Initiating change locally in bullying and aggression through the school environment: the INCLUSIVE cluster RCT.

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Competing interests

E Aallen, E Warren, J McGowan, L Bevilacqua, F Jamal, Z Sadique, R Legood, M Wiggins, C Opondo, A Mathiot, J Sturgess, S Paparini, A Fletcher, M Perry, G West, T Tancred, D Elbourne, L Bond, declare no conflicts of interest. Russell Viner is President of the Royal College of Paediatrics & Child Health. Dr S Scott reports grants from Kings College London, during the conduct of the study. Professor C Bonell is a member of PHR Research Funding Board. Deborah Christie reports personal fees from Medtronic, personal fees from Pfizer, personal fees from ASCEND, all unrelated to the submitted work.

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Adolescent; student; bullying; aggression; violence; school; child health; restorative practice; social and emotional learning; mental health; quality of life; wellbeing; risk behaviour

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Scientific summary

Background

Bullying, aggression and violence among children and young people (CYP) are some of the most consequential public mental health problems. There is clear evidence of a range of physical and mental health harms associated with exposure to bullying and violence, including substance use, poorer long-term mental health, suicide and self-harm, and lower educational attainment. Childhood experiences of bullying and violence influence health and well-being contemporaneously and well into adult life. Prevention of bullying and violence is therefore a major priority for public health and education systems internationally, with schools a key focus of policy initiatives to improve young people's mental health and wellbeing.

The INCLUSIVE trial evaluates the Learning Together (LT) intervention. In 2014 we developed this intervention based upon the three most promising approaches to reducing bullying and other health risks. The first is 'whole-school' interventions which aim to modify overall school policies and systems rather than merely to deliver classroom-based lessons addressing bullying or other outcomes. A key element of many such interventions appears to be increasing student engagement with school as a social determinant of health, particularly for the most socially disadvantaged students who are at highest risk for poor health and educational outcomes. The second promising approach is restorative practice. This aims to prevent and/or resolve conflicts between students or between staff and student to prevent further harms. It enables victims to communicate the impact of the harm to perpetrators, and for perpetrators to acknowledge and take steps to remedy this, to avoid further harms. The third is social and emotional education. There is evidence that classroom curricula teaching young people the skills needed to manage emotions and relationships can enhance social relationships, improve mental health and reduce bullying.

Objectives

We hypothesised that in secondary schools randomly allocated to receive LT there would be lower rates of self-reported bullying and perpetration of aggression, and improved student and staff secondary outcomes at follow-up compared with control schools, and that LT would be cost-effective compared with standard school practice. In this paper, we report student health and behaviour outcomes. Data on student educational outcomes and staff outcomes will be published later as routine administrative data will not be available until 2019.

Methods

Design and participants

We undertook a 2-arm repeat cross-sectional cluster RCT of LT with integral economic and process evaluation in 40 secondary schools in south-eastern England, with schools as the

unit of allocation. Our study population consisted of all students in the school at the end of year 7 (11-12 years) at baseline, and at 24-months (end year 9) and 36-months (end year 10; 14-15 years) follow-up, as well as school teaching and teaching assistant staff at each time point.

Intervention

School staff were offered training in restorative practices with participants given written summaries of the material covered in training. Schools were provided with a manual to guide the convening and running of an action group. For the first two years of the intervention, schools were provided with an external facilitator for the action group. Schools were sent a report on student needs detailing findings from a survey of students age 11-12 years about their attitudes to and experiences of school, and experiences of bullying, aggression and other risk behaviours at the end of each year (*see Appendix 3 for an example*). Schools were provided with written lesson plans and slides to guide delivery of a classroom social and emotional skills curriculum.

Guided by the manual and facilitator, schools instituted action groups comprising staff and students to: review in the first two years of intervention school rules and policies relating to discipline and behaviour management so that these support delivery of restorative practice; and coordinate intervention delivery across the school in all three years. The facilitator ensured that meetings were scheduled, and attended these to ensure meetings were participative and focused on deciding and implementing actions. Action groups reviewed the report of student needs to inform decisions. Schools delivered classroom-based social and emotional skills education in ‘personal, social and health education’ (PSHE) lessons and/or integrated into tutor time or various subject lessons (for example, English) to students in the trial cohort as they moved through years 8-10 (12-15 years). Schools selected modules for each year from: establishing respectful relationships in the classroom and the wider school; managing emotions; understanding and building trusting relationships; exploring others’ needs and avoiding conflict; and maintaining and repairing relationships.

Primary restorative practices delivered in schools in all three years involved staff using restorative language (the respectful use of language to challenge or support behaviour in a manner that preserves or enhances the relationship) and circle time (classes coming together to discuss their feelings and air any problems so these may be addressed before they escalate) underpinned by supportive schools rules and policies and the social and emotional skills curriculum. Secondary restorative practices involve some staff implementing restorative conferences (the parties to a conflict being invited to a facilitated face-to-face meeting to discuss the incident, its impact on the victim and for the perpetrator to take responsibility for their actions and avoid further harms).

Schools randomised to the control group continued with their normal practice and received no additional input.

Primary outcomes

The primary outcomes were self-reported experience of bullying victimization and perpetration of aggression measured at 36 months. Bullying victimisation was assessed by the Gatehouse Bullying Scale (GBS). Perpetration of aggressive behaviour was measured using the Edinburgh Study of Youth Transitions and Crime (ESYTC) school misbehaviour subscale.

Secondary outcomes

The GBS and ESYTC were assessed at 24 months as secondary outcomes. The following secondary outcomes measured at 36 months: quality of life (PedsQL); Wellbeing (Short Warwick-Edinburgh Mental Well-Being Scale (SWEMWBS); Psychological problems (Strengths and Difficulties Questionnaire (SDQ)); Bullying perpetration (the Modified aggression scale); Substance use (smoking, alcohol use, illicit drug use); Sexual risk behaviour (age of sexual debut and use of contraception); Use of NHS health services; Contact with police.

Recruitment

We identified and contacted all potentially eligible schools in Greater London and surrounding counties (Surrey, Kent, Essex, Hertfordshire, Buckinghamshire, and Berkshire) between March and June 2014. The 40 participating schools did not differ from 450 non-recruited schools in terms of school size, population, deprivation, student attainment or value-added education. However, participating schools were more likely to have an Ofsted rating of good or outstanding.

Eligible schools were:

(i) mainstream secondary schools within the state education system in south-east England.

(ii) most recent school quality rating by the Office for Standards in Education, Children's Services and Skills (Ofsted) of 'requires improvement'/'satisfactory', 'good' or 'outstanding'. Schools with an 'inadequate/poor' rating were excluded as such schools are subject to special measures which are likely to impede LT delivery.

Data collection

Baseline surveys occurred March-July 2014, 24-month follow-up in April-June 2016 and 36-month follow-up in April-June 2017. Student self-report data were collected using paper questionnaires which students completed in lesson time in classrooms under exam conditions facilitated by trained researchers with teachers present but unable to read student responses. The field-workers assisted students with questions that they did not understand and ensured that students completed as much of the questionnaire as possible. Students with mild learning difficulties or with limited command of written English were supported in their completion of the questionnaires by fieldworkers.

Process evaluation

In line with MRC guidance on complex interventions and other frameworks, the process evaluation examined trial context, such as discipline systems, staff training, social and emotional learning curricula and student participation in decision-making to assess how

these differed from what was implemented in the intervention; trial fidelity; awareness - the extent to which students and staff were aware of the intervention; and reception and responsiveness.

Economic evaluation

The economic evaluation used a cost consequence analysis with all main outcomes and evaluated incremental effects at 24 and 36 months since randomisation. Costs were identified from a public sector perspective including education, police and NHS resources. Costs of delivering the interventions were collected from the invoices for facilitators and trainers and data from the process evaluation on school staff time requirements. The costs of staff time dealing with bullying were collected through the staff survey questionnaire, and the costs of NHS and police resource use data were collected through student survey questionnaire and valued accordingly.

Trial registration and amendments

The trial was prospectively registered as ISRCTN10751359 with the ISRCTN Registry on 30/01/2014 and accepted for publication on 30/09/14. The protocol was amended in the course of the trial to refine the methods used. All amendments were approved by the independent study steering committee and the funder of the trial. The only change to trial outcomes was adding a measure of bullying perpetration (secondary outcome). All refinements were completed prior to collection of the 36-month surveys and before any trial analyses were conducted.

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Analyses

The primary analysis of outcomes was intention-to-treat including all randomised schools and participants at each wave. Each measure was analysed using a separate mixed model with the outcomes from each time point treated as a repeated measures outcome. Fixed

effects of arm (LT vs. control), time (baseline, 24 months and 36 months), and the interaction between treatment and time were specified, and the estimated baseline measures were constrained to be identical in the two arms of the trial.

As pre-specified in the statistical analysis plan we carried out analyses adjusted only for baseline measures of the outcomes and the analyses adjusted for baseline measures of outcomes, sex, ethnicity, socioeconomic status (SES) as well as for the school level stratifying factors (single sex versus mixed sex school; school level deprivation; value added strata) as the primary analysis.

For the co-primary outcomes (GBS and ESYTC), mixed linear regression models with random effects at the participant and school levels were used to estimate a mean difference in GBS and ESYTC scores between the two arms of the trial.

Economic analyses: The primary economic evaluation was a cost-consequence analysis. The economic analysis used general linear mixed regression models that allow for clustering of students within schools, and including school as a random effect variable.

Results

A total of 6667 students in the 40 participating schools provided data at baseline, with participation rate being 93.6% of the students on the school roll (92.9% in intervention arm; 94.3% control arm).

Primary outcomes: Overall GBS bullying scores were lower amongst intervention compared with control schools at 36 months (adjusted mean difference [95% CI].;-0.03 [-0.06, 0.00].; adjusted effect size -0.08). There was no evidence of a difference in misbehaviour/delinquency scores ESYTC scores (-0.13 [-0.43, 0.18].; -0.03) between arms; however the direction of effect suggests a positive effect of the intervention.

Secondary outcomes: There was no evidence of difference in the GBS overall score or the ESYTC misbehaviour/delinquency scores at 24 months. At 36 months, students in intervention schools had a higher quality of life (PedsQL adjusted effect 1.44 [0.07, 2.17].;

adjusted effect size 0.14) and psychological wellbeing scores (SWEMWBS: 0.33 [0.00, 0.66].; 0.07) and lower psychological total difficulties (SDQ total score -0.54 [-0.83, -0.25].; -0.14) than students in control schools. There was evidence that those in intervention schools also had lower emotional, conduct, hyperactivity and peer problems (SDQ subscales.

Students in intervention schools had lower odds of having ever smoked regularly (OR [95% CI].; 0.58 [0.43, 0.80]. adjusted risk difference [95% CI].; -0.03 [-0.05, -0.01].), lower odds of having ever drunk alcohol (0.72 [0.56, 0.92].; -0.03 [-0.06, -0.01].) and lower odds of having ever been offered or tried illicit drugs (0.51 [0.36, 0.73].). Amongst students in the intervention arm who had ever smoked there was evidence that the time since the last cigarette was longer than those in the control arm and similarly that, amongst those who had ever drunk alcohol, there were lower odds of having drunk in the past week (0.67 [0.50, 0.91].), number of times been really drunk (0.57 [0.33, 0.98].) and lower odds of binge drinking (0.77 [0.59, 1.00].). Similarly, students in intervention schools had lower odds of having ever been in contact with police in the past 12 months than those in control schools (0.74 [0.56, 0.97].; -0.02 [-0.04, -0.00].). We found no evidence of differences in age of sexual debut or use of contraception at first sex, bullying perpetration or use of NHS services.

Exploratory analyses suggest the intervention may be most effective for students with higher baseline levels of bullying or aggressive behaviours. The intervention also had greater effects for boys for secondary psychological and behavioural outcomes although not for primary outcomes.

Process evaluation findings

Fidelity was variable with a reduction in the fidelity of formal intervention activities in year 3. The median fidelity score for years 1-2 (maximum possible score 8) was 6 (interquartile range 5-7) while for year 3 (maximum score 4) the median was 1 (interquartile range 0-3). In year 3, fifteen schools sustained restorative practice. Interviews with action group members and focus groups with staff in case study schools suggested that in year 3, schools commonly incorporated what they regarded as the most useful action group functions into

mainstream school structures and processes. The fidelity score for year 3 was not associated with either primary outcome. The intervention was delivered more completely when led by a member of staff with sufficient authority and support to make decisions and drive delivery. In many but not all cases this required that the staff member was on the school's senior leadership team.

Slightly over half of staff in intervention schools were aware that the school had been taking steps to reduce bullying and aggression with this falling slightly between years 2 and 3.

Economic evaluation

The main time components for school staff were attending the training and curriculum delivery. We included staff restorative practice training in intervention costs but staff interviews suggested that training was not additional but part of existing training periods, suggesting our intervention costs may be over-estimated. The mean (SD) costs per school of all staff time combined were £232,670 (113,634) for the intervention arm and £202,405 (103,090) for the control arm. Costs for health service use and police contacts were similar in both arms. Overall, the intervention increased costs and reduced bullying, leading to incremental costs per GBS score averted of £2,352 at 36 months.

Limitations

The large number of secondary outcomes investigated necessitated multiple statistical testing. The Gatehouse Bullying Scale is a well-established tool to measure the occurrence of bullying victimisation and aligns with the WHO definition of bullying[1] but aligns less well with some other definitions of bullying, such as Olweus', [2] which focuses on repeat victimization and power imbalances between perpetrator(s) and victim. Some aspects of the process evaluation had low response rates.

Conclusions

We present here the first randomised trial of restorative approaches to reduce bullying and aggression and promote student health in schools, within a multi-component whole-school

intervention engaging students in school decision-making, and providing restorative practice and social and emotional skills education. LT resulted in a very broad range of benefits for behaviour and health outcomes. LT reduced student reports of bullying victimisation compared with schools continuing their standard practice. We did not identify a reduction in student reports of aggression across the whole sample. Additionally, LT appeared to have larger beneficial impacts on a wide range of important secondary outcomes among students, ranging from improved psychological function, wellbeing and quality of life, to reductions in police contact, smoking, alcohol and drug use. We found intervention effects both in the whole sample and in those with higher levels of bullying or aggression at baseline, implying the intervention worked to curtail existing bullying and aggression (secondary prevention) as well as prevent new bullying (primary prevention). The intervention may be most effective for students with higher baseline levels of bullying or aggressive behaviours. The intervention also had greater effects for boys for secondary psychological and behavioural outcomes although not for primary outcomes. The intervention was low cost, falling into the 'very low cost' category for school interventions according to the Educational Endowment Foundation guidance. The intervention was feasible and acceptable to deliver, with delivery promoted by the involvement of senior staff.

Implications for research and practice

Our study adds to the evidence that whole-school approaches to preventing bullying and aggression and promoting student health are feasible to implement and have positive effects on a range of outcomes in a broad range of high, middle and low-income settings.[3-6] LT offers the potential for broad improvements in behaviour and health in secondary schools and, as is the first RCT of school-based restorative practice, provides strong support for further development of restorative approaches in secondary schools. The results are important for public health policy in that a single, very low-cost intervention impacted on a clustered set of outcomes of public health importance including bullying, mental health, wellbeing and quality of life as well as use of tobacco, alcohol and drugs.