

The PATHS curriculum for promoting social and emotional well-being among children aged 7–9 years: a cluster RCT

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Scientific summary

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Background

Universal social and emotional learning (SEL) interventions aim to develop children's social and emotional skills (e.g. empathy). They are delivered to all children in a given classroom, usually by the class teacher, and typically consist of a series of lessons on topics such as identifying and labelling feelings, controlling impulses and understanding other people's perspectives. Alongside this, universal SEL interventions frequently include activities and strategies to promote a more positive school climate and/or work with parents and the wider community. A number of studies have shown that such interventions can lead to significant practical improvements in a range of outcomes, including children's social and emotional skills, mental health and their academic attainment. In particular, the Promoting Alternative THinking Strategies (PATHS) curriculum has a strong international evidence base. However, the evidence base in the UK remains limited. This study addresses a number of significant research priorities in this area, including the assessment of a comprehensive range of proximal and distal intervention outcomes, maintenance of intervention effects, the relationship between levels of implementation and intervention outcomes, temporal relations between outcomes, and cost-effectiveness.

Objectives

1. To determine the impact of PATHS on a variety of outcomes for children.
2. To determine whether or not the impact of PATHS is sustainable.
3. To determine the impact of PATHS on children's psychosocial adjustment to secondary school.
4. To assess the role of implementation variability in moderating the impact of PATHS on outcomes for children.
5. To assess the validity of the logic model for SEL programmes.
6. To examine the cost-effectiveness of PATHS.

Methods

A two-group parallel cluster randomised controlled trial design was utilised, with schools as the unit of randomisation. Schools allocated to the intervention arm of the trial implemented PATHS throughout the school years 2012/13 and 2013/14. Those allocated to the usual provision arm of the trial continued as normal (e.g. implementing the Social and Emotional Aspects of Learning programme and related interventions) during this period. The random allocation of schools was conducted independently of the authors by the Clinical Trials Unit at the Manchester Academic Health Science Centre, and was balanced by proportions of children eligible for free school meals and speaking English as an additional language via adaptive stratification (minimisation).

Intervention

The PATHS curriculum aims to promote self-control, emotional understanding, positive self-esteem, relationships and interpersonal problem-solving skills among 4- to 11-year-old children. This is primarily achieved through the implementation of a taught curriculum by the class teacher. Lessons on topics such as identifying and labelling feelings, controlling impulses and understanding the perspectives of others are delivered approximately twice a week throughout the year. The curriculum is supplemented by generalisation activities and techniques that support the application and consolidation of new skills

throughout the day. Finally, supplementary parental materials are provided, the aim of which is to extend learning to the home environment. Teachers in PATHS schools receive 1 initial day and 1 half-day follow-up of training, and are aided by trained external coaches, who offer ongoing technical support and assistance (e.g. lesson modelling, observation and feedback) throughout the school year as a means to optimise delivery.

Participants

Participants were children ($n = 5218$) in Years 3–5 (aged 7–9 years) attending 45 participating primary schools (23 PATHS, 22 usual provision).

Outcome measures

The study assessed children's social skills, using the Social Skills Improvement System (self-report, primary outcome measure); pro-social behaviour and mental health difficulties, using the Strengths and Difficulties Questionnaire (teacher informant-report); psychological well-being, perceptions of peer and social support and the school environment, using the KIDSCREEN-27 (self-report); exclusions, attendance and attainment, assessed using National Pupil Database records; and quality-adjusted life-years (QALYs), assessed by the Child Health Utility 9 Dimensions [(CHU-9D) self-report] measure.

Outcomes were assessed annually during the main 2-year trial period: at baseline [time point (T) 1, interim (T2) and post intervention (T3)]. Following T3, approximately one-third of the trial sample ($n = 1631$) transferred to secondary school; this subsample provided 12-month (T4) and 24-month (T5) post-trial follow-up data.

In addition, a comprehensive implementation and process evaluation was undertaken, involving usual provision surveys, structured observations of PATHS lessons, interviews with school staff and parents, and focus groups with children.

Results

Primary intention-to-treat analysis pertaining to objective 1 utilised measures taken immediately post intervention (T3), controlling for baseline scores (T1). PATHS led to marginal, non-significant improvements in children's social skills [$d = 0.09$, 95% confidence interval (CI) -0.03 to 0.20 ; $p = 0.08$] and perceptions of peer and social support ($d = 0.11$, 95% CI -0.03 to 0.24 ; $p = 0.06$), in addition to reducing exclusions ($d = -0.04$, 95% CI -0.1 to 0.02 ; $p = 0.09$), but these effects were all very small in magnitude. A very small but statistically significant improvement in children's psychological well-being ($d = 0.12$, 95% CI -0.02 to 0.25 ; $p < 0.05$) was also observed (objective 1). However, there was no evidence of any maintenance or sleeper effects at 24-month post-intervention follow-up (objective 2). Furthermore, there was no evidence from the 12-month post-intervention follow-up that PATHS had an impact on children's psychosocial adjustment to secondary school (objective 3).

Promoting Alternative THinking Strategies lessons were implemented well, but not at the frequency recommended by the programme developer; our qualitative data analysis revealed that this was primarily due to competing priorities and pressure to focus on the core academic curriculum in participating schools. Our implementation–outcomes analyses produced mixed findings; it is particularly noteworthy that although higher levels of implementation quality and responsiveness were associated with significant improvements in psychological well-being, higher levels of procedural fidelity were not associated with any outcomes (objective 4).

An analysis of the temporal associations between outcomes revealed that children's social skills contributed to their later academic attainment indirectly, via their protective influence on mental health difficulties (objective 5). Finally, the mean incremental cost of PATHS compared with usual provision was determined to be £29.93 per child. Mean incremental QALYs were positive and statistically significant (adjusted mean 0.0019, 95% CI 0.0009 to 0.0029; $p < 0.05$), and the incremental net benefit of introducing PATHS was determined to be £7.64. The probability of the programme being cost-effective was 88% in our base-case scenario, but this increased to 99% and above in all but one of the alternative costing scenarios (e.g. using preference weights for constructing CHU-9D utility values from an adolescent, as opposed to an adult, normative sample) (objective 6).

Conclusions

There was tentative evidence (at $p < 0.10$) that PATHS improved children's social skills and perceptions of peer and social support, in addition to reducing exclusions. Moreover, it was found to produce very small but statistically significant improvements in their psychological well-being and QALYs. Despite these very modest and limited gains, our economic analysis indicated that the programme is likely to offer value for money. These findings need to be considered alongside implementation data indicating that PATHS lessons were delivered at only approximately half the recommended frequency, although no consistent evidence that higher dosage was related to improved outcomes was found. Furthermore, significant caution is required as the effects noted here were not maintained beyond the main trial period. Future work should examine the possibility of further modifications to the intervention to improve its goodness of fit with the English school context without compromising its efficacy, and to identify whether or not particular subgroups benefit differentially from PATHS.

Trial registration

This trial is registered as ISRCTN85087674.

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