

Mental health promotion and problem prevention in schools: what does the evidence say?

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SUMMARY

The European Union Dataprev project reviewed work on mental health in four areas, parenting, schools, the workplace and older people. The schools workpackage carried out a systematic review of reviews of work on mental health in schools from which it identified evidence-based interventions and programmes and extracted the general principles from evidence-based work. A systematic search of the literature uncovered 52 systematic reviews and meta-analyses of mental health in schools. The interventions identified by the reviews had a wide range of beneficial effects on children, families and communities and on a range of mental health, social, emotional and educational outcomes. The effect sizes associated with most interventions were generally small to moderate in statistical terms, but large in terms of real-world impacts. The effects associated with interventions were variable and their effectiveness could not always be relied on. The characteristics of more effective

interventions included: teaching skills, focusing on positive mental health; balancing universal and targeted approaches; starting early with the youngest children and continuing with older ones; operating for a lengthy period of time and embedding work within a multi-modal/whole-school approach which included such features as changes to the curriculum including teaching skills and linking with academic learning, improving school ethos, teacher education, liaison with parents, parenting education, community involvement and coordinated work with outside agencies. Interventions were only effective if they were completely and accurately implemented: this applied particularly to whole-school interventions which could be ineffective if not implemented with clarity, intensity and fidelity. The implications for policy and practice around mental health in schools are discussed, including the suggestion of some rebalancing of priorities and emphases.

Key words: Mental health; Social and emotional learning; Schools; Children; Systematic review

BACKGROUND

Mental health and schools

Childhood and adolescence provide key opportunities to develop the foundations for mental health and prevent mental health problems, and the school is a unique resource to help achieve this. Schools can help tackle the problem of the substantial number of children and young people who experience mental health problems. Around 25% of children and young people in the developed world have an

identifiable mental health problem (Harden *et al.*, 2001), of whom 10% fulfil criteria for a mental health disorder. Schools can also promote positive mental health and create resilience, providing the child or young person with resources to thrive and, in adverse conditions, to cope by buffering negative stressors. For children who come from less than optimum home backgrounds and neighbourhoods the intervention of the school can be the turning point for many children with few other supports (Gross, 2008).

The importance of the school for mental health, and the opportunities it provides for interventions have been evident for some time, and the last two decades have seen considerable growth in mental health research and interventions. There are literally thousands of school mental health interventions in operation across the world, some of which have been evaluated. These go under many names: mental health, 'social and emotional learning' (SEL), 'emotional literacy', 'emotional intelligence', 'resilience', 'lifeskills' and 'character education' (Weare, 2010). The world leader in terms of interventions is the USA, generating the most interventions and investing the most in evaluation. Thousands of what are effectively mental health interventions are operating with various levels of demonstrable success. Of these, ~20 major interventions are consistently identified as successful by rigorous systematic reviews (Zins *et al.*, 2004; CASEL, 2010). Australia is also the scene of thriving work with some interventions starting to produce robust and positive evaluations (Adi *et al.*, 2007a; Shucksmith *et al.*, 2007).

The objectives of the DataPrev schools work package

Against this background, one of the work packages of the DataPrev project reviewed mental health interventions in schools. The schools' work package aimed to clarify the evidence for and create a database of key evidence-based principles, approaches and interventions that are relevant to Europe and produce policy and practice guidelines to assist policy-makers as they select approaches and interventions for implementation. A full report is available on the Dataprev website. <http://dataprevproject.net/>

Objectives of this paper

This paper will draw upon the review of the schools work package. It will describe the methodology used in the systematic review and outline its main findings in terms of the quality and content of the reviews, the impact of interventions across a range of mental health issues and outline the themes that emerged from the review, including the apparent characteristics of more effective interventions. It will discuss the implications of these findings for work in school mental health promotion, including in Europe.

METHODOLOGY

Identifying reviews

As there were already many good quality reviews of primary studies in the field, both the schools and the parenting work packages did not look at primary studies but instead sought existing good quality systematic reviews, reviews of reviews, data synthesis, data extraction, meta-analyses and evidence-based databases. The scope was: from 1990, school-aged children and young people (4–19 years in mainstream, special and independent institutions), and included universal, targeted, indicated, school-based, and classroom-based interventions, including those in which schools worked with families and the community, to improve mental health, to prevent mental illness and problems and/or tackle mental health problems.

The databases searched included MEDLINE, EMBASE, ERIC, CINALH, Sociological Abstracts, ASSIA, Psycinfo, the Cochrane Database of Systematic Reviews, DARE CENTRAL, SIGLE, and the Social Sciences Citation Index. Additionally, reviews were found through research agencies in the field that use rigorous evaluation methods, personal contacts with established reviewers, pursuing references from previous reviews and overviews, and hand-searching two journals: *Advances in School Mental Health Promotion* and *International Journal of School Mental Health*.

In keeping with most modern definitions mental health was broadly conceptualized and over 80 search terms were used to reflect the wide and inclusive nature of the field, paralleling the concepts of mental health and search terms used in the parenting review. Mental health was seen as including positive wellbeing, and so generic terms such as wellbeing and quality of life and descriptions of positive mental states such as happiness and self-esteem were used. It was thought to incorporate mental health skills and capacities, so terms such as communication and resilience were included. It was also seen as including both internalizing and externalizing mental health problems, so terms such as depression and anger were used. It was appreciated that taking such a broad and inclusive view would result in a set of reviews which would be somewhat heterogeneous in terms of focus, subject, target group and so on, but, in line with other good quality large scale reviews entitle

'mental health and wellbeing' in recent years [e.g. (Adi, 2007a,b; Shucksmith *et al.*, 2007)] it was felt important to reflect the breath of the field and bring together findings from a range of studies to try to achieve a comprehensive picture which reflected current broad concept of mental health.

Content and thematic analysis

Data were extracted using two standardized forms. One noted aspects of the content: the focus of review, aims of the intervention, who delivered, frequency and duration, population, setting and timing. The second noted results: number of included studies, relevant outcomes including effects sizes where given, findings and authors' conclusions. The reviews were subjected to content and thematic analysis, with recurrent themes and trends identified and particular attention paid to any quantitative estimates of effectiveness. Descriptive data on the reviews, and the authors' results and conclusions are summarized in Table 1.

Critical appraisal and the weighting of evidence from the reviews

A third standardized form was used for critical appraisal, using criteria, informed by a seminal paper by (Oxman *et al.*, 1994), by the practice of other well-conducted reviews of reviews in this area (Browne *et al.*, 2004; Adi *et al.*, 2007a,b) and by the parallel review of reviews of parenting by the Dataprev project (Stewart Brown and Shrader McMillan, this volume). The criteria used are outlined in Table 2, they included the relevance of the focus of the review, whether the interventions included took place only in schools and related community and family settings (the focus of this review) or included clinical settings (not within the focus of this review). Further criteria were whether the review addressed a focussed question; included only studies with an element of control (RCTs and CCTs) had a stated effective, appropriate and comprehensive search and review strategy, appraised the quality of the studies included, provided a meta-analysis and/or data synthesis, and included quantitative presentation of results quantitatively with effects sizes, percentages and/or confidence intervals.

Table 2 rates the quality of the 52 reviews. Reviews were graded to the extent to which they

met the various criteria. The reviews on which this review placed most weight and from which the key results are derived were those judged to be of high quality (which only included those where the interventions reviewed did not include clinical contexts, as it was felt that this inclusion was a dilution of the relevance of the findings). Those of medium quality were then consulted to support or shed further light on the key results already identified. Reviews of low quality were used as additional support only where there was already strong evidence from high- and medium-quality reviews. (The starring system used in Table 2 has been used throughout the text, with references to the reviews starred appropriately to help make the weight of evidence clear to the reader.)

RESULTS

The reviews

Over 500 studies were identified, of which 52 reviews met the inclusion criteria.

Universal/targeted

Most (46) of the reviews were universal in scope, i.e. they targeted all children in the group, including those without problems, and 14 of these also explored the impact of interventions and approaches on targeted or indicated populations within their larger sample (discussed in more detail below). Six reviews were entirely focused on targeted and/or indicated populations, focusing on children with or showing signs of various mental health problems (2) violence and aggression (2) and emotional and behavioural problems (2). See Table 1 for more details.

Critical review and quality of the reviews

As Table 2 shows, 27 of the reviews were of high quality (6 or 7 criteria met), 18 were of medium quality (5 criteria met) and 7 of low quality (4 or less criteria met). The major area of methodological weakness was the inclusion of studies without an element of control, most commonly interrupted time line (18 reviews). The second most common weakness was the failure to enumerate results in any way (15 reviews). Third weakness was the inclusion of

Table 1: Critical review and quality assessment

Author (year)	Review focused only on interventions centred around schools, i.e. not clinical?	Clearly focused question?	Only controlled trials (RCTS, CCTs) included?	Stated and appropriate and comprehensive search strategy?	Quality of studies assessed and used to guide results?	Substantial meta-analysis/ data synthesis?	Results presented to allow quantitative assessment of impact?	Quality ¹
(Adi <i>et al.</i> , 2007a)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	***
(Adi <i>et al.</i> , 2007b)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	***
(Bayer <i>et al.</i> , 2009)	Yes	No	Yes	Yes	Yes	Yes	No, a narrative review	**
(Beelman <i>et al.</i> , 1994)	No	Yes	Yes	Yes	Yes	Yes	Yes	**
(Beelman and Losel, 2006)	No	Yes	Yes	Yes	Yes	Yes	Yes	**
(Berkowitz and Bier, 2007)	Yes	Yes	No, also included pre and post design	Yes	Yes	Yes	Yes	***
(Blank <i>et al.</i> , 2009)	Yes	Yes	No, also included interrupted time series	Yes	Yes	Yes	Yes	***
(Browne <i>et al.</i> , 2004)	Yes	Yes	No, included reviews using wide range of studies but mostly with controls	Yes	Yes	Yes	Yes	***
(Catalano <i>et al.</i> , 2002)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	***
(Clayton <i>et al.</i> , 2001)	Yes	No	No, included wide range of studies	Yes	No, programmes with low quality evaluations and inconclusive results included as 'promising'	Yes	No	*
(Diekstra, 2008a)	Yes	Yes	No, review of reviews using wide range of studies	Yes	Yes	Yes	No, described features of the review	*
(Diekstra, 2008b)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	***
(Durlak and Wells, 1997)	No	Yes	Yes	Yes	Yes	Yes	Yes	**
(Durlak <i>et al.</i> , 2007)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	***
(Durlak and Weissberg, 2007)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	***
(Durlak <i>et al.</i> , 2011)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	***
(Ekeland <i>et al.</i> , 2004)	No	Yes	Yes	Yes	Yes	Yes	Yes	**
(Farrington and Ttofi, 2009)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	***
(Gansle, 2005)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	***
(Garrard and Lipsey, 2007)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	***
(Green <i>et al.</i> , 2005)	Yes	No	No, review of reviews but no requirement that the primary research used controls or comparison groups	Yes	Yes	Yes	No, described features of the reviews	*
(Greenberg <i>et al.</i> , 2001)	No	Yes	Yes	Yes	Yes	Yes	No, descriptively by features of the programmes	**
(Hahn, 2007)	Yes	No	No, included wide range of designs	Yes	Yes	Yes	Yes	**
(Haney and Durlak, 1998)	No	Yes	Yes	Yes	Yes	Yes	Yes	**
(Harden <i>et al.</i> , 2001)	No	Yes	No, included wide range of designs	Yes	Yes	Yes	Yes, for the systematic review and in depth review	**
(Hoagwood and Erwin, 1997)	Yes	No	Yes	Yes	Yes	Yes	No, results described as significant, programmes as effective, or not	**

(Horowitz and Garber, 2006)	No	Yes	Yes	Yes	Yes	Yes	No, results described as effective, mixed or not effective	**
(Kraag <i>et al.</i> , 2006)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	***
(Maxwell <i>et al.</i> , 2008)	No	No	No, included wide range of designs	Yes	No, wide range of studies included some of medium methodological quality	Yes	No, thematically and descriptively.	*
(McCarthy and Carr, 2002)	Yes	Yes	No, included wide range of designs	Yes	Yes	Yes	No, descriptive/narrative review	**
(Merry <i>et al.</i> , 2004)	No	Yes	Yes	Yes	Yes	Yes	Yes	**
(Mytton <i>et al.</i> , 2002)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	***
(Neil and Christensen, 2007)	Yes	Yes	No, included before and after	Yes, of studies from Australia only	Yes	Yes	No, descriptive/narrative review	**
(O'Mara <i>et al.</i> , 2006)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	***
(Park-Higgerson <i>et al.</i> , 2008)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	***
(Payton <i>et al.</i> , 2008) (indicated)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	***
(Reddy <i>et al.</i> , 2009)	Yes	Yes	No, included various research designs	Yes	Yes	Yes	Yes	***
(Rones and Hoagwood, 2000)	Yes	Yes	Yes	Yes	Yes	Yes	No descriptive/narrative review	**
(Schachter <i>et al.</i> , 2008)	Yes	Yes	No, included pre-post test or post test	Yes	No, most studies classified as poor	Yes	No	*
(Scheckner <i>et al.</i> , 2002)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	***
(Shucksmith <i>et al.</i> , 2007)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	***
(Sklad <i>et al.</i> , 2010)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	***
(Stage and Quiroz, 1997)	Yes	Yes	No used the interrupted time series	Yes	Yes	Yes	Yes	**
(Tennant <i>et al.</i> , 2007)	Yes	Yes	No, review of reviews, looking at systematic reviews	Yes	Yes	Yes	No (for one study only)	**
(Tilford <i>et al.</i> , 1997)	Yes	No	No, used wide range of designs	Yes	No	No	No, narrative review	*
(Vreeman and Carroll, 2007)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	***
(Waddell <i>et al.</i> , 2007)	No	Yes	Yes	Yes	Yes	Yes	No (for one study only)	**
(Wells <i>et al.</i> , 2004)	Yes	Yes	Yes	Yes	Yes	Yes	No, narrative synthesis	***
(Wilson <i>et al.</i> , 2003)	Yes	Yes	No, included pre-post test design	Yes	Yes	Yes	Yes	***
(Wilson and Lipsey, 2006a)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	***
(Wilson and Lipsey, 2006b)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	***
(Wilson and Lipsey, 2007)	Yes	Yes	No, included pre-post test	Yes	Yes	Yes	Yes	***

¹Key for assessment for quality.
 ***, high quality 6 or 7 of the criteria met, including no interventions in clinical settings included (column 2).
 **, medium quality, 5 criteria met.
 *, low quality <4 criteria met.

Table 2: Focus and results of reviews

Author (year)	Number and focus of included studies	Mental health outcomes measured	Authors' results	Authors' conclusions
(Adi <i>et al.</i> , 2007a)	31 studies, 15 RCTs and 16 CCTs describing 30 interventions in primary schools that take a universal approach to promoting mental wellbeing but not primarily focused on violence or bullying	Broad range, including: emotional wellbeing (including happiness and confidence, and the opposite of depression/anxiety); psychological wellbeing (including resilience, mastery, confidence, autonomy, attentiveness/involvement and the capacity to manage conflict and problem solve) social wellbeing/good relationships with others	Overall effect sizes were calculated for only 4 of the 31 studies, one good quality RCT: 0.15 and 0.30; two moderate quality RCTs: 0.37 and 0.25 and one moderate quality CCT: 0.27 and 0.18. All suggesting small to medium effects of interventions on mental health. Good evidence to support multi-component programmes, covering classroom curricula and the school environment, which include significant teacher training and development and support and training for parenting. Typically long-term involving children for between 1 and 3 years. Some evidence that short-term stress and coping programmes delivered by psychologists are effective in the short term. Effectiveness may be enhanced by addition of a programme for parents. More evidence is needed on sustainability and effectiveness of psychologists versus teachers in providing such interventions Reasonable quality evidence that short-term conflict resolution programmes delivered by teachers and involving peer mediation are effective in the short term. Reasonable quality evidence that long-term programmes covering social problem solving, social awareness and emotional literacy, in which teachers reinforce the classroom curriculum in all interactions with children are effective in the long term even when delivered alone Some evidence to support further trials of programmes in which retired volunteers are recruited to help in schools Insufficient evidence to make recommendations relating to the optimum balance of universal and targeted approaches, but there was some evidence that the combination may be effective There are no trials identified in this systematic review to show differential effects according to age, gender, ethnic or social groups	Clear positive impact of multi-component/whole school approaches Need more research on the content and process of delivery of interventions (including the content and approach to teacher training and parenting support, barriers and facilitators to implementation) and the most effective combination of targeted and universal approaches Need more research on promising programmes to develop coping skills and reduce stress and anxiety and other short-term class-based programmes, e.g. conflict resolution, to assess long-term effectiveness, and cross cultural adaptability Good quality CCTs of programmes adopting a health promoting school approach to mental health promotion should be undertaken using a range of robust outcome measures, positive as well as negative, and measuring long-term impact Secondary research is needed to update reviews of measures of child mental health and primary research to develop measures which fill gaps in availability

<p>(Adi <i>et al.</i>, 2007b)</p>	<p>17 studies reported in 23 papers—11 RCTs and 6 CCTs in primary schools that take a universal approach to promoting mental wellbeing primarily focused on violence or bullying</p>	<p>Focused only on measures of violence and proxy measures of aggression, e.g. antisocial behaviour or social skills, in interventions Most common outcomes measured—teacher, peer or self-reported measures of behaviour problems or social competence Some trials used observations of children’s behaviour, by teachers and/or independent observers Some trials used child reports of self-victimization or victimization of peers, or children’s knowledge of bullying A few studies reported event-based data such as exclusions or expulsions from school due to violence, or visits to the school nurse for injury Two studies with long-term follow-up reported on arrests and court appearances for delinquency</p>	<p>6/17 trials showed a clearly positive impact, and 8/17 trials showed a possibly positive impact. The most common violence-related outcomes measured were teacher-, peer- or self-reported measures of behaviour—either behaviour problems or social competence Only 2 of the 17 contained effects sizes. One showed a standardized mean difference of 0.41 with effects maintained in seven studies reporting 12 months follow-up, the other effect sizes were found of the order of 0.1 for universal interventions and 0.3 for targeted or indicated populations There is evidence from three out of four ‘moderate’ quality RCTs, and two out of two good quality CCTs of the effectiveness of multi-component programmes, which typically combine social skills development curriculum, teacher training in management of behaviour and parenting education Moderate to good evidence that a multi-component programme which aims to change school ethos (PeaceBuilders) was effective, including at 2 year follow-up in improving outcomes related to violence and mental health, measured by teacher reports of social competence and aggression The evidence relating to curriculum only programmes (e.g. second step) suggests short, but not longer term effectiveness There is some evidence that the Good Behaviour Game was effective in the short term, not evident at 2 and 6 years follow-up for all children but some evidence it reduced violence in the most aggressive boys. This programme may be useful in combination with others There was some evidence of short-term effectiveness of the Olweus Anti Bullying programme after a year, but not evident at 2 year follow-up Widespread evidence that programmes have more effect on boys than girls, white than black children, high- than low-risk children</p>	<p>Clear positive impact of multi-component/whole school approaches Promising evidence for approaches which attempt to change the school culture and ethos, changing values, attitudes and behaviours relating to the way both staff and students treat each other. Such whole school programmes could have enduring impact on the school culture, so the ‘intervention’ would not normally have an endpoint. Long-term evaluation would need to track these children through into secondary schools. Whole school interventions that do not change school ethos and values are unlikely to show sustainable changes Higher impact on high-risk children may be the ‘ceiling effect’ Main impact is on boys. Need to develop programme which take the violent behaviour demonstrated by girls into account</p>
<p>(Bayer <i>et al.</i>, 2009)</p>	<p>50 RCTs from which 6 programmes were identified that showed effectiveness and could be translated into an Australian context</p>	<p>Emotional and behavioural problems</p>	<p>Most programmes targeted children’s behavioural problems, and a few targeted emotional problems. At school age, the Good Behaviour Game class programme showed evidence of effectiveness. Interventions exist primarily for behaviour and, to a lesser extent, emotional problems, and could be disseminated from research to mainstream in Australia, ensuring fidelity to original programmes</p>	<p>Future research should develop programmes targeting emotional problems, and replicate effective programmes for behaviour problems in quality population translation trials. Randomized trial methods in staged roll-outs can determine population cost benefits for children’s mental health without delaying dissemination</p>
<p>(Beelman <i>et al.</i>, 1994)</p>	<p>49 studies of interventions that teach social competence to children</p>	<p>Measures of social competence, e.g. social-cognitive skills and social adjustment</p>	<p>Social competence training showed moderate effect sizes. However, effect sizes were lower than in previous studies. Two main problems were identified: First, significant effect sizes were found only when direct goal criteria (e.g. social-cognitive skills) were evaluated, whereas there were few effects on broader constructs (e.g. social adjustment). Second, long-term effects were weak</p>	<p>Further primary studies are needed on the generalization and maintenance of change</p>

Continued

Table 2: *Continued*

Author (year)	Number and focus of included studies	Mental health outcomes measured	Authors' results	Authors' conclusions
(Beelman and Losel, 2006)	84 research reports with 127 treatment-control comparisons on social skills training to prevent anti-social behaviour and promote social competence	Measures of (1) Anti-social behaviour, e.g. aggression, delinquency, disruption and/or (2) Social competence, e.g. social interaction skills, pro-social behaviour, self-control or social problem solving Broad range of data used, e.g. reports, observations, official records, but had to be reported in sufficient detail to permit reliable effect size computation	A small but significant overall positive effect of $d = 0.39$ at post-intervention and $d = 0.28$ at 3 months follow-up Effect sizes were somewhat greater for outcome measures of social competence than for measures of anti-social behaviour, particularly when delinquency was assessed Slight tendency for more intensive treatments to be more effective, e.g. at follow-up most intensive treatments were the only ones to impact on anti-social behaviour ($d = 0.30$) Cognitive-behavioural programmes were the only ones that impacted significantly on anti-social behaviour ($d = 0.50$) and generally had the best results in terms of generalization over time and on outcome criteria, compared with cognitive or behavioural only Authors, trainers and supervised students had more effect than teachers ($d = 0.47$ versus $d = 0.33$) Indicated approaches had higher effect sizes than universal approaches	A small but significant overall positive effect of from interventions Because most studies dealt with small sample sizes, non-official outcome data and measurements after <1 year the results should be treated with caution. Further high-quality studies with long-term outcomes are needed, particularly outside the USA
(Berkowitz and Bier, 2007)	33 effective programmes were identified reported by 64 empirical studies, plus 5 meta-analyses and literature reviews Examined to identify the most common effects and the most common shared practices of character education programmes	Sociomoral cognition Sexual behaviour Prosocial behaviours and attitudes Problem-solving skills Knowledge about risk Drug use Relationships Violence/aggression School behaviour Knowledge/attitudes about risk Emotional competency Academic achievement Attachment to school Personal morality Character knowledge Communicative competence Attitudes towards teachers	The most commonly reported effects of character education were socio-moral cognition, pro-social behaviours and attitudes, problem-solving skills, reduced drug use, reduced violence/aggression, school behaviour, knowledge and attitudes about risk, emotional competency, academic achievement, attachment to school and decreased general misbehaviour The percentage of tests of that variable that were significantly positive were, in order, sexual behaviour (91%), character knowledge (87%) socio-moral cognition (74%), problem-solving skills (64%), emotional competency (64%) relationships (62%), attachment to school (61%), academic achievement (59%) and communicative competency (50%) For those 10 programmes that assessed fidelity, there was a clear trend for complete and accurate implementation to result in more outcome effectiveness than incomplete or inaccurate implementation	Character education can work when implemented with fidelity and broadly, and has a very robust impact. Effective character education tends to include: professional development; student interactive pedagogical strategies; an explicit focus on character/ethics; direct training of social and emotional competencies; modelling of character; aligned classroom/behaviour management strategies and community service and/or service learning

(Blank *et al.*, 2009)

37 studies which aim to promote emotional and social wellbeing by modifying behaviour among children in secondary education (aged 11–18), taking a universal approach
30 on negative and 7 on positive behaviour

Self-reported attitude/behaviour: (28 of which 3 +ve, 25 –ve)
Teacher behaviour/attitude rating (2 –ve)
Parent behaviour/attitude rating (1 +ve)
Academic achievement (2 ve)
Routine data (6 –ve)
Effectiveness of programme (1 +ve, 2 –ve)
Observed school wide changes (2 +ve)

5 studies calculated effect sizes. An RCT study of an aggression violence intervention showed that a programme with which included parental and community involvement was more effective than a programme of social development curriculum, with effect sizes 0.41 and 0.31, respectively
An RCT study of a 'trans-theoretical based bullying curriculum' delivered by the internet showed that the intervention group were four times more likely not to participate in bullying (effect size 0.42). An RCT study of a violence prevention curriculum showed very small difference in violence scale ratings (effect size 0.1)
A CBA study of a programme to reduce aggression and violence showed effect sizes of 0.5–0.73 in measures of endorsement of social exclusion and tolerance of physical and verbal aggression
A CBA study of a behavioural management programme to reduce aggression and violence which measured self-reported aggression and found an effect size of 0.02
The effect sizes demonstrated are therefore highly variable which is unsurprising given the heterogeneity of included interventions and outcome measures
On balance, in 8 out of 11 well-conducted studies, there was evidence of the effectiveness of good quality universal interventions to support curriculum approaches to whole school interventions, which aim to promote positive behaviours, however three well-conducted studies did not support this
The evidence on the effectiveness of the role of teachers, and external agencies in delivering interventions, and on involving parents, was equivocal
On balance there was reasonable evidence to support involving young people as peer educators/mediators in interventions

The lack of well-conducted studies for this age group in the school setting make it hard to draw firm conclusions
The results of this review broadly support the theoretical literature on wellbeing in secondary schools including the differentiation between interventions which aim to promote positive behaviour and interventions which aim to prevent negative behaviour
The literature to support whole school/ multi-component interventions in general is not well developed, especially in terms of good quality effectiveness studies. The vast majority of interventions identified in the review are based in the classroom and take a curriculum approach. More research is needed on whole school/ multi-component approaches at secondary level

Continued

Table 2: *Continued*

Author (year)	Number and focus of included studies	Mental health outcomes measured	Authors' results	Authors' conclusions
(Browne <i>et al.</i> , 2004)	23 reviews of effective and efficient mental health (focusing on mental health problems) non-clinical programmes for school aged children	Reviews discussed efforts to reduce deficiencies related to depression, anxiety, externalizing/internalizing or other psychological/social problems, reductions in risky behaviours, increase competence and resilience through various protective strategies	1 study calculated effects sizes. At post-test from 0.41 to 1.70 (small to large). At follow-up from 0.60 to 1.69 (medium to large) Otherwise commented on the characteristics of more effective programmes: universal rather than targeted; multi-modal, i.e. multiple, integrated elements involving family, school and community; for younger children (but programmes for older children also effective); specific aim rather than broad and unfocussed; theoretically based; interactive rather than information only/didactic, involved families; positive rather than fear based; long term with follow-up rather than short term/intensive; adults as supports and mentors; peer mentoring Effect sizes decreased over time for knowledge and skills acquisition and behaviour reduction suggesting the need for periodic follow-up and reinforcement	Best practices include: early, long-term intervention including reinforcement; follow-up and an ecological focus with family and community sector involvement; consistent adult staffing and interactive, non-didactic programming adapted to gender, age and cultural needs Need to encourage interagency co-operation, ensure services reach appropriate segments of the population; replicate of best practices and publicise information about benefits and cost savings
(Catalano <i>et al.</i> , 2002)	25 effective and robustly evaluated programmes to promote positive youth development	Not explicitly stated, but programmes selected for match with goals of positive youth development, i.e. Bonding Social Emotional Cognitive Behavioural and moral competence Self-determination Spirituality Self-efficacy Clear and positive identity Belief in the future Recognition for positive behaviour Opportunities for prosocial involvement Prosocial norms (healthy standards for behaviour)	19 of the effective programmes showed positive changes in youth behaviour, including significant improvements in interpersonal skills, quality of peer and adult relationships, self-control, problem solving, cognitive competencies, self-efficacy, commitment to schooling and academic achievement 24 of the effective programmes showed significant improvements in problem behaviours, including drug and alcohol use, school misbehaviour, aggressive behaviour, violence, truancy, high-risk sexual behaviour and smoking Although one-third of the effective programmes operated in only a single setting, for the other two-thirds, combining the resources of the family, the community, and the community's schools were the other ingredients of success Effective programmes shared common themes and principles. All sought to strengthen social, emotional, cognitive and/or behavioural competencies, self-efficacy, and family and community standards for healthy social and personal behaviour. Seventy per cent also targeted healthy bonds between youth and adults, increased opportunities and recognition for youth participation in positive social activities. Ninety-six per cent used training manuals or other forms of structured curricula. Eighty per cent lasted 9 months or more	Although a broad range of strategies produced these results, the themes common to success involved methods to: strengthen social, emotional, behavioural, cognitive and moral competencies; build self-efficacy; shape messages from family and community about standards for positive youth behaviour; increase healthy bonding with adults, peers and younger children; expand opportunities and recognition for youth who engage in positive behaviour and activities; provide structure and consistency in programme delivery and intervene with youth for at least 9 months or more

(Clayton *et al.*, 2001)

Very wide range
Pro-social behaviour, e.g. aggression, violence
Improved skills e.g. social decision making, resilience
Pro-social attitudes, e.g. friendliness, empathy
Positive self-concept

Qualitative analysis. Concluded there are many effective programmes aimed at anti-violence, conflict resolution and peace which is encouraging
However, all used different methods and tools of evaluation

Need more RCTs and long-term evaluations using multiple data sources
Violence prevention should be founded on sound theory, e.g. child development, should teach skills as well as social norms, find ways to work effectively with children without acute problems, be tailored to specific populations, include adequate teacher training and strengthen self-worth

(Diekstra, 2008a) 19 reviews of interventions that take a universal approach social and emotional learning

Wide range of outcomes, reflecting the broad nature of the field
Changes in social and emotional skills, attitudes to self and others, externalizing and behavioural problems and disorders, antisocial/criminal behaviour, drug use/abuse, internalizing or emotional problems and disorders—stress, anxiety, depression, suicidal tendencies, attitudes towards school including truancy and absence, school test scores and grades

Very strong and significant impact of many programmes on social and emotional skills and attitudes to self and others
Strong and widespread impact on externalizing problems, less so on internalizing problems, but still a significant impact (e.g. 10% reduction in depression)
Strong impact on attitudes to school and test scores and grades
Few studies had follow-up evaluations—those that do showed good stability over time
Much variability in effects, probably due to differences in implementation
Short-term programmes much less effective than long term.
Programmes showed most dramatic impact on high-risk children, but impacted on all children, on all ages and both genders
Teachers as effective as other professionals in delivering programmes, although need training. Only when school staff conduct the intervention does student academic performance improve significantly—possibly because school staff are involved in both aspects of school, and SEL/SFL impacts on wider school culture where school staff involved in delivery

SEL/SFL programmes work and meet a wide variety of goals
Strong support for universal approach across all age ranges
The most effective programmes are theoretically consistent, highly interactive, use a variety of didactic forms, are implemented in small groups, cover both specific and general life skills and are cast within supporting communities and environmental strategies
To be effective programmes have to run for at least 3/6 months with at least weekly sessions, ideally with boosters later
More research needed on what the people who deliver programmes need to be successful, e.g. characteristics, training, support.

Continued

Table 2: *Continued*

Author (year)	Number and focus of included studies	Mental health outcomes measured	Authors' results	Authors' conclusions
(Diekstra, 2008b)	76 studies of universal school-based programmes 17 of these conducted outside of the USA	Social skills Anti-social behaviour Substance abuse Positive self-image Academic achievement Mental disorders/health Pro-social behaviour	Universal school-based SEL/SFL programmes generally have positive effects on a number of desirable outcomes. In the short term, the largest effects are on social-emotional skills, attitudes towards self, pro-social behaviour, academic achievement and reduction in anti-social behaviour. These effects decrease in the long term but remain significant. Some effects increase, e.g. the reduction in mental disorders Overall effect size of USA and non-US studies similar for the only outcome on which comparison possible, social-emotional skills	SEL/SFL works and is beneficial to children around the globe
(Durlak and Wells, 1997)	177 primary prevention programmes designed to prevent behavioural and social problems in children and adolescents	60 outcome measures used, summarized as: Problems/symptoms Externalizing Internalizing Academic achievement Sociometric status Cognitive processes Physiological measures	Most categories of programmes produced outcomes similar to or higher in magnitude than those obtained by many other established preventive and treatment interventions in the social sciences and medicine Programmes modifying the school environment, individually focused mental health promotion efforts, and attempts to help children negotiate stressful transitions yield significant mean effects ranging from 0.24 to 0.93. In practical terms, the average participant in a primary prevention programme surpasses the performance of between 59 and 82% of those in a control group, and outcomes reflect an 8–46% difference in success rates favouring prevention groups Most categories of programmes had the dual benefit of significantly reducing problems and significantly increasing competencies	Priorities for future research include clearer specification of intervention procedures and programme goals, assessment of programme implementation, more follow-up studies and determining how characteristics of the intervention and participants relate to different outcomes
(Durlak <i>et al.</i> , 2007)	526 universal competence-promotion outcome studies of positive youth development programmes exploring effects on schools, families and communities	Effects of interventions on schools, families and communities, or a combination	64% of the positive youth development interventions attempted some type of microsystemic or mesosystemic change involving schools, families or community-based organizations in an attempt to foster developmental competencies in children and adolescents. Only 24% of the reports provided quantitative data on the change that occurred in targeted systems. However, 6 of the 7 post-mean effect sizes were statistically significant and ranged in magnitude from 0.34 (for family environment) to 0.78 (for classroom level change), ranging from modest to large in magnitude. The only non-significant (and negative) post-mean effect of -0.26 (youths' bonding to community adults) was based on only two interventions	Attempts to change social systems—schools, families and communities affecting children and adolescents can be successful Future work should measure more thoroughly the extent to which the systemic changes that are targeted through intervention are achieved, and investigate how such changes contribute to the development and sustainability of desirable outcomes

(Durlak and Weissberg, 2007)	73 after-school programmes that attempted to promote personal and social skills	<p>Feelings and attitudes—child self-perceptions, e.g. self-esteem, self-concept, self-efficacy) and bonding to school (e.g. positive feelings about school and teachers)</p> <p>Behavioural adjustment—positive social behaviours (e.g. expression of feelings, positive interactions, assertiveness), problem behaviours (e.g. aggression and rebelliousness) and drug use, legal and illegal</p> <p>School performance—on achievement tests, grades and school attendance</p>	<p>Youth who participate in after-school programmes improve significantly in feelings and attitudes, indicators of behavioural adjustment and school performance. Overall average effect size was 0.22.</p> <p>After-school programmes succeeded in improving youths' feelings of self-confidence and self-esteem (0.34), school bonding (positive feelings and attitudes towards school, 0.14), positive social behaviours (0.19), reduction in problem behaviours such as aggression, non-compliance and conduct problems (0.18) achievement test scores (0.18), school grades (0.11) and school attendance (0.10).</p> <p>Programmes that used evidence-based skill training approaches, and were sequenced, active, focused and explicit were consistently successful in producing multiple benefits for youth (mean effect sizes ranged from 0.24 to 0.35) while those that did not use such procedures were not successful in any outcome area</p>	<p>After school programmes can produce multiple benefits that pertain to youths' personal, social and academic life</p> <p>To be effective they need to use evidence—approaches—be sequenced, active, focused and explicit</p>
(Durlak <i>et al.</i> , 2011)	207 studies of universal social and emotional learning programmes	<p>Social-emotional skills</p> <p>Attitudes towards self and others</p> <p>Positive social behaviours</p> <p>Conduct problems</p> <p>Emotional distress</p> <p>Academic performance</p>	<p>11% improvement in achievement tests; 25% improvement in social and emotional skills; 10% decrease in classroom misbehaviour, anxiety and depression. These effects held during follow-up periods of at least 6 months</p> <p>School staff can effectively deliver social and emotional learning</p> <p>The grand study-level mean for all 207 interventions was 0.28 (CI = 0.25–0.29) Effect sizes: SEL skills 0.60, Academic performance 0.28, emotional distress 0.25, positive social behaviours 0.24, attitudes 0.23, conduct problems 0.20</p> <p>Effective for all grades and ages</p> <p>Student academic performance significantly improved only when school personnel conducted the intervention. Programmes that encountered implementation problems were less effective than interventions without any apparent implementation problems</p> <p>Programmes that were sequenced, active, focused explicit (SAFE) and well implemented were consistently successful, those that did not were not</p> <p>No clear evidence that multi-component better than single—possibly because they were less often SAFE and well implemented</p>	<p>Current findings offer strong support for the value of classroom and school-based SEL interventions when SAFE and well implemented</p> <p>More research needed on key features of implementation</p>
(Ekeland <i>et al.</i> , 2004)	23 trials with children and young people of exercise programmes that measured the impact on self esteem	Self-esteem, variously measured	<p>Generally, the trials were small, and only one was assessed to have a low risk of bias.</p> <p>13 trials compared exercise alone with no intervention. 8 were included in the meta-analysis, and overall the results were heterogeneous. One study with a low risk of bias showed a standardised mean difference (SMD) of 1.33 (95% CI 0.43 to 2.23), while the SMD's for the three studies with a moderate risk of bias and the four studies with a high risk of bias was 0.21 (95% CI –0.17 to 0.59) and 0.57 (95% CI 0.11 to 1.04), respectively. 12 trials compared exercise as part of a comprehensive programme with no intervention. Only 4 provided data sufficient to calculate overall effects, and the results indicate a moderate short-term difference in self-esteem in favour of the intervention [SMD 0.51 (95% CI 0.15 to 0.88)].</p>	<p>The results indicate that exercise has positive short-term effects on self-esteem in children and young people. Since there are no known negative effects of exercise and many positive effects on physical health, exercise may be an important measure in improving children's self-esteem.</p> <p>These conclusions are based on several small low-quality trials.</p>

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Table 2: *Continued*

Author (year)	Number and focus of included studies	Mental health outcomes measured	Authors' results	Authors' conclusions
(Farrington and Tofi, 2009)	89 reports describing 53 different programme evaluations on preventing bullying and victimization	Bullying or victimization had to be included as outcome measures. Bullying and victimization could be measured using self-report questionnaires, peer ratings, teacher ratings or observational data	School-based anti-bullying programmes are effective in reducing bullying and victimization (being bullied). On average, bullying decreased by 20–23% and victimization decreased by 17–20%. The effects were generally highest in the age-cohort designs and lowest in the randomized experiments. Firmer disciplinary methods, parent training/meetings, video, co-operative group work and longer and more intense programmes were significantly associated with a decrease in victimization. Work with peers was associated with an increase in victimization	Results obtained so far in evaluations of anti-bullying programmes are encouraging New anti-bullying programmes should be designed and tested based on the key programme elements and evaluation components that found to be most effective
(Gansle, 2005)	26 studies of school-based programmes that focused on anger or included anger as a dependent variable	Externalizing behaviour and anger Internalizing and anger, e.g. depression, shyness, anxiety Social skills, e.g. peer relations, social competence, self-control Beliefs and attitudes, e.g. self-efficacy, self-esteem, locus of control, intent to use non-violent behaviours Academic, e.g. measured achievement, grades, academic engagement and attendance	Across outcomes, the weighted mean effect size of the interventions post-treatment was 0.31, which is modest but significant and similar to other behavioural approaches in related fields. The largest effects were found for anger and externalizing behaviours, internalizing and social skills, with mean effect sizes of 0.54, 0.43 and 0.34, respectively. Longer interventions, focused on behavioural activities more effective Socially focused interventions (e.g. generating responses, making eye contact) worked better than self-focused interventions (e.g. recognizing and labelling emotions) No differences for group comparisons by school setting, special education status, entrance criteria or treatment agents	Anger management compares well with other social and emotional education interventions Interventions that are more methodologically rigorous, are longer, are more socially focused and include more behavioural components are more likely to benefit students
(Garrard and Lipsey, 2007)	36 studies on children and young people of conflict resolution education (CRE)	General construct of CRE used and studies selected that fell within it Targets anti-social behaviour promotes cooperation, empathy and respect Sometimes has secondary goals of emotional and social growth and wellbeing, critical thinking and improving school climate	Small amount of research and of uneven coverage Mean effect size of 0.25 for the 36 studies was statistically significant and represents improvements in problem behaviours that is of practical significance Positive effect observed for different types of intervention, e.g. explicit direct skills instruction, or embedded in curriculum, or peer mediation Relatively small effect on younger students, 9 and under, and greater effect on older Majority of beneficial effects shown for shorter programmes, 2 h a week for 15 h on average	CRE should be taken seriously as a tool for treating school-based anti-social behaviour Particularly indicated for older school students 9+ and especially in adolescence Shorter programmes can be effective Need to focus on what aspects of implementation make programmes more effective
(Green <i>et al.</i> , 2005)	8 reviews of interventions to improve the social and emotional wellbeing of primary school-aged children	Problem-solving skills Alternative thinking strategies and the promotion of self-esteem reduction in aggressive behaviour Bullying and violence prevention Teaching children to cope with stressful experiences and with educational transitions	Intervention characteristics associated with more effective outcomes: promoting positive mental health rather than the prevention of mental illness; continuous and long term; whole school approach, focusing on school climate and environment rather than on individual change; opportunities for practice in range of contexts, addressed self-concept, self-esteem and coping skills; combining universal and targeted programmes	Schools have a role in mental health promotion. Conclusions limited by short duration of studies, lack of detail of interventions, identified outcomes and socio-demographic data and the relationship between processes and outcomes

(Greenberg <i>et al.</i> , 2001)	34 studies of prevention programmes preventing mental health disorders in school-aged children	Universal: violence prevention, social/cognitive skillbuilding programmes, changing the school ecology, multi-component Externalizing behaviour: anger, aggression, conduct disorder Internalizing: depression, anxiety, suicide, stress	Important and meaningful progress has been made in prevention research with children, families and schools during the last two decades. There have been advances in the theory, design and evaluation of programmes, and there are a growing number of programmes with documented efficacy of beneficial impact on the reduction on psychiatric symptomology Multi-year programmes more likely to foster enduring benefits More effective programmes start in the preschool and early elementary years Preventive interventions are best directed at risk and protective factors rather than at problem behaviours. Feasible and cost-effective to target multiple negative outcomes Interventions should be aimed at multiple domains, changing institutions and environments as well as individuals Prevention programmes that focus independently on the child's behaviour are not as effective as those that also 'educate' the child and focus on teacher and family, home and school, and the needs of schools and neighbourhood	There is no single programme component that can prevent multiple high-risk behaviours. A package of coordinated, collaborative strategies and programmes is required in each community School ecology should be a central focus of intervention To link to other community care systems and create sustainability, prevention programmes will need to be integrated with systems of treatment
(Hahn, 2007)	53 studies of the effects of universal school-based programmes to prevent violent and aggressive behaviour	Reported or observed aggression or violence Conduct disorder Measures of externalizing behaviour Acting out (aggressive, impulsive, or delinquency, school records of suspensions or disciplinary referrals)	For all grades combined, the median effect was a 15.0% relative reduction in violent behaviour among students who received the programme. Effects found at all school levels, Effects diminished slightly over time at the end of the intervention All school programme intervention strategies (e.g. informational, cognitive/affective and social skills building) and programme foci (e.g. disruptive or antisocial behaviour, bullying, dating violence) similarly were associated with reduced violent behaviour No clear association for frequency or duration of programme	The number of studies in this systematic review overall and the number of studies at each grade level, of adequate quality, consistency of effect, and effect size, provide strong evidence that universal school-based programmes are associated with decreases in violence-related outcomes. Beneficial results were found at all school levels examined, from pre-kindergarten through high school

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Table 2: *Continued*

Author (year)	Number and focus of included studies	Mental health outcomes measured	Authors' results	Authors' conclusions
(Haney and Durlak, 1998)	102 studies covering 120 programmes, which indicated significant improvement in children's and adolescents' self-esteem and self-concept, and behavioural, personality and academic functioning	Self-esteem and self-concept Internalizing problems, externalizing problems, mixed problems Using measures of overt behaviour (using behavioural observations or rating scales), personality functioning (e.g. self-reports of anxiety or depression)	The weighted mean ES for all 120 interventions was 0.27, suggesting a modest overall impact Interventions specifically focused on changing self-esteem and self-concept were significantly more effective (mean effect size = 0.57) than programmes focused on another target, such as behaviour or social skills (0.10) Treatment programmes were also more effective (0.47) than primary prevention programmes (0.09) in changing self-esteem Four variables emerged as significant predictors of self-esteem outcomes: two methodological features (type of design and control group), the use of a theoretical or empirical rationale and the type of programme (treatment or prevention)	Programmes can influence self-esteem and self-concept Need to focus on self-esteem and self-concept specifically, and not hope other focused interventions will impact indirectly Future research needs to examine the causal connection between changes occurring in self-esteem and other areas of adjustment, assess intervention success for different ethnic groups and for children of different ages and sex, and determine the long-term impact of interventions
(Harden <i>et al.</i> , 2001)	345 studies concerned with mental health and young people screened and mapped: 7 rigorous ones subjected to systematic review 30 fairly rigorous ones subjected to in-depth review	Very varied. Mental health, with specific focus on prevention of suicide and self-harm, and associated depression, and the promotion of self-esteem and coping strategies	Mapping exercise: most (72%) studies in schools, vast majority in USA. About half on prevention: most common focus prevention of suicide, self-harm or behaviour problems. About half on promoting positive mental health, e.g. self-esteem, self-concept or coping skills. Half universal, rest focused on 'at risk'. Barriers—major focus on psychological/individual rather than social/environmental factor. Quality of the studies was very variable: half judged 'potentially sound' 7 systematic reviews and 30 in-depth studies had mixed positive/negative on the evidence of mental health promotion. Interventions to promote positive self-esteem limited effect, but more effective if self-esteem is the main focus. Evidence on prevention of suicide and self-harm limited, some evidence that discussing suicide may be harmful 12 studies of young people's views: YP do not relate to the term 'mental health', have sophisticated understandings of coping strategies, a wide range of social and environmental concerns and find traditional health promotion irrelevant	Proceed with caution as the evidence for mental health promotion is mixed Involve and listen to young people If trying to develop self-esteem, then focus on it specifically Avoid universal suicide prevention education
(Hoagwood and Erwin, 1997)	16 studies of effectiveness of school-based mental health services for children	Depression Locus of control Peer acceptance Aggression Behavioural problems	Three types of interventions found to have empirical support for their effectiveness. Cognitive-behavioural therapy especially for depression has strong evidence. Social skills training has reasonable evidence. Teacher consultation (i.e. educating teachers and examining the effects on pre-referral practices and problem behaviours) has promising evidence based on one intervention	Need to: investigate effectiveness of with wider range of psychiatric disorders; broaden the range of outcomes; examine the combined effectiveness of these interventions; link with home-based interventions

(Horowitz and Garber, 2006)	30 studies of programmes aimed at preventing depression in children and adolescents	Measures of depression and anxiety	<p>Wide range in degree of success of programmes</p> <p>Weighted overall mean effect size post-intervention was 0.16, and at follow-up was 0.11, i.e. small but significant</p> <p>Mean effect size for selective prevention programmes was 0.30, greater than effect size of universal prevention programmes (mean effect size 0.12). Probably because baseline depression in universal approach not high</p> <p>Effects of indicated and selective programmes were not significantly different. No clear effect of gender or age</p> <p>Studies were in practice treatment (i.e. improvement in symptoms of the intervention group) rather than prevention (increase in symptoms in the control group but not in intervention.)—possibly due to most not having long follow-ups</p>	<p>Need long-term evaluations</p> <p>Premature to abandon universal programmes, but should focus on selected and targeted</p>
(Kraag <i>et al.</i> , 2006)	19 studies of school programmes targeting stress management or coping skills in school children	<p>Various measures of stress and mental health outcomes</p> <p>Categorized into four groups: symptoms of stress; social behaviour, coping/social skills; self-efficacy/self-esteem</p>	<p>Overall effect size for the programmes was -1.51 [95% confidence interval (CI) $-2.29, -0.73$], indicating a positive effect. However, heterogeneity was significant (pb.001). Sensitivity analyses showed that study quality and type of intervention were sources of heterogeneity influencing the overall result (p valuesb.001). The heterogeneity in quality may be associated with methodological diversity and differences in outcome assessments, rather than variety in treatment effect. Effect was calculated per intervention type, and positive effects were found for stress symptoms with a pooled effect size of -0.865 (95% CI: $-1.229, -0.502$) and for coping with a pooled effect size of -3.493 (95% CI: $-6.711, -0.275$)</p>	<p>It is tentatively concluded that school programmes targeting stress management or coping skills are effective in reducing stress symptoms and enhancing coping skills</p> <p>Future research should use clear quality criteria and strive for less diversity in methodology and outcome assessment</p>
(Maxwell <i>et al.</i> , 2008)	20 studies of mental health and emotional wellbeing in children and young people	<p>Not stated</p> <p>Primary studies covered wide range of outcomes involving mental health and emotional wellbeing</p>	<p>In schools, sustained broad-based mental health promotion programmes combined with more targeted behavioural and cognitive-behavioural therapy (CBT) for those children with identifiable emotional wellbeing and mental health needs, offer evidence of a demonstrably effective approach. There is a reasonably strong evidence base to support targeted work with both parents and children</p>	<p>While systematic reviews are often seen as offering the only reliable basis on which programmatic decisions should be made, the case has been made here that broadening the evidence base may be beneficial in providing evidence of practically based promising studies integrating evaluation findings from recent local programmes, rather than relying too extensively on research conducted in other contexts</p>

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Table 2: *Continued*

Author (year)	Number and focus of included studies	Mental health outcomes measured	Authors' results	Authors' conclusions
(McCarthy and Carr, 2002)	4 studies of bullying in schools	Bully/victim problems, e.g. as, exposure to various physical, verbal, indirect, racial or sexual forms of bullying/harassment, various forms of bullying other students, pro-bully and pro-victim attitudes, and the extent to those in the social environment are informed about and react to the bullying	4 studies, between 1989 and 1997, 2 from Norway, 1 UK, 1 Canada. All were whole school 2 programmes were effective, 2 not. Programmes that were implemented completely, consistently in accordance with the guidelines and with external training, consultancy and support were effective. Those that were not, were not	Whole school bullying prevention programmes can effectively reduce both reports of bullying and reports of being bullied both in the short and longer term. Their effectiveness is determined by the degree to which programme integrity is maintained and support, training and consultancy provided
(Merry <i>et al.</i> , 2004)	21 studies eligible for inclusion, 13 of which of sufficient quality for meta-analysis, of programmes that aim to prevent depression in the young	Primary outcomes Prevention of depression indicated by reduction in depressive symptoms on pre-post-assessment (early intervention) or reduction in onset of depressive symptoms or disorder measured by depression scores on a rating scales Secondary outcomes (1) General adjustment (2) Academic/work function (3) Social adjustment (4) Cognitive style (5) Suicidal ideation/attempts (6)	Psychological interventions (skills based) were effective compared with non-intervention immediately after the programmes were delivered with a significant reduction in scores on depression rating scales for targeted [standardized mean difference (SMD) of -0.26 and a 95% confidence interval (CI) of -0.40 to -0.13]. Some studies showed a decrease in depressive illness over a year Small but statistically significant changes in depression scores following psychologically based interventions such as stress-management or problem-solving skills ($d = -0.26$, 95% CI: -0.40 to -0.13). The results also showed slightly better levels of effectiveness for targeted (RD = -0.26 , CI: -0.40 to 0.13) than for universal programmes ($d = -0.21$) While small effect sizes were reported, these were nevertheless associated with a significant reduction in depressive episodes There was only one knowledge-based intervention and no evidence for its effectiveness Reports of effectiveness for boys and girls were contradictory The quality of many studies was poor, and only two studies made allocation concealment explicit	The results from skills-based interventions are promising. Knowledge-based approaches do not appear to work It is likely that girls and boys will respond differently to interventions and a more definitive delineation of gender specific responses to interventions would be helpful

(Mytton <i>et al.</i> , 2002)	44 studies of school-based violence prevention programmes for children identified as at risk for aggressive behaviour	Violent injuries, observed or reported aggressive or violent behaviours, and school or agency responses to aggressive behaviours	For the 28 trials that assessed aggressive behaviours, the pooled difference between study groups was -0.36 (95% confidence interval, -0.54 to -0.19) in favour of a reduction in aggression with intervention. For the nine trials that reported data on school or agency responses to aggression, the pooled difference was -0.59 (95% confidence interval, -1.18 to 0.01). Subgroup analyses suggested greater effectiveness in older students and when administered to mixed-sex groups rather than to boys alone	Programmes modestly reduced both aggressive behaviours and school or agency actions in response. Effects were similar regardless of whether the programmes focused on training in skills of non-response (e.g. conflict resolution or anger control) or on training in social skills or social context changes. School-based violence prevention programmes may produce reductions in aggressive and violent behaviours in children who already exhibit such behaviour. These results, however, need to be confirmed in large, high-quality trials
(Neil and Christensen, 2007)	24 trials of 9 Australian school-based prevention and early intervention programmes for anxiety and depression	Programmes that addressed symptoms of anxiety or depression in a school context, or increased student resilience through the development of positive coping skills	Most programmes were based on cognitive behaviour therapy, interpersonal therapy or psycho-education. Six were universal interventions, two were indicated programmes and one was a treatment programme. Most were associated with short-term improvements or symptom reduction at follow-up	A number of schools programmes produce positive outcomes. However, even well established programmes require further evaluation
(O'Mara <i>et al.</i> , 2006)	145 studies of the effectiveness of interventions to enhance various aspects of self-concept	Programmes were included if they contained a measure of self-concept or another related self-concept construct (e.g. self-esteem, self-efficacy), which could be either a global measure (e.g. self-esteem) or a specific domain (e.g. academic self-concept)	Overall, interventions on various aspects of self concept were significantly effective ($d = 0.51$, 460 effect sizes). These effects do not systematically diminish over time The largest mean effect size of all the moderator categories was for interventions aimed at enhancing a specific self-concept facet and that also measured that specific self-concept domain ($d = 1.16$) Intervention effects were substantially larger for facets of self-concept that were logically related to the intervention than for unrelated facets of self-concept	Self-concept is not uni-dimensional, it is multi-dimensional Interventions are more effective than previously thought if we use a multi-dimensional model of self concept

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Table 2: *Continued*

Author (year)	Number and focus of included studies	Mental health outcomes measured	Authors' results	Authors' conclusions
(Park-Higginson, 2008)	26 studies of violence prevention in schools	Externalizing, aggressive or violent behaviour (i.e. scores of aggression, use of violence/violent or externalizing behaviour), empathy, impulse control, anger management	Overall, the intervention groups did not have significant effects in reducing aggression and violence when compared with the control groups (ES = -0.09, 95% CI = -0.23 to 0.05, with heterogeneity $p < 0.00001$) Comparing programmes with different features, there was no significant difference between interventions, although programmes that used non-theory-based interventions, focused on at-risk and older children, and employed intervention specialists had slightly stronger effects in reducing aggression and violence. Interventions using a single approach had a mild positive effect on decreasing aggressive and violent behaviour (effect size = -0.15, 95% CI = -0.29 to -0.02, $p = 0.03$)	This meta-analysis did not find any differential effects for 4 of the 5 programme characteristics. This was contrary to expectation, exemplifying the complexity of identifying effective programme strategies Small effect sizes, missing pretests, differences in outcome focus, small sample sizes and heterogeneity among the included studies may have contributed to the lack of significant findings for several of the programme characteristics
(Payton <i>et al.</i> , 2008)	80 studies of indicated social and emotional learning (SEL) programmes, i.e. that identify and work with students displaying early signs of behavioural or emotional problems	SEL skills, attitudes towards self and others, positive social behaviour, conduct problems, emotional distress, academic performance	Significant mean effect sizes ranging from 0.38 for improved attitudes towards self, school and others to 0.77 for improved social and emotional skills were achieved in all six outcome categories studied. Participants in these indicated SEL programmes received significantly greater benefits across outcome categories than did participants in the control groups. Although the magnitude of these effects was generally lower at follow-up, they were still significant in five out of the six categories (all except academic performance)	SEL intervention programmes for students exhibiting adjustment or learning problems worked for a wide range of presenting problems were effective when delivered by either school or non-school personnel, and had significant outcomes whether they included only one or multiple programme components. Such programmes should be recommended as potentially successful options for promoting youth wellbeing and adjustment both during and after school hours

(Reddy <i>et al.</i> , 2009)	29 studies of school-based prevention and intervention programmes for children and adolescents at-risk of and with emotional disturbance (ED)	Externalizing behaviour problems in the home or school Internalizing behaviour problems in the home or school Social skills in the home or school Adaptive functioning at school Active engagement with task	The prevention and intervention programmes produced mean weighted ESs of 1.00 at post-test (unweighted ES of 1.49) and 1.35 at follow-up (unweighted ES of 2.25). The intervention programmes were most effective in improving externalizing behaviour problems in the home (weighted ES of 2.46) and at school (weighted ES of 1.27), social skills at school (weighted ES of 2.39), general academic skills (weighted ES of 1.78) and internalizing behaviour problems in the home (weighted ES of 1.59)	Results offer initial support for the idea that prevention and intervention programmes implemented in schools are generally effective in alleviating the early onset of emotional and behavioural symptoms and reducing persistent symptoms found among children and adolescents with ED
(Rones and Hoagwood, 2000)	47 studies of school-based mental health programmes	Emotional and behavioural problems Depression Conduct problems Stress management Substance use	There are a robust group of school-based mental health programmes with evidence of an impact across a variety of emotional and behavioural problems in children Key features of successful programme implementation include (i) consistent implementation; (ii) inclusion of parents, teachers or peers; (iii) use of multiple modalities—(e.g. the combination of informational presentations with cognitive and behavioural skill training); (iv) integration of programme content into general classroom curriculum and (v) developmentally appropriate programme components Strategies that facilitated implementation included the communication of programme goals, rationale and components to school staff; the provision of feedback on programme effects; the development of plans to overcome barriers to implementation and the specification of individual responsibilities and multi-component programmes that targeted the ecology of the child Successful interventions included teacher training in classroom management techniques, parent training in child management and child cognitive–social skills training	There are a strong set of universal programmes, but we need more targeted approaches, and more programmes for older students We know something about the factors that make for successful implementation, but need to know more Need more work on school-based outcomes, e.g. attendance, and school-related behaviour (as measured by disciplinary referrals, suspensions and retention)
(Schachter <i>et al.</i> , 2008)	40 evaluation studies of the effects of school-based interventions on mental health stigma	Mental health stigma, mainly around depression and schizophrenia	Five limitations within the evidence base constituted barriers to drawing conclusive inferences about the effectiveness and harms of school-based interventions: poor reporting quality, a dearth of randomized controlled trial evidence, poor methods quality for all research designs, considerable clinical heterogeneity and inconsistent or null results	There exists enough suggestive evidence to inform a future research direction, which takes behavioural change as its primary outcome. Gold standard research designs and methods are required
(Scheckner <i>et al.</i> , 2002)	16 studies of interventions to address conflict, anger and aggression	Pro-social behaviour and skills, conflict resolution, anger management and resolution, reducing aggression	4 studies had strong effects sizes: Peacebuilders (1.49), SMART (students managing anger resolution together) (0.96), a bibliotherapy programme in Israel based on reading and media (0.84) and first step to success (85). 4 others had moderate effect sizes, a further bibliotherapy programme (0.69), a CBT programme with aggressive boys (0.53), 2 programmes focusing on violence-free relationships (0.45) and a social cognitive group intervention (0.39)	Programme impact significantly affected by the use of cognitive-behavioural strategies, multi-setting atmosphere (2 of the 4 strong effect programmes), primary (elementary school) prevention, a qualified programme leader and longer length of programme

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Table 2: *Continued*

Author (year)	Number and focus of included studies	Mental health outcomes measured	Authors' results	Authors' conclusions
(Shucksmith <i>et al.</i> , 2007)	32 studies of targeted/indicated activities aimed at promoting the mental wellbeing of children in primary education	Emotional wellbeing (including happiness and confidence, and the opposite of depression) Psychological wellbeing (including autonomy, problem solving, resilience, attentiveness/involvement) Social wellbeing (good relationships with others, and the opposite of conduct disorder, delinquency, interpersonal violence and bullying)	<p>CBT-based programmes for anxiety transferred successfully between countries</p> <p>Brief targeted interventions for anxiety successful in groups</p> <p>Parent training+child group CBT adds benefits</p> <p>Children of divorce and anxious school refusers benefitted from CBT-based skills training. Depressive symptoms can be prevented by CBT plus social problem-solving</p> <p>Peer mentoring of aggressive with non-aggressive children helps develop prosocial skills and social standing</p> <p>Gains from multi-component programmes are modest, given their cost. Social problem solving and the development of positive peer relations have strongest programme effects</p> <p>Two studies showed improved academic achievement as significant outcomes of multi-component interventions</p> <p>Complex longitudinal multi-component studies support the case for early intervention with aggressive disruptive children and for providing booster interventions</p> <p>Recruitment and retention of parents is a major challenge</p> <p>Parents may prefer targeted children to be treated at school rather than home</p>	<p>Shifts in quality and focus across the time period.</p> <p>1990s saw proliferation of small-scale studies.</p> <p>Longer and larger studies and evaluations are more recent and long-term evidence thus still lacking</p> <p>The majority of the included studies were US based.</p> <p>This may limit the applicability of to other settings</p> <p>Early studies used experimental designs and clinical staff to deliver small-scale interventions to small samples of children. Their applicability to real-life classroom settings is therefore suspect</p> <p>Later studies (almost exclusively in the USA) show massive sums of money in large multi component longitudinal trials. The results are very useful and are showing the way towards the design of more effective interventions, yet there must be serious doubts as to the availability of such resources within normal education budgets</p>

(Sklad *et al.*,
2010)

75 studies of universal
interventions with school
children that included
elements of
socio-emotional learning

Social-emotional skills and attitudes (direct outcomes):
Social-emotional skills (e.g. social competence, conflict resolution
skills):

- (1) Positive self-image (e.g. self-efficacy, self-esteem)
- (2) Behavioural adjustment (second order effects):
- (3) Anti-social behaviour (e.g. aggressive behaviour, disruptive
behaviour)
- (4) Pro-social behaviour (e.g. altruistic behaviour, helping others)
- (5) Substance abuse (e.g. tobacco, alcohol and marijuana use)
- (6) Mental health disorders (e.g. internalizing symptoms, anxiety,
depression or suicidality)
- (7) Academic achievement on core subjects, such as reading and
math

Programmes had significant beneficial short-term effects academic
achievement: 0.50, antisocial behaviour -0.48 , mental disorder
 -0.16 , positive self-image 0.69, prosocial behaviour 0.59, social
skills 0.74, substance abuse -0.11

Weak, but statistically significant immediate effects on mental
disorders and substance abuse

Long-term effects were significant for most outcomes, with the
exception of positive self-perception. Academic achievement:
0.25 antisocial behaviour -0.17 , mental disorder -0.37 , positive
self-image 0.08, prosocial behaviour 0.13, social skills 0.50
substance abuse -0.20

The long-term largest beneficial effect was found for mental
disorders, for which the effect was moderate in size and larger
than the immediate effect size—a 'sleeping effect':

All other long-term effect sizes, with the exception of the effect size
for positive self-image, were also statistically significant, yet their
sizes were small. Positive self-image was the only outcome
parameter that showed no statistically significant effect of
programmes at the follow-up

Effect sizes at the follow-up were statistically significantly
heterogeneous for all outcome categories except academic
achievement, pro-social behaviour and social skills. The
heterogeneity of effect sizes for the remaining four categories
(antisocial behaviour, mental disorders, positive self-image and
substance abuse) was high: 76–93%

Universal school-based SEL
programmes generally
have positive effects on
reduction or prevention of
mental problems and
disorders, and a number
of other desirable
outcomes. These
outcomes include
enhancement of social
and emotional skills;
positive attitudes towards
self and others, promotion
of academic achievement
and prevention of
antisocial behaviour
The heterogeneity of the
effect sizes suggests that
there are important
factors or moderators that
affect the effectiveness of
programmes on analysed
outcome categories
Earlier research shows that
programmes show
stronger effects on direct
outcomes than on
incidental or indirect
outcomes Therefore, to
establish an unbiased
general estimate of the
effectiveness of SEL
programmes on any
particular outcome, more
studies should be carried
out on multipurpose
programmes. In addition,
authors reporting the
results of targeted SEL
programmes should be
encouraged to measure
and report a wide
spectrum of outcomes
rather than focusing on a
few target outcomes

Continued

Table 2: *Continued*

Author (year)	Number and focus of included studies	Mental health outcomes measured	Authors' results	Authors' conclusions
(Stage and Quiroz, 1997)	99 studies that used interventions to decrease disruptive classroom behaviour in public education settings	Conduct disorder Externalizing behaviours	A total of 223 effect sizes yielded a mean effect size of -0.78 Studies using teacher rating scales were less likely to evidence reductions in disruptive classroom behaviours compared to studies using behavioural observation methodologies Students treated in self-contained classrooms were more likely to evidence a reduction in disruptive classroom behaviour. With the exclusion of studies using teacher rating scales, comparison of treatment interventions showed no statistically reliable differences due to the large variability in the relative effectiveness for students treated	Results indicate that interventions to reduce disruptive classroom behaviour yield comparable results to other meta-analytic studies investigating the effectiveness of psychotherapy for children and adolescents
(Tennant <i>et al.</i> , 2007)	20 interventions to promote mental health and prevent mental illness in children which included schools (plus 7 on parenting)	Parenting skills Anxiety and depression prevention Self-esteem Violence and aggression prevention	Included studies targeted a range of risk and protective factors, and a range of populations (including both parents and children). While, many lacked methodological rigour, overall, the evidence is strongly suggestive of the effectiveness of a range of interventions in promoting positive mental wellbeing, and reducing key risk factors for mental illness in children	A variety of programmes have been shown to be effective in promoting children's mental health, albeit with modest effect sizes. Based on this evidence, arguments are advanced for the preferential provision of early preventive programmes
(Tilford <i>et al.</i> , 1997)	Mental health of children and young people. Numbers not stated	Not stated	There is evidence for the effectiveness of classroom programmes on self-esteem, self-concept and coping skills of children and adolescents and for children coping with divorce Children who have particular difficulties may benefit from targeted interventions Separate self-concept activities may have a value with minority groups rather than more general life skills approaches	All children need access to a health education curriculum. Try structured programmes on self-concept and coping skills for children and young people Identify the needs of children experiencing stressful life events: their needs should be met through the co-ordinated activities of education, health and social care professionals More evaluation and dissemination of findings outside the USA More research on multi-component approaches More long-term projects and more follow-up needed

(Vreeman and Carroll, 2007)	26 studies of school-based interventions to decrease bullying	Bullying (bullying, victimization, aggressive behaviour and school responses to violence) Outcomes indirectly related to bullying (school achievement, perceived school safety, self-esteem and knowledge or attitudes toward bullying)	The types of interventions could be categorized as curriculum (10 studies), multidisciplinary or 'whole-school' interventions (10 studies), social skills groups (4 studies), mentoring (1 study) and social worker support (1 study) Only 4 of the 10 curriculum studies showed decreased bullying, but 3 of those 4 also showed no improvement in some populations Of the 10 studies evaluating the whole-school approach, 7 revealed decreased bullying, with younger children having fewer positive effects Three of the social skills training studies showed no clear bullying reduction The mentoring study found decreased bullying for mentored children The study of increased school social workers found decreased bullying, truancy, theft and drug use	Many school-based interventions directly reduce bullying, with better results for interventions that involve multiple disciplines/whole school interventions. Curricular changes less often affect bullying behaviours Outcomes indirectly related to bullying are not consistently improved by these interventions
(Waddell <i>et al.</i> , 2007)	15 RCTs on programmes to prevent conduct disorder, anxiety and depression	Preventing conduct disorder (9 studies of 8 programmes) Preventing depression (4 studies) Anxiety (1 study) All three (1 study)	Ten RCTs demonstrated significant reductions in child symptom and/or diagnostic measures at follow-up. The most noteworthy programmes, for conduct disorder targeted at-risk children in the early years using parent training or child social skills training for anxiety, employed universal CBT training in school-age children; and for depression, targeted at-risk school-age children, also using CBT Effect sizes for noteworthy programmes were modest but consequential Few Canadian studies and few that evaluated costs	Prevention programmes are promising but replication RCTs are needed to determine effectiveness and cost-effectiveness in Canadian settings Four programme types should be priorities for replication: targeted parent training and child social skills training for preventing conduct disorder in children's early years; and universal and targeted CBT for preventing anxiety and depression in children's school-age years Conducting RCTs through research-policy partnerships would enable implementation in realistic settings while ensuring rigorous evaluation

Continued

Table 2: *Continued*

Author (year)	Number and focus of included studies	Mental health outcomes measured	Authors' results	Authors' conclusions
(Wells <i>et al.</i> , 2003)	17 studies of 16 interventions to promote mental health in schools	9 measured negative aspects of mental health—aggression, conduct problems or antisocial behaviour (5), depression or suicidal tendencies (4) 6 measured personal and interpersonal behaviours that underpin mental health—problem-solving (4) conflict resolution (1) emotional awareness (1) 4 measured aspects of positive mental health and these all focused on self-concept or self-esteem	Most of the included studies were relatively small for investigations of school health promotion interventions, involving <500 children in between one and six schools. Even among the most robust studies methodological flaws were common. Only three studies took account of cluster design methodology in the analysis The most positive evidence of effectiveness was obtained for programmes that adopted a whole-school approach, were implemented continuously for more than a year, and were aimed at the promotion of mental health as opposed to the prevention of mental illness. Those that aimed to improve children's behaviour and were limited to the classroom were less likely to be effective. The results of some studies were, however, at variance with these generalizations, suggesting that other unidentified factors may also be important in determining success	Universal school mental health promotion programmes can be effective and long-term interventions that aim to promote the positive mental health of all pupils and involve changes to the school climate likely to be more successful than brief class-based mental illness prevention programmes Optimum approach might be a combination of universal and targeted approaches Methodological flaws in some of the studies indicate the need for further research and there is also a need for robust studies of these programmes outside the USA
(Wilson <i>et al.</i> , 2003)	172 studies of experimental and quasi-experimental studies of school-based programmes with outcomes representing aggressive and/or disruptive behaviour	The review included studies of any school-based programme for which aggressive behaviour was measured as an outcome variable	Effect sizes were 0.1 for universal interventions and 0.3 for targeted or indicated populations Most studies were conducted on demonstration programmes; the few studies of routine practice programmes showed much smaller effects Programme effects did not vary greatly with the age, gender or ethnic mix of the research samples Interventions were generally more effective when they were implemented well and relatively intense, used one-on-one formats, and were administered by teachers Behavioural approaches and counselling showed the largest effects, followed by academic programmes and separate schools/classroom, social competence training with and without cognitive-behavioural components followed close behind and multimodal and peer mediation programmes Higher risk youth showed greater reductions in aggressive behaviour, and poorly implemented programmes produced smaller effects, and different types of programmes were generally similar in their effectiveness, other things equal	Though not representative of routine practice, the demonstration programmes yielded encouraging evidence about what practice programmes might achieve under favourable circumstances A range of strategies work, so long as they are well implemented Programmes are most effective in contexts where the base rates of aggressive behaviour are high enough for meaningful reduction to be possible

(Wilson and Lipsey, 2006a)	73 research studies described in 89 reports of universal school based social information processing interventions on aggressive behaviour	Violence, aggression, fighting, person crimes, disruptive behaviour problems, acting out, conduct disorder, externalizing problems	<p>Students who participated in social information processing showed less aggressive and disruptive behaviour after treatment than students who did not receive the programme. The overall weighted mean effect size was 0.21 which was statistically significant, though not large. Nearly 80% of the effect size values were positive</p> <p>Children from low socioeconomic status families or from schools with a large proportion of low income students achieved greater benefit than students from higher socioeconomic status communities. Studies with higher quality methods (e.g. those with random assignment or low attrition) did not produce better (or worse) outcomes than studies using less rigorous methods. More intensely delivered programmes more effective</p> <p>Research and demonstration programmes and those that had no obvious implementation difficulties produced the largest effects. Programs delivered under routine circumstances were the least effective, independent of implementation quality, maybe because they tended to be less intense</p>	The overall mean effect size of 0.21 indicates that universal social information processing programs are effective for reducing aggressive and disruptive behaviour
(Wilson and Lipsey, 2006b)	68 reports of 47 studies of universal school-based social information processing interventions on aggressive behaviour	Aggressive behaviour, i.e. violence, aggression, fighting, person crimes, disruptive behaviour, acting out, conduct disorder, externalizing problems	<p>Clear positive programme effect. At-risk and behaviour problem students who participated in social information processing programs showed less aggressive and disruptive behaviour after treatment than students who did not receive a programme. The overall weighted mean effect size was 0.26, which was statistically significant. Over 60% of the effect size values were positive</p> <p>Studies with greater amounts of attrition tended to show smaller programme impact than those with little attrition. There were no significant differences between experimental and quasi-experimental studies</p> <p>Generally greater reductions in aggressive behaviour were found for higher risk students. However, programmes for special education students were significantly less effective than those for regular education students—they may have had problems that were too serious to respond to relatively short interventions</p>	The overall mean effect size of 0.26 indicates that targeted and indicated social information processing programmes are effective for reducing aggressive and disruptive behaviour in at risk and problem students

Continued

Table 2: *Continued*

Author (year)	Number and focus of included studies	Mental health outcomes measured	Authors' results	Authors' conclusions
(Wilson and Lipsey, 2007)	249 experimental and quasi-experimental studies of school-based programmes with outcomes representing aggressive and/or disruptive behaviours	The review included studies of any school-based programme for which aggressive or disruptive behaviour was measured as an outcome variable	<p>The programmes were effective. Positive overall intervention effects were found on aggressive and disruptive behaviour and other relevant outcomes (0.20–0.35)</p> <p>The most common and most effective approaches were universal programmes (0.21) and targeted programmes (0.29) for selected/indicated children.</p> <p>Multi-component/comprehensive programmes did not show significant effects (0.05, not statistically significant) which is surprising and counter-intuitive. It may be that their broad scope is associated with some dilution of the intensity and focus of the programmes so that students have less engagement with them than with the programmes in the universal and selected/indicated categories, and that as proportionately fewer of the programmes in this category involved the cognitively oriented treatment modalities that were the most widely represented ones among the universal and selected/indicated programmes</p> <p>Effects for special schools or classrooms were modest but statistically significant (0.11) – not clear whether relatively low impact is because all is being done already that can be, or that problems are so severe that these programmes cannot reach them</p> <p>Routine programmes delivered by teachers did not have significantly worse effect sizes to those delivered by professionals</p> <p>Different treatment modalities (e.g. behavioural, cognitive, social skills) produced largely similar effects. Effects were larger for programmes that reported few implementation problems (0.32), with more frequent sessions (0.40 over a longer period of time (0.34), and those involving students at higher risk for aggressive behaviour 0.21). For the universal programmes, the greatest benefits appeared for younger students (0.27) and students from economically disadvantaged backgrounds (0.21). For the selected/indicated programmes, it was students already exhibiting problematic behaviour who showed the largest effects (0.21)</p>	<p>The mean effect sizes for these types of programmes represent a decrease in aggressive/disruptive behaviour that is likely to be of practical significance to schools</p> <p>Schools seeking prevention programmes may choose from a range of effective programmes with some confidence that whatever they pick will be effective. Without the researcher involvement that characterizes the great majority of programmes in this meta-analysis, schools might be well-advised to give priority to those that will be easiest to implement well in their settings</p>

non-school work in clinical contexts (8 reviews), which automatically meant a review was graded as being of no more than moderate quality. All 52 reviews used a stated and appropriate and comprehensive search strategy; 51 provided a meta-analysis or narrative data synthesis; 47 assessed the quality of studies and used their assessment to guide results and 46 asked a clearly focused question.

Geographical location of the reviews

Just over half (27) of the reviews were carried out by researchers based in the USA, the rest were from the UK (13), the Netherlands (3) Germany (2), Canada (2), Australia (2), New Zealand (1), Norway (1) and the Netherlands and Belgium combined (1).

Transferability

Several reviews considered whether interventions that are generally USA based might be transferable to a different context or country (A few trials had taken place in European contexts of evidence-based interventions that originated elsewhere, and some trials in other countries (Diekstra, 2008b***). Such conclusions as could be drawn from the small evidence base were positive. Bayer *et al.* identified some evidence-based programmes (Bayer *et al.*, 2009)** that were potentially transferable to Australia. Diekstra found the overall effect size of USA and non-USA studies similar for the only outcome on which comparison was possible, social and emotional skills (Diekstra, 2008b)***, while Shucksmith *et al.* found that CBT-based interventions targeted at reducing anxiety disorders had been transferred successfully between several countries (Shucksmith *et al.*, 2007)***.

Impact and effectiveness of interventions

Fifty of the 52 reviews came to a positive assessment of the evidence they reviewed, concluding that one or more of the interventions had at least small effects and/or were in some way 'effective'. The remaining two reviews were inconclusive rather than negative, and cited methodological weaknesses as the reason why they could not come to firm conclusions. (Park-Higgerson *et al.*, 2008*** on violence

prevention interventions and Schachter *et al.*, 2008* on mental health stigma interventions.)

Only four minor examples of apparent adverse effects were reported across hundreds of interventions reviewed. All were small effects and two were concerned with apparent increases in bullying after interventions, which largely appeared to be connected with the use of peer groups for children who bullied (Adi *et al.*, 2007b***; Shucksmith *et al.*, 2007***; Blank *et al.*, 2009***).

Overall effects

Interventions reviewed had wide-ranging beneficial effects on individual children and young people, on classrooms, families and communities and on an array of mental health, social, emotional and educational outcomes.

'Internalizing' mental health problems

Nineteen reviews included 'internalizing' mental health problems and disorders such as depression and anxiety among the outcomes they examined. All concluded that the overall impact of work was positive. Where reviews used numbers to summarize effects, the impact appeared on the whole to be small to modest. Focusing only on the 9 reviews that were concerned only with work in schools (10 others included interventions in clinical contexts) 3 showed ES of 0.10–0.50 (Payton *et al.*, 2008***; Reddy *et al.*, 2009***; Sklad *et al.*, 2010***), and one (Browne *et al.*, 2004***) suggested modest to large impacts with ES of 0.41–1.70. Evidence from moderate quality reviews, most of which included work in clinical as well as school contexts, was consistent with these positive results, with the four reviews that enumerated results showing effect sizes that varied from small to large, between 0.16 and 0.93 (Durlak and Wells, 1997**; Haney and Durlak, 1998**; Merry *et al.*, 2004**; Horowitz and Garber, 2006**) The other 11 reviews that did not provide a numerical set of results also claimed that the impact of interventions on internalizing mental health problems was positive.

The impact on higher risk children was generally consistently shown to be higher than that on children with milder problems, and quite strong, with average ES of ~1.00, rising to 2.46 for some specific selective interventions and measures (Horowitz and Garber, 2006**;

Browne *et al.*, 2004***; Reddy *et al.*, 2009***; Payton *et al.*, 2008***).

Positive mental health and wellbeing and social and emotional learning (SEL)

The impact on positive mental, emotional and social health and wellbeing in general showed positive and small to moderate effects of interventions, with ES of 0.15–0.37 (Adi *et al.*, 2007a)***. Durlak and Weissberg (Durlak and Weissberg, 2007)*** and Durlak *et al.* (Durlak *et al.*, 2011)*** both found that well-implemented SEL interventions had mean ES of 0.24–0.35, and Durlak *et al.* calculated a grand study-level mean ES of 0.28 for 207 SEL interventions (Durlak *et al.*, 2011)***. Three other reviews showed impacts on social and emotional skills and competences to be positive, and moderate to strong effects (ES 0.5–1.49) (Catalano *et al.*, 2002***; Scheckner *et al.*, 2002***; Berkowitz and Bier, 2007***). Impacts on self-esteem and self-confidence were consistently shown to be moderate across a range of high-quality reviews, with ES of 0.34–0.69 across five reviews (Haney and Durlak, 1998**; Ekeland *et al.*, 2004***; O'Mara *et al.*, 2006***; Durlak and Weissberg, 2007***; Sklad *et al.*, 2010***).

'Externalizing' problems: violence, bullying, conflict and anger

Fifteen reviews addressed were of interventions which aimed to reduce and prevent violence, bullying, conflict and anger, using various overlapping terminologies. Ten focused predominantly on aggression, violence and conflict resolution, four focused predominantly on bullying, one focused on anger and one focused on disruptive classroom behaviour.

Again, the impact on universal populations was positive and small (ES 0.1 on average) but generally markedly stronger for high-risk children (ES 0.21–0.35 on average) (Catalano *et al.*, 2002***; Mytton *et al.*, 2002***; Scheckner *et al.*, 2002***; Wilson *et al.*, 2003***; Wilson and Lipsey, 2006a***; Adi *et al.*, 2007b***; Garrard and Lipsey, 2007***; Hanh *et al.*, 2007**; Blank *et al.*, 2009***; Farrington and Ttofi, 2009***). Impact was generally stronger for older students than younger (Farrington and Ttofi, 2009***). Cognitive–behavioural interventions also consistently showed a larger effect than average with an ES of 0.5 (Beelman and

Losel, 2006**; Shucksmith, *et al.*, 2007***). Targeting children who have violent or bullying behaviour, and especially carrying out peer-based work with them, in which difficult children work together, generally had an adverse effect, with more bullying and victimization resulting (Shucksmith *et al.*, 2007***; Farrington and Ttofi, 2009***).

Attitudes to school and academic achievements

Four studies assessed the impact of various interventions on aspects of children's behaviour and attitudes towards school and reported. ES relating to commitment to schooling that were small to moderate (ES 0.14–0.6) (Catalano *et al.*, 2002***; Berkowitz and Bier, 2007***; Durlak and Weissberg, 2007***; Sklad *et al.*, 2010***) and of a similar magnitude for achievement in test scores and school grades (ES 0.11–0.5) (Durlak and Weissberg, 2007***; Sklad *et al.*, 2010***; Durlak *et al.*, 2011***).

Classrooms and families

One study (Durlak and Weissberg, 2007)*** addressed the impact of various SEL interventions on surrounding environments, and found positive results (ES 0.34 for family environments; 0.78 for classroom environments).

Emergent themes across reviews, including the characteristics of more effective interventions

Although the reviews were very heterogeneous, covering many different interventions, issues, topics and populations, undertaken across a 20-year period and of varied quality, there was in practice a considerable overlap between them, with some key interventions cropping up time again. However, the apparent impact of most interventions was variable, leading to the conclusion that the effectiveness of any intervention cannot be relied upon. Most interventions only worked sometimes, some did not work at all, and some were considerably more effective than average in some circumstances. There is clearly more to being effective than simply carrying out an intervention, even if well designed. The more recent reviews, particularly, recognized this problem and most of them included an analysis of the characteristics of interventions that appeared to be linked with effectiveness. It is therefore possible to make

some tentative data synthesis of the key themes that emerged, many of which are concerned with the features of effective interventions.

The balance between targeted and universal approaches

Most of the reviews (48) were of universal approaches and the 46 that were able to come to conclusive results concluded that universal approaches they reviewed had a positive impact. Fourteen reviews looked at both targeted and universal approaches, and nine of them were able to come to comparative conclusions. As we have already suggested, interventions across the whole range of outcomes assessed were consistently shown to have a more dramatic effect on higher risk children (Haney and Durlak, 1998**; Wilson *et al.*, 2003***; Beelman and Losel, 2006**; Wilson and Lipsey, 2006b***; Adi *et al.*, 2007b***; Waddell *et al.*, 2007**; Diekstra, 2008b***; Horowitz and Garber, 2006**; Park-Higginson *et al.*, 2008***). Two reviews hypothesized that this was due to the 'ceiling effect' with populations without overt problems not having the same scope for improvement. (Horowitz and Garber, 2006**; Adi *et al.*, 2007b***).

Two reviews concluded that some redressing of the balance was needed, with a greater emphasis needing to be placed on targeted (Rones and Hoagwood, 2000**; Beelman and Losel, 2006**). However, three reviews concluded that universal approaches provided a more effective context for working with students with problems than targeted or indicated alone (Wells *et al.*, 2003***; Browne *et al.*, 2004***; Diekstra, 2008a*).

Adi *et al.* addressed this issue specifically and concluded that both universal and targeted approaches have their place, and appear to be stronger in combination found insufficient evidence to make recommendations relating to the optimum balance of universal and targeted approaches (Adi *et al.*, 2007a)***.

Several reviews addressed the question of differential impact but many of the findings were inconclusive, or not replicated in other studies, and no substantial or clear results emerged: Adi *et al.*, in a large and recent review of the whole field, found no trials to show differential effects according to age, gender, ethnic or social groups (Adi *et al.*, 2007a)***.

Develop skills and competences

Improvements in skills were an outcome explored in 10 reviews across a wide range of issues and there was consensus among them that teaching skills and developing competence is a central part of any comprehensive and effective intervention (Catalano *et al.*, 2002***; Berkowitz and Bier, 2007***; Durlak and Weissberg, 2007***; Shucksmith *et al.*, 2007***) in a recent review of targeted approaches to mental health and wellbeing in primary schools, which took a broad view of the field concluded that the more complex and effective interventions, despite their different branding, offered a very similar mix of CBT and social skills training for children, training of parents and teachers in appropriate reinforcement and better methods of discipline, and that this mix was very similar whatever the problem or diagnosis, for internalizing problems, such as depression and anxiety, as well as for externalizing behaviours, such as conduct disorders. Looking at several of wide range of issues explored by the various good quality reviews, the acquisition of social and emotional skills and competences was associated with a wide range of specific outcomes including positive youth development (Catalano *et al.*, 2002***; Durlak and Weissberg, 2007***) character education (Berkowitz and Bier, 2007)*** a reduction in depression and anxiety (Shucksmith *et al.*, 2007***; Waddell *et al.*, 2007**; Blank *et al.*, 2009***), conduct disorders (Shucksmith *et al.*, 2007***; Waddell *et al.*, 2007**) violence (Mytton *et al.*, 2002)***, bullying (Farrington and Ttofi, 2009***) conflict (Garrard and Lipsey, 2007***; Waddell *et al.*, 2007**) and anger (Gansle, 2005***).

Three reviews concluded that the teaching of skills had more, and longer term, impact when mental health issues were integrated into the general classroom curriculum than when the skills were focused on in isolation and that interventions covering social problem solving, social awareness and emotional literacy, in which teachers reinforce the classroom curriculum in all interactions with children, were particularly effective (Rones and Hoagwood, 2000**; Adi *et al.*, 2007a***; Berkowitz and Bier, 2007***).

Six reviews nominated CBT as a particularly effective approach, suggesting that it impacted on anti-social behaviour (Beelman and Losel, 2006**), violence and aggression (Wilson *et al.*,

2003***), conduct disorder (Waddell *et al.*, 2007**), pro-social behaviour and skills, conflict resolution, anger management and resolution, and reduced aggression (Scheckner *et al.*, 2002, 2007***) and anxiety and depression (Neil and Christensen, 2007**; Shucksmith *et al.*, 2007***; Waddell *et al.*, 2007**).

Teaching methodologies

Only one review (Hahn, 2007**) concluded that the teaching methodologies employed by interventions made no difference: the balance of the evidence suggested that the choice of teaching strategies and methods was highly influential over interventions' effectiveness.

Five reviews suggested the need for a positive and holistic approach. Greenberg *et al.* (Greenberg *et al.*, 2001)** and Wells *et al.* (Wells *et al.*, 2003)*** concluded that behavioural strategies on their own were unlikely to be effective, and Merry *et al.* (Merry *et al.*, 2004)** came to a similar conclusion about the ineffectiveness of information only strategies. These three reviews concluded that interventions need also to 'educate' the child through impacting on attitudes, values, feelings and behaviour. Three reviews concluded that interventions were more effective if they were positive rather than fear or problem based (Wells *et al.*, 2003***; Browne *et al.*, 2004***; Green *et al.*, 2005*) while Browne *et al.* (Browne *et al.*, 2004)*** felt that interventions were more effective if they addressed the needs of the whole child, rather than just seeing them as a 'problem'.

Six reviews looked at the issues of teaching methods. Five concluded that more effective interventions used active rather than didactic teaching methods, employing interactive methods such as games, simulations and small group work (Browne *et al.*, 2004***, Berkowitz and Bier, 2007***; Durlak and Weissberg, 2007***; Diekstra, 2008a*; Durlak *et al.*, 2011***). Two reviews suggested that using multiple modalities (a range of integrated and coordinated methods, groups, levels of intervention, one-to-one and whole-class work) was more effective than using just one or two approaches (Rones and Hoagwood, 2000**; Browne *et al.*, 2004***).

Whole-school/multi-component approaches

Five reviews, across a wide topic range, concluded that it is necessary for effectiveness to move beyond an individual, classroom and curriculum focus alone, and embed such work within a whole-school, complex, multi-component approach involving a wide range of people, agencies, methods and levels of intervention, and mobilizing the whole school as an organization (Catalano *et al.*, 2002***; Wells *et al.*, 2003***; Adi *et al.*, 2007a***,b***). Vreeman and Carroll found only 4 of the 10 curriculum and social skills based studies they reviewed showed decreased bullying, and 3 of those 4 also showed no improvement in some populations, while of 10 studies evaluating the whole-school approach, 7 revealed decreased bullying across the board (Vreeman and Carroll, 2007)***. Catalano *et al.* found that, in developing pro-social behaviour and social competence, the more components an intervention covered the better. However, two recent reviews have come to different conclusions (Catalano *et al.*, 2002)***. Wilson and Lipsey reviewing interventions to prevent violence (Wilson and Lipsey, 2007)*** and Durlak *et al.* reviewing interventions to develop SEL, both found that multi-component interventions did not show significant effects compared with interventions which only involved one aspect of school life, a finding which the reviewers found counter-intuitive and contrary to their expectations from previous evidence (Durlak *et al.*, 2011)***. Both hypothesized that it may be that the broad scope of some of the more recent multi-component interventions is associated with some dilution of the intensity and focus and with weaker implementation, so that students have less engagement with these interventions. The importance of the quality of the implementation is an issue we will return to later.

School ethos and culture

Six reviews discussed the importance of school 'environments' and efforts to change them to promote mental health (Durlak and Wells, 1997**; Greenberg *et al.*, 2001**; Catalano *et al.*, 2002**; Wilson *et al.*, 2003***). Some reviews explored this issue in more detail, formulating the concept of school 'ethos' and culture to describe the underlying values and

attitudes that the school represents, particularly in relation to the way staff and students treat one another, the development of bonds between youth and adults, and increased opportunities and recognition for youth participation in positive social activities. Two reviews of primary schools attempt to promote mental health and wellbeing, both in general (Adi *et al.*, 2007a^{***}) and in relation to the prevention of violence (Adi *et al.*, 2007b^{***}) found the results of interventions to influence and change school ethos and culture were positive and very promising for future research. One review (Greenberg *et al.*, 2001^{**}), discussing evidence on preventing mental disorder, concluded that school ecology should in future be a central focus of intervention.

Agents of transmission

The interventions analysed in the various reviews were transmitted by many different agents. Eleven reviews explored the issue of effective leadership and which agents were more effective.

Scheckner *et al.*, looking at interventions that promote pro-social behaviour and skills, found that intervention impact was significantly affected by having a qualified intervention leader (Scheckner *et al.*, 2002)^{***}, while several reviews (e.g. Adi *et al.*, 2007a^{***}, b^{***}; Berkowitz and Bier, 2007^{***}; Diekstra, 2008a^{*}) commented on the need for extensive and intensive training for those involved in leadership.

Many of the early interventions used clinical staff to deliver small-scale demonstration programmes using experimental designs and involving small samples of children, usually focused on specific issues and with short-term evaluation. This approach has remained common for targeted interventions. Shucksmith *et al.* (Shucksmith *et al.*, 2007)^{***} concluded that it was particularly appropriate when the interventions are starting out. Adi *et al.* suggested using specialist staff was effective in short-term stress and coping interventions (Adi *et al.*, 2007a)^{***}, while Blank *et al.* suggested it was useful for interventions to address for anxiety and depression (Blank *et al.*, 2009)^{***}. However, Shucksmith *et al.* (Shucksmith *et al.*, 2007)^{***} concluded that this use of specialist staff was unsustainable in the longer term and for larger-scale and universal interventions. So, more recently there has been a shift away from

specialist staff, both across and, over time, within interventions to implement interventions in real-life circumstances, using those routinely involved in the life of the school, such as teachers, parents and sometimes peers.

There was contradictory evidence on the absolute effectiveness of teachers compared with specialist staff. Three reviews suggested that teachers are not as effective as specialist staff (Wilson *et al.*, 2003^{***}; Beelman and Losel, 2006^{**}; Wilson and Lipsey, 2006a^{***}) and hypothesized that this was because interventions delivered under routine circumstances were less intense. However, three other reviews concluded that teachers can be as effective as specialists (Adi *et al.*, 2007a^{***}; Wilson and Lipsey, 2007^{***}; Diekstra 2008a^{*}). Wilson and Lipsey (Wilson and Lipsey, 2007)^{***}, Durlak *et al.* (Durlak *et al.*, 2011)^{***} and Diekstra (Diekstra, 2008a)^{*} concluded that it is particularly important that teachers are involved if interventions are to get to the heart of the school process. Durlak *et al.* (Durlak *et al.*, 2011)^{***} and Diekstra (Diekstra 2008a) concluded that only when school staff conduct the intervention does student academic performance improve significantly and mental health start to impact on school culture—possibly because school staff are involved in both aspects of school life and can bring it all together.

Some reviews included interventions which involved peer work. The evidence on its effectiveness was mixed. Six reviews found that peers can be an effective and significant part of some types of mental health interventions. Rones and Hoagwood (Rones and Hoagwood, 2000)^{**}, Adi *et al.* (Adi *et al.*, 2007a)^{***} and Garrard and Lipsey (Garrard and Lipsey, 2007)^{***} all reported reasonable evidence that peer mediation in conflict resolution is effective in the short term, and Blank *et al.* found it to be effective in the longer term (Blank *et al.*, 2009)^{***}. Browne (Browne *et al.*, 2004)^{***} and Shucksmith *et al.* (Shucksmith *et al.*, 2007)^{***} found some evidence that peer norming (putting children with problems with those without) has at least short-term modest impacts on the mental health of children with problems. However, Farrington and Ttofi (Farrington and Ttofi, 2009)^{***} and Shucksmith *et al.*, (Shucksmith *et al.*, 2007)^{***} found that peer work which is only carried out with children who bully increased their subsequent bullying

and victimization of other children, with bullying children reinforcing one another's attitudes and behaviours.

Family and community involvement

Durlak *et al.* found 64% of the positive youth development interventions attempted some type of microsystemic or mesosystemic change involving schools, families or community-based organizations (Durlak and Weissberg, 2007)^{***}. Four reviews all looking at broad issues such as positive youth development and mental health (Greenberg *et al.*, 2001^{**}; Catalano *et al.*, 2002^{***}; Browne *et al.*, 2004^{***}; Diekstra, 2008a^{*}) concluded that such engagement with and support from families and communities is helpful, with Greenberg (Greenberg *et al.*, 2001)^{**} suggesting that it is more effective than prevention programmes which focus only and independently on the child's behaviour. Both Browne (Browne *et al.*, 2004)^{***} and Greenberg (Greenberg *et al.*, 2001)^{**} commented on the importance of embedding interventions within multi-disciplinary teams and communities to provide support.

The involvement of parents was nominated by 10 reviews as a key component of effective multi-component interventions. Parental involvement was reported as increasing, effectiveness for pro-social youth development (Catalano *et al.*, 2002^{***}; Durlak *et al.*, 2007^{***}), universal interventions to promote mental health (Wells *et al.*, 2003^{***}; Adi *et al.*, 2007a^{***}), stress and coping interventions (Adi *et al.*, 2007a^{***}), interventions to reduce violence and bullying (Adi *et al.*, 2007b^{***}; Blank *et al.*, 2009^{***}; Farrington and Ttofi, 2009^{***}) targeted approaches to prevent mental disorders (Greenberg *et al.*, 2001^{**}; Shucksmith *et al.*, 2007^{***}) and conduct disorder (Waddell *et al.*, 2007^{**}). Shucksmith *et al.* suggested that this is because, when involved, parents can support and reinforce at home the messages children are learning at school (Shucksmith *et al.*, 2007)^{***}.

Durlak and Weissberg suggested that the effect is two-way: looking at positive youth development interventions that attempted to change schools, families and community-based organizations they found some statistically significant changes in families and communities as a result of school-based interventions, ranging from modest to large effects (Durlak and Weissberg, 2007)^{***}.

Age and stage

Eleven reviews explored the issue of age in relation to the impact of interventions. Five concluded that it is generally important to start interventions early, with younger children (Durlak and Wells, 1997^{**}; Greenberg *et al.*, 2001^{**}; Browne *et al.*, 2004^{**}; Shucksmith *et al.*, 2007^{***}; Waddell *et al.*, 2007^{**}), although two suggested that the age of introduction may not be crucial (Adi *et al.*, 2007a^{***}; Durlak *et al.*, 2011^{***}) with reviews of interventions to prevent bullying, conflict and violence, targeting older students particularly suggesting that working with older students is more effective (Mytton *et al.*, 2002^{***}; Garrard and Lipsey, 2007^{***}; Farrington and Ttofi, 2009^{***}).^{*****}

However, Blank *et al.* (Blank *et al.*, 2009)^{***} commented that there is little work for on which to base comparisons. In their rare review of work for students over 11 years, they found few studies with older children, and that those few were one-off interventions in local contexts, focused on improving behaviour, reducing violence and bullying and developing pro-social behaviour and skills, without involvement of parents or the wider school.

The balance of evidence pointed to starting early, with well designed and implemented interventions and then continuing with older students. Three reviews concluded that there was evidence both for intensive interventions in the early years and for supportive 'booster' sessions later. (Browne *et al.*, 2004^{***}; Shucksmith *et al.*, 2007^{***}; Diekstra, 2008a^{*}).

Length and intensity of interventions and of their evaluations

Fifteen reviews produced results that related to how long interventions should last and how intensive they should be to be effective. Some of the evidence on the associations between impact and duration was inconclusive (Hahn, 2007^{**}; Blank *et al.*, 2009^{***}), but overall some clear patterns emerged.

None of the reviews concluded that single brief interventions have any worthwhile role. Three reviews produced some evidence in support of short-term interventions (8–10 weeks) for specific and mild problems for conflict resolution (Garrard and Lipsey, 2007^{***}; Adi *et al.*, 2007a^{***}) and minor anxiety and

emotional disorders (Shucksmith *et al.*, 2007***).

However, the majority of reviews found interventions of at least 9 months to a year to be more effective, especially in broad areas and/or in response to more severe problems. Longer and more intense interventions appeared to be more effective than brief ones for positive mental health (Wells *et al.*, 2003***; Green *et al.*, 2005*), positive youth behaviour (Catalano *et al.*, 2002)*** preventing violence and bullying (Scheckner *et al.*, 2002***; Adi *et al.*, 2007b***; Farrington and Ttofi, 2009***), anger (Scheckner *et al.*, 2002***; Gansle, 2005***) and preventing mental disorders (Greenberg *et al.*, 2001**).

Most of the evaluations of the included studies took place immediately after the intervention and as we have seen there was reasonable evidence of at least small to moderate short-term impact. But with recent larger studies, some long-term effects were emerging. Generally, effects gradually decreased in the long-term but remained significant (Horowitz and Garber, 2006**; Diekstra, 2008b***).

High-quality implementation

Eleven reviews commented on the issue of the impact of intervention quality on effectiveness, with all concluding that it was an important determinant. Wilson *et al.* (Wilson *et al.*, 2003)***, Wilson and Lipsey (Wilson and Lipsey, 2006a)*** and Durlak *et al.* (Durlak *et al.*, 2011)*** found that interventions that had no obvious implementation difficulties produced the larger effects than those with difficulties. Wilson and Lipsey (Wilson and Lipsey, 2006a***) concluded that schools seeking prevention interventions might be well-advised to give priority to those that will be easiest to implement well in their settings. Similarly Berkowitz and Bier (Berkowitz and Bier, 2007)***, reviewing range of interventions on character education, concluded that there was a clear trend for complete and accurate implementation to result in more outcome effectiveness than incomplete or inaccurate implementation. Two concluded that implementation was of overriding importance. Durlak and Weissberg (Durlak and Weissberg, 2007)*** and Durlak *et al.* (Durlak *et al.*, 2011) concluded that interventions were not effective at all if they were based only on loose

guidelines and broad principles, but also needed high levels of intensity, consistency, clarity and programme fidelity.

Some of the key interrelated features of high-quality implementation identified by high-quality implementation were:

- a sound theoretical base (Browne *et al.*, 2004)*** explicitness—specific, well-defined goals and rationale, communicated effectively to staff and leaders through thorough training and linked explicitly with the intervention components (McCarthy and Carr, 2002**; Rones and Hoagwood, 2000**; Browne *et al.*, 2004***; Sklad *et al.*, 2010***);
- a direct, intense and explicit focus on the desired outcome rather than using a different focus and hoping for indirect effects (Harden *et al.*, 2001**; O'Mara *et al.*, 2006***; Durlak and Weissberg, 2007***; Durlak *et al.*, 2011***);
- explicit guidelines, possibly manualized (McCarthy and Carr, 2002**; Durlak and Weissberg, 2007***; Durlak *et al.*, 2011***) thorough training and quality control consistent staffing and the specification of individual responsibilities (Browne *et al.*, 2004***);
- complete and accurate implementation. (Berkowitz and Bier, 2007; McCarthy and Carr, 2002**; Catalano *et al.*, 2002; Durlak and Weissberg, 2007***; Durlak *et al.*, 2011)***.

DISCUSSION

The impact of work on mental health in schools

This review endorses the importance of work to promote mental health and prevent mental health problems in schools. It confirms the findings of earlier reviews and recent overviews (e.g. Jenkins and Barry, 2007) that over the last 25 years a strong group of school mental health programmes have emerged with clear and repeated evidence of positive impact. There were very few examples of adverse effects, which is reassuring in the face of some concerns that have been expressed about the 'dangers' of work in this area (e.g. Ecclestone and Hayes, 2009). The cumulative evidence is of impact that is small to moderate in statistical terms and stronger in the short than long term. In terms of specific impacts, there was a small to moderate impact of universal interventions on positive

mental health, mental health problems and disorders, violence and bullying and pro-social behaviour. In all these areas, the effects of interventions was dramatically higher, and quite strong, when targeted at higher risk children, and markedly stronger than average for some specific interventions and on some measures. The impact of interventions on social and emotional skills and competences was moderate to strong. Impacts on commitment to schooling and academic achievements were small to moderate, and on family and classroom environments, moderate.

The effects may be 'small to moderate' in statistical terms but they represent effects that in the real-world are important and relatively large. As two reviewers, Durlak and Wells (Durlak and Wells, 1997)^{***} and Stage and Quiroz (Stage and Quiroz, 1997)^{**} commented, these are outcomes similar to, or higher in, magnitude than those obtained by many other established preventive and treatment interventions in the social sciences and medicine. Durlak and Wells estimated that in practical terms, the average participant in the primary prevention interventions they reviewed surpassed the performance of between 59 and 82% of those in a control group, and outcomes reflect an 8–46% difference in success rates favouring prevention groups (Durlak and Wells, 1997)^{***}. Durlak *et al.* calculated that the effect sizes from the 207 SEL interventions they reviewed averaged out to an 11% improvement in achievement tests, a 25% improvement in social and emotional skills and a 10% decrease in classroom misbehaviour, anxiety and depression, effects which held up for at least 6 months after the intervention (Durlak *et al.*, 2011)^{***}. It is therefore important that work on mental health promotion and problem prevention in schools be endorsed, continued and expanded.

The characteristics of effective interventions

Reviews showed considerable variation of effects. It is clear that many types of interventions can be effective, sometimes strikingly so, but that their effectiveness cannot be relied on. Since information about the variability of effects became clear, the discussion has moved away from simple impact to focus more on the sometimes subtle characteristics of effective interventions. The findings about effective characteristics that emerge from more recent reviews over the

last 10 years contain some important key messages, which may involve redressing some imbalances in policy and practice.

Linking with academic learning

Several studies showed generally positive impacts of various interventions on aspects of children's learning, behaviour and attitudes towards school, such as achievement in test scores and school grades, commitment to school and school attendance. They also showed greater and longer term impact of interventions when mental health issues were integrated into the general classroom curriculum than focused on in isolation. It is increasingly accepted by those keen to promote mental health in schools that linking this activity with the goals of schooling is vital, both to improve the impact of interventions and to ensure that hard pressed schools are to justify a concern with mental health to sceptical staff, parents, governors and funding bodies (Zins *et al.*, 2004). Those involved school mental health at every level need to ensure they work closely education and demonstrate how work to improve the mental health of students can benefit what schools see as their core business: academic learning and achievement, school attendance and behaviour for learning.

Balancing universal and targeted interventions

Within mental health promotion and problem prevention generally the emphasis has long been on a positive approach to mental health in schools, and universal approaches that target everyone. This review generally endorses this focus on the universal, but with some important caveats. It was clear that universal approaches on their own were not as effective as those that added in a robust targeted component, and that interventions had a more dramatic effect on higher risk children. It would appear from current evidence that the best informed approach is to include both universal and targeted approaches, which appear to be stronger in combination, although the exact balance has yet to be determined. It may well be that mental health promotion in schools needs to redress the balance somewhat in favour of more work on targeted approaches, while continuing to embed and integrate them within a robust universal approach.

Starting early and continuing with older students

Evidence from this review suggests that it is best to start early and intervene with the youngest children, particularly in broader areas that develop generic social and emotional skills. However, interventions also need to be long term, including over several years, and new work on specific problems, such as violence and bullying, with older students is effective too, especially if it builds on a generic skills base. Once an effective intervention has run, regular booster sessions with older students appear to be helpful to overcome the recurrent problem of diminution of effects of intervention in the longer term, which in many cases is as little as 6 months.

Using leaders appropriately

The reviews found that many different types of leaders had a role to play within interventions. All need extensive and intensive training. Specialist, often clinically trained staff proved to be effective at the start the process of intervention development and dissemination. However, for interventions to be sustainable, and embedded in the life of the school, and in order to start to affect academic achievement, routine staff, and in particular teachers, need to take over. Peers can be effective, for example in mediation, although care has to be taken to avoid putting together students with difficulties, particularly of the aggressive type, as they can reinforce on another. Families and communities can add strength and depth to work in schools if appropriately involved, and can help to support and reinforce the messages children are learning at school.

Putting skills at the centre

The centrality of skills, and, in particular, work using CBT approaches to any effective mental health intervention, was strongly supported by several reviews in this study. The use of holistic, educative and empowering theories and interactive pedagogical methods was endorsed by many of the reviews which found that behavioural and information-based approaches and didactic methodologies were not nearly as effective. In terms of the theories that underpin skills acquisition, European theory tends to be

holistic, emphasizing not just behaviour change and knowledge acquisition, but also changes in attitudes, beliefs and values, while European health education has long pioneered active classroom methodologies, involving experiential learning, classroom interaction, games, simulations and groupwork of various kinds (Weare, 2000).

Using a whole-school approach

Most of the reviews reported here that discussed the issue suggested that skills work alone is not enough, and that for optimal impact, skills work needs to be embedded within a whole-school, multi-modal approach which typically includes changes to school ethos, teacher education, liaison with parents, parenting education, community involvement and coordinated work with outside agencies. The whole-school approach, well implemented, has long been seen as more effective in terms of outcome than a skills focused, curriculum based, approach alone.

Taking a whole-school approach is in line with a great deal of international policy and practice. Within Europe, and in other parts of the world such as Australia, programme development by agencies such as the WHO, EC, and various national governments has been highly influenced by the settings approach of the WHO, with its focus on creating healthy environments. This has given rise within Europe to large-scale, agency-led, whole-school programmes such as Health Promoting Schools (Schools for Health in Europe, 2010), Healthy Schools (Healthy Schools, 2011), Social and Emotional Aspects of Learning (DES, 2010) and the Good and Healthy School (Paulus, 2009). Australia has the state-led Mindmatters (Mindmatters, 2009) programme and the government-led Kidsmatters (Kidsmatter, 2009) framework.

The need for rigorous implementation of whole-school approaches

All of these whole-school programmes are popular, widespread and well thought of by practitioners and policy-makers. However, it is notable that the evidence generated by them has been weak in terms of hard outcomes and has not resulted in evaluations that are robust enough to feature in systematic reviews. It is of

concern that none of these high-profile programmes was therefore able to meet the evaluation requirements of this review and be included here as examples of evidence-based interventions.

It is, however, clearly possible for whole-school approaches to result in hard outcomes and appear in a systematic review. So what is going wrong with many agency-led European and Australian whole-school approaches in terms of failure to produce outcomes which lead to their inclusion in a systematic review? A set of findings from this study may cast light on this problem.

Some recent reviews identified here suggest that some whole-school approaches, including in the USA, are failing to show impact (Wilson and Lipsey, 2007; Durlak *et al.*, 2011). Authors attribute this to a lack of consistent, rigorous and faithful implementation which is causing these approaches to become too diluted and lack impact. The necessary characteristics they identify for effective implementation include having specific, well-defined goals and rationale, a direct and explicit focus on desired outcomes, explicit guidelines, possibly manualized, thorough training and quality control and complete and accurate implementation.

The European and Australian style and the type of whole-school approaches it generates tend to promote 'bottom up' principles such as empowerment, autonomy, democracy and local adaptability and ownership (WHO, 1997). All the agency-led whole-school programmes named above have produced a wealth of well-planned materials, guidelines and advice, but are also deliberately non-prescriptive and principles based. This flexible and non-prescriptive style is echoed in wider approaches to across Europe and Australia, mental health, which emphasize the need for end-user involvement and the lay voice. This approach contrasts with the US style of more top-down, manualized approaches, with scripts, prescriptive training and a strict requirement for programme fidelity.

There are strong reasons to retain the democratic European and Australian approach for large-scale programmes for mental health. It is generally seen as providing essential supportive structures, positive climates, empowered communities and end-user involvement, which leads to well-rooted and long-lasting changes of attitudes and policies that are necessary to support sustainable changes in mental health. However,

it is clear that, on its own this style of approach also makes it challenging to achieve hard outcomes and measurable changes. There may need to be a balancing of this style with some more focused, and more prescriptive elements, as has been achieved already in some of the more demonstrably effective whole-school programmes. Those involved in approaches to mental health in schools right across the globe, including in Europe should consider having the conviction to build on what is now known, consolidate and formalize their guidance and procedures and provide a greater level of clarity and direction for future developments to ensure consistent implementation of clear, evidence based, interventions. Unless mental health interventions are delivered with clarity and fidelity, approaches which would work well if implemented consistently, are likely to continue to be too diluted and vague to show real impact.

Meanwhile, on a practical level, advice on implementation offered by such as Wilson that schools only undertake interventions that fit their context and which they can easily implement with fidelity and rigour, seems wise. Larger, multi-faceted interventions would also do well to ensure that meet the implementation criteria for clarity and fidelity outlined above, and give concrete advice on such issues as where to start, how to set measurable goals and evaluate them, and the need to prioritize, to phase in changes slowly and ensure that they are properly embedded before going on to the next.

Strengths and limitations of the evidence

This review of 52 reviews of mental health in schools is the largest so far undertaken. It includes 32 studies not included in a set of four substantial and good quality reviews of the field conducted for NICE in 2007 and 2009 (National Institute of Clinical Excellence, UK) (Adi *et al.*, 2007a,b; Shucksmith *et al.*, 2007; Blank *et al.*, 2009). Seventeen of the additional reviews were published more recently and 15 were newly included, probably due to the wider search terms used in this review. This suggests that the conclusions of this review are based on the most recent and the broadest evidence trawl to date.

Systematic reviews are generally acknowledged as powerful tools in the evaluation of evidence of effectiveness, providing quantitative estimates of the average impact of interventions

and reducing bias through their exhaustive strategies. Reviews of reviews take this further and, with a large number of studies to analyse, as in this case, here, can produce some robust and reliable evidence.

However, it is important to note what this design can miss. As a review of reviews this review could not, by definition, identify new studies of primary approaches that may be promising. It is also restricted to work that passes the quality criteria of systematic review. This means that this review only includes what has been evaluated through controlled trials and which may miss promising interventions which have been evaluated in other ways, through before and after studies or qualitative approaches, for example.

Nearly all authors of the reviews commented on the lack of methodological rigour in many of the studies they analysed that made coming to firm conclusions difficult. The problems encountered included: lack of control groups; lack of randomization; small numbers; short duration; poor reporting quality and, in particular, inadequate description of methodological procedures; lack of assessment of intervention implementation; missing data; and failure to report all outcomes. However, the methodological weaknesses may not greatly affect the validity and reliability of the conclusions. Wilson and Lipsey (Wilson and Lipsey, 2006a), reviewing universal school-based social information processing interventions on aggressive behaviour, found that studies with higher quality methods (e.g. those with random assignment or low attrition) did not produce better (or worse) outcomes than studies using less rigorous methods. The same authors also found that there were no significant differences in terms of outcome between experimental and quasi-experimental studies (Wilson and Lipsey, 2006b). The lack of difference made by methodological rigour lends support to the idea that the findings of this review may be applicable across a broad range of work, including that which falls outside the strict parameters of this review.

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 *** = intervention to be found in Europe
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