight/flight response. Both of which have been found to underlie physiological anxiety (Aritzeta et al., 2022; Chalmers et al., 2014; Porges, 2017). Thus, in CMT-pupils, we propose that the combination of relevant psychoeducation and practices helped children understand emotion regulation as well as learn, and then practice, anxiety and/or worry dissipating thoughts, behaviours and strategies. This is supported by our qualitative analyses (e.g., Theme 1 and 2 excerpts).

In qualitative analyses, we set out to explore participant experience of the CMT-Pupils intervention in more depth, including effects, if any, on emotion regulation abilities and pro-social behaviours. In further understanding of the effects of CMT-pupils on emotion regulation and anxiety, our qualitative analyses revealed that CMT-Pupils resulted in pupils having greater awareness of their emotions and were better able to regulate their own emotions using the techniques introduced. Thus, CMP-Pupils did not only empower children with respect to understanding their emotions (using learning and activities centred on the three systems model), but also empowered children to use the techniques introduced to help regulate and manage their own emotions more generally, as well as the negative emotions they were experiencing as a consequence of others, or events, in their lives. This is important, as it demonstrates children were able to generalise the emotional learning and skills provided during CMT-Pupils and utilise them not only in the classroom/school environment, but also in their lives away from school. Being able to generalise learning, practices and techniques introduced during CMT-Pupils again supports why for pupils undergoing this PSHE, anxiety remained stable vs. increased over the period of the intervention (as per the control group).

Additionally, our qualitative analyses demonstrated that the introduction of CMT-Pupils enabled children to gain a deeper understanding of their own and others emotional feelings, enabling greater connection with others and a more positive classroom environment (refer to Themes 3, 4 and 5 excerpts). This enabled the children to feel more self-confident, better accepted in class and kinder to others. These findings accord with the research of Kappelmayer et al. (2023), who demonstrated that an intervention more focused on promoting empathy, compassion and loving-kindness, improved both the individual and collective wellbeing of the elementary aged children that took part. These findings also align well with a key premise of CMT generally; this is the development of motives and competencies for prosocial behaviour towards others, as well as the self (Gilbert et al., 2020; Maratos et al., 2022). Indeed, a main difference of our curriculum as compared to prior evaluated compassion-based curricula is the focus on the flows of compassion (Gilbert et al., 2011; Kirby et al., 2019) compared with self-compassion (Bluth et al., 2015; Bluth et al., 2016; Bluth & Eisenlohr-Moul, 2017; Seekis et al., 2023). In promoting the motivation to share and care, acquire empathy skills and develop ethical values, altruism, empathy and pro-social behaviours, it is argued that a focus on compassion for others and receiving compassion from others, in addition to self-compassion, is necessary (see Maratos et al., 2022; Weisz et al., 2022; Yeager et al., 2018). Finally, we found effects of the curriculum extended to the class teachers, specifically how self-compassion could be beneficial for them. This finding not only accords with the results of CMT-Teachers (Maratos et al., 2019, 2020; Matos et al., 2022a, b), but is of importance given that self-compassion is associated with lower levels of occupational stress and burnout (e.g., Hashem & Zeinoun, 2020; Wu et al., 2023). In sum, our qualitative analyses revealed effects of CMT-Pupils extended beyond the individual to their classmates, the classroom environment, and the teachers present during delivery.

Limitations and Future Research

In caveat of the above promising findings, several limitations should be noted and addressed in future research. Firstly, when considering design, whilst most participants were randomly allocated to the CMT intervention or PSHE as usual using a randomised control cluster design (i.e., the two classes were picked at random based on timetabling constraints), eight pupils took part in CMT-Pupils at the headteacher's request. Additionally, as teachers were present during delivery, this could have increased social desirability with respect to the quantitative measures data and pupil evaluations. However, this is unlikely as pupils were asked to complete their evaluations anonymously, informed that the teachers would not be the recipients of these, and were asked to fold evaluations over to obscure answers (before leaving them on class tables for collection). Moreover, the quantitative measures data were collected in standard computer rooms, with children working through the measures in their own time. This stated, that the CMT-Pupils curriculum was delivered by external facilitators could have increased effects found (e.g., the Observer/Hawthorne effect, Berkhout et al., 2022); although, conversely, external leads could have reduced the effects found, especially if the pupils felt the loss of the trainers and training when completing the T2 measures (Dhokia et al., 2020). Either way, in future research, it will be important to consider the effects of who delivers CMT-Pupils, including the feasibility of training teachers to deliver the curricula with fidelity (see here Tarrasch & Berger, 2022). Moreover, in future research, avoiding any form of quasi-experimental design will enable greater confidence in the results returned.

In considering the quantitative analyses and results, it should be noted that whilst ANOVA analyses are well-accepted control trial analysis methods, and the analysis used previously to explore the RCT trial of CMT-Teachers (Matos et al., 2022a), we did not correct for the number of analyses progressed (e.g., one per quantitative wellbeing indicator or factor). However, this is a limitation found in much of the extant literature (e.g., Gavrilova & Zawadzki, 2023; Haines et al., 2023). Whilst this could have increased our chances of finding effects (i.e., type 1 errors), we further note that sample size calculations for interactions are based on disordinal (vs. ordinal) interactions. Thus, the study may have been underpowered, reducing chances of finding effects (i.e., type 2 errors). To expand, a retrospective analysis revealed that to explore any significant interaction (using simple effects analysis) for this mixed-measures design, with time (pre, post) and group (CMT-Pupils, PSHE as normal) as the independent variables, a medium effect size (Cohen's $f = 0.25$) and acceptable power (i.e., 0.9; with alpha set at 0.05, two-tailed), the calculated sample size required was 130. Thus, when considering the marginally significant socially prescribed perfectionism and self-compassion results, it is quite possible that our study was underpowered. These considerations attest to the importance of pre-registering research protocols and analyses, including a rationale for participant numbers, in future research trials.

In further consideration of the quantitative results, we found that certain aspects of general wellbeing decreased over the 7-week period. These were tendency towards depression and feelings of self-worth/acceptance. Whilst this result could be argued to be consistent with the universal cross-country trend of poorer mental health in children increasing over time (e.g., NHS Digital, 2020), and exacerbated by COVID-19 (see here Newlove-Delgado et al., 2021), another plausible explanation is curriculum content. For example, we did not include any lesson material on self-criticism, yet in CMT-Teachers, a module is dedicated to such, given the role of self-criticism in feelings of self-worth and acceptance, and its known role in the depressive disorders (Werner et al., 2019). Our choice not to include self-critical content reflected ethical concerns and the lack of any appropriate child-friendly self-critical measures (Ashra et al., 2021). However, in future iterations of CMT-Pupils, the introduction of child-friendly self-critical content may be a useful content revision focus. Additionally, in study extension, the inclusion of quantitative measures of emotion regulation and prosocial behaviours would allow for further exploration of the qualitative benefits of CMT-Pupils found in the present study, across larger cohorts, where qualitative data collection may be more difficult.

Finally, in consideration of the qualitative data and results, it must be noted that for some pupils engaging with the curriculum proved challenging; or resulted in unexpected disclosures emerging that presented challenges (e.g., refer to Theme 6). Additionally, whilst the two teachers reflected on: positive changes with pupils; their feelings of increased connections with (and between) pupils; and how they themselves had become more self-compassionate; they further reflected on the role of teachers supporting CMT-Pupils in school curricula. Specifically, the two teachers who were present during CMT-Pupils delivery, in their interviews, expressed that they would not feel confident to deliver or guide this type of lessons with their students without training and supplementary materials, nor how to follow-up student improvements. Teachers were, however, well-versed in processes for following-up unexpected disclosures as part of safeguarding training and school policies. These findings indicate that investigating whether greater teacher support is needed when introducing the curriculum in schools would be advisable in future research. Furthermore, investigation of a longer curriculum to ensure more opportunity for children to engage with the emotional literature, learning and practices introduced, would also be a valid future direction.

Ultimately, the results of the present study demonstrate that CMT-Pupils could be a feasible and pupil-accepted approach to in-school wellbeing curricula that further promotes prosocial behaviours. To expand, we found the CMT-Pupils curriculum not only impacted trait anxiety, but enabled children to better regulate their emotions and behaviour, increased pro-social behaviours, and increased feelings of social inclusion within a school-setting. CMT-Pupils also positively impacted teacher self-compassion. Consequently, larger scale trial of CMT-Pupils is now recommended. Such trial (or trials) should include more stringent design and analysis protocols, expansion of measures and/or some curriculum content revision. Additionally, to explore wider generalisability, investigation of CMT-pupil delivery (e.g., expert vs. teacher-based), recruiting a wider age range of pupils (e.g., those approaching primary/elementary school transition), and including a third time point some weeks after the intervention to explore effect maintenance/longevity, are all valid research extensions.

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Author Contribution FM designed and executed the research study. RC, PG and FM designed the CMT-Pupils intervention. RC, supported by FM, led the CMT-Pupils intervention. WW conducted the teacher interviews. YTH and WW conducted the qualitative analyses. FM conducted the quantitative measure data analyses. An independent research assistant assisted with all further research data (e.g., conducted and transcribed the child focus group, transcribed the interview data, and analysed the intervention quality data). FM, WW, YTH, PG and MM contributed to the writing of the manuscript, with all authors approving the final version of the manuscript for submission. FM, MM, WW and PG addressed reviewer revision feedback.

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Data Availability The data analysed in this paper will be made available by the authors upon request to qualified researchers.

Declarations

Ethical Approval All study procedures were approved by the College of Health, Psychology and Social Care Ethics Committee, University of Derby.

Informed Consent Both parental and child consent was obtained before the collection of any data.

Conflict of Interest The authors declare no competing interests.

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