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FOUNDATION

Adolescent mental health

A systematic review on the effectiveness of school-based interventions

July 2021

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About EIF

The Early Intervention Foundation (EIF) is an independent charity established in 2013 to champion and support the use of effective early intervention to improve the lives of children and young people at risk of experiencing poor outcomes.

Effective early intervention works to prevent problems occurring, or to tackle them head-on when they do, before problems get worse. It also helps to foster a whole set of personal strengths and skills that prepare a child for adult life.

EIF is a research charity, focused on promoting and enabling an evidence-based approach to early intervention. Our work focuses on the developmental issues that can arise during a child's life, from birth to the age of 18, including their physical, cognitive, behavioural and social and emotional development. As a result, our work covers a wide range of policy and service areas, including health, education, families and policing.

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The aim of this report is to support policymakers, practitioners and commissioners to make informed choices. We have reviewed data from authoritative sources but this analysis must be seen as a supplement to, rather than a substitute for, professional judgment. The What Works Network is not responsible for, and cannot guarantee the accuracy of, any analysis produced or cited herein.

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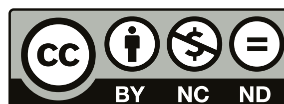

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Summary

There is increasing concern about the mental health and wellbeing of young people. According to international data, the peak age of onset for any mental disorders is 14.5 years (Solmi et al., 2021). Prevalence data in England shows that approximately one in seven young people (14.4%) aged 11–19 experience at least one mental disorder (NHS Digital, 2018). Emotional disorders, including anxiety and depression, are the most common mental disorders experienced by young people, followed by behavioural disorders. The most recent data suggests that young people's mental health has further deteriorated (NHS Digital, 2020). Covid-19 is likely to have played a role in the latest deterioration due to the unprecedented degree of disruption and uncertainty the pandemic has brought to the lives of young people.

Emotional and behavioural problems, if left unaddressed, often persist into adulthood. Longitudinal research has shown that young people who experience persistent emotional and behavioural problems during adolescence are at greater risk of negative outcomes throughout their adult life, including increased risk of depression and anxiety during adulthood, poorer employment outcomes, and not in education, employment or training (NEET) status (Clarke & Lovewell, 2021).

The growing national and international concern about young people's mental health and wellbeing has led to increasing emphasis being placed upon promotion, prevention and early intervention (Solmi et al., 2021). It is increasingly recognised that treatment approaches alone are not sufficient to address the burden of mental disorders among the adolescent population and to bring about improvements in mental health and wellbeing at a population level (Barry et al., 2019). Intervening early to prevent problems from developing brings several advantages, including intervening before patterns become ingrained and difficult to reverse, reducing the burden on young people and their families, and reducing the costs associated with treating mental disorders (Ormel et al., 2019; Barry et al., 2019; Catalano et al., 2012).

Our mission at the Early Intervention Foundation (EIF) is to ensure that effective early intervention is available and used to improve the lives of children and young people, in particular, those at risk of experiencing poor outcomes. Schools are likely to play a crucial role in supporting many young people's mental health and can also enable intervention with young people displaying early symptoms. The school setting provides an opportunity to reach large numbers of young people simultaneously. Staff spend significant time with young people which provides them with an opportunity to develop a trusting and supportive relationship. School staff are also well placed to notice changes in young people and to intervene early in relation to mental health or behavioural concerns (Barry et al., 2019; Fazel et al. 2014). The delivery of interventions in secondary schools provides real opportunities to enhance a range of outcomes and prevent or reduce emotional and behavioural problems in young people, especially as the prevalence of disorders increases with age across secondary school (NHS Digital, 2018).

It is essential that what is delivered in schools is informed by the evidence base. In this review we examine the latest evidence on the effectiveness of school-based interventions designed to address young people's emotional and behavioural needs.

The report consists of three major parts which provide evidence of the effectiveness of interventions designed to:

- enhance young people's mental health and wellbeing outcomes: this includes social and emotional learning interventions, positive psychology interventions, mindfulness-based interventions, positive youth development interventions, and mental health literacy interventions
- reduce or prevent internalising symptoms/mental health difficulties, including anxiety and depression prevention interventions, and suicide and self-harm prevention interventions
- reduce or prevent externalising symptoms/behavioural difficulties, including aggression and violence prevention interventions, bullying prevention interventions, and sexual violence prevention interventions.

Interventions were categorised according to their core aim and primary outcomes. It is, however, important to acknowledge that there is a certain degree of overlap across these categories and the interventions within these categories.

Drawing on evidence from 34 systematic reviews published since 2010 together with 97 primary studies published over the past three years, this evidence review provides a comprehensive and up-to-date summary of what works, for whom and under what circumstances. The findings from this review will form the basis of EIF's ongoing programme of work to support young people's mental health, including the development of guidance for secondary school staff on supporting young people's emotional and behavioural needs (March 2022).

Key findings

We found that:

- **Universal social and emotional learning (SEL) interventions have good evidence of enhancing young people's social and emotional skills and reducing symptoms of depression and anxiety in the short term.** Other approaches to enhancing young people's mental health and wellbeing have produced inconsistent (mindfulness interventions) or limited evidence of impact (positive youth development interventions). Mental health literacy interventions have been shown to have an impact on young people's mental health knowledge; however, there is less evidence of impact on improving help-seeking behaviour. Limited research has been carried out to date on the long-term impact of any of these interventions.
- **There is good evidence that universal and targeted cognitive behavioural therapy (CBT) interventions are effective in reducing internalising symptoms in young people.** Universal CBT interventions have evidence of improving symptoms of depression and anxiety in the short term. Targeted cognitive behavioural therapy interventions delivered to young people with minimal but detectable signs of depressive symptoms appear to be effective in reducing symptoms of depression in both the short and medium term.
- **There is limited evidence on the effectiveness of school-based interventions designed to prevent suicide and self-harm.**
- **Violence prevention interventions have been shown to have a small but positive effect on aggressive behaviour in the short term.** There is evidence that some of these interventions can also have an impact on other behavioural outcomes including bullying victimisation and pupil wellbeing. Programme effects are greater among students considered at high risk of violent behaviour.

- **Bullying prevention interventions are effective in reducing the frequency of traditional and cyberbullying victimisation and perpetration.** There is also good evidence that these interventions have a long-term effect on traditional bullying perpetration.
- **There is promising evidence on the effectiveness of interventions designed to reduce sexual violence and harassment when delivered to young people at risk of experiencing sexual violence.** The evidence shows that these programmes can reduce sexual violence perpetration and victimisation.
- **The impact of depression and anxiety prevention interventions and violence prevention interventions tends be stronger when they are targeted at young people with elevated but subclinical symptoms.** It is likely that interventions aimed at preventing mental health and behavioural problems are less effective among the general population because there is less scope for change. This would suggest that interventions aimed at intervening early to reduce emotional and behavioural difficulties are best directed towards at-risk populations and individuals.
- **In addition to reducing mental health and behavioural difficulties it is essential to support the development of social, emotional and behavioural competencies at a universal level.** A growing body of evidence indicates that enhancing social, emotional and behavioural skills (including emotional identification, articulation and regulation; communication skills; conflict resolution skills; behavioural self-regulation; empathy and perspective taking) is a key determinant to young people's mental health and wellbeing, and supports them in achieving positive outcomes in school, work and life.
- There are a limited number of interventions which report evidence of improving mental health and behavioural outcomes among diverse groups and an **even smaller number of interventions specifically designed for and evaluated with minority ethnic groups.** Findings from these studies do, however, suggest promising impact on mental health and behavioural outcomes when delivered at both universal and targeted level.
- **Universal interventions can be effectively delivered by teachers; however, there is no evidence that teacher-delivered interventions are effective in addressing the needs of students with symptoms of depression or anxiety.** Our review has found that for this group of young people, CBT interventions delivered by external professionals, such as psychologists, provide the only convincing evidence in terms of improving mental health outcomes.
- **High-quality programme implementation is critical to achieving positive outcomes.** Where monitored, research has shown that positive effects are observed when programmes are implemented with high quality (measured in terms of dosage, adherence, quality of delivery and participant responsiveness). This is in contrast to inconsistent/poor implementation which has been shown to result in diminished or null effects. Research on the sustainability of mental health interventions beyond the efficacy trial is very limited.

Implications for policymakers

Over the past two decades, we have witnessed deteriorating mental health among young people in the UK. Most recently, the significant disruption and uncertainty created by Covid-19 has put more young people at risk of experiencing mental health and behavioural difficulties (Mansfield et al., 2021). Now more than ever, there is an urgent need for high-quality school-based support to address young people's mental health and behavioural needs.

The findings from this review provide important insights into what works to support young people's mental health and behavioural needs, for whom, and under what conditions these interventions work. The evidence in this report should be used in current national policy, including the implementation of the *Transforming Children and Young People's Mental Health* green paper proposals and future policy decisions. There are a number of implications to take into account when designing policy.

- **Incentivise and support the use of programmes and approaches which have established evidence of improving young people's outcomes.** The evidence review provides clear evidence on the effectiveness of some approaches in improving young people's wellbeing, reducing symptoms of depression and anxiety, or reducing aggressive behaviour, bullying perpetration and victimisation. It is vital that evidence-based programmes are prioritised over the vast array of programmes and resources that are available to schools, many of which lack evidence of effectiveness or have evidence of not improving outcomes.
- **Support schools to adopt a whole-school approach.** Programmes are more likely to be effective and result in enduring positive change when they are implemented as part of a multi-tiered whole-school approach to improving young people's mental health and behaviour. A mental health or behavioural intervention should not be a one-off event in the school's yearly calendar. Instead, schools need to be supported in the adoption of a whole-school approach which encompasses: (i) universal and targeted interventions; (ii) the embedding of this work within a supportive school environment which fosters positive relationships, a sense of belonging and purpose; and (iii) extending learning to the home environment and developing strong connections with mental health services to support the most vulnerable young people.
- **Develop teachers' skills and confidence in supporting young people's mental health.** As part of a whole-school approach, there is a need for teacher training to enable all school staff to understand and model these skills and behaviours through their everyday interaction with young people. Teachers frequently report limited confidence in being able to respond to young people's mental health and behavioural needs. The provision of high-quality pre-service teacher training and continuing professional development is necessary to equip teachers with the knowledge and skills to enable them to develop learning experiences that support young people's social, emotional, behavioural and academic competencies.
- **Provide external mental health expertise to schools to support the most vulnerable.** A system of identification is needed to better target the most vulnerable pupils at risk of developing mental health and behavioural problems to ensure that they can receive timely early intervention support. It is essential, therefore, that the necessary interventions and support are available for young people most in need. Our evidence review has found that for young people with symptoms of depression or anxiety, CBT interventions delivered by external professionals are necessary to improve mental health outcomes. There is no evidence that teacher-delivered interventions are effective among students with internalising symptoms. Schools should be provided with the necessary external support to intervene early with those most in need. If appropriately resourced and trained, Mental Health Support Teams could provide a real opportunity to address this issue.
- **Focus on high-quality implementation of interventions.** Implementing evidence-based interventions and support within complex systems like schools requires a supportive implementation system in ensuring successful outcomes. National policymaking must focus on high-quality implementation and providing schools with implementation support, for example in building readiness and commitment for change among all school staff, understanding the needs of the pupil population, developing an action plan, addressing barriers to implementation, and sustainability of evidence-based interventions within schools.

Recommendations for future research

Our review has identified substantial gaps in the evidence base which must be addressed if we are to offer high-quality mental health and behavioural support in secondary schools which has the potential to impact not only short- but long-term mental health, educational and social outcomes. Key research priorities are presented below.

- Despite the fact that we identified 97 primary studies published in the last three years and nine of these were carried out in the UK, only one UK study was designed to strengthen young people's mental health and wellbeing. **We need to invest in the evaluation of mental health and behavioural interventions in the UK, in particular interventions designed to enhance young people's mental health and wellbeing.** As part of this we need to avoid common pitfalls when evaluating interventions to ensure confidence in programme outcomes.[1]
- **Future research needs to examine the long-term impact of school-based mental health and behavioural interventions.** This review repeatedly points to the limited number of studies which examined if benefits are maintained at follow-up. Of the studies that report long-term follow-up, the evidence is mixed: some studies report that effects were maintained; others found that effects had disappeared; and a small number of studies reported that effects had become significant only at follow-up. Future research needs to investigate the additional supports required to maintain positive impact at long-term follow-up.
- Despite consistent evidence on the effectiveness of mental health and behavioural interventions delivered to minority ethnic young people and young people from lower socioeconomic backgrounds, relatively few of these interventions were specifically developed for these at-risk groups. **Future research needs to invest in developing and evaluating interventions which have been specifically designed to meet the needs of minority ethnic young people and young people from a lower socioeconomic background.** As part of this, we need to investigate the degree to which cultural adaptations or the designing of intervention materials that are representative of diverse student populations result in a larger impact on young people's outcomes.
- **Additional research is necessary to understand the effectiveness of mental health and behavioural interventions among other vulnerable groups of young people including, for example, young people at risk of school dropout, LGBTQIA young people, young people with special educational needs and disability (SEND), young people with chronic illnesses, and young people with autism spectrum disorder.** Research should examine whether interventions that currently exist are equally, less or more effective for vulnerable groups. In addition, research should also examine whether interventions can be effective when delivered at the universal level in order to prevent marginalising vulnerable groups.
- **We identified a very limited number of interventions addressing cyberbullying, conduct problems and self-harm.** Future research should invest in developing and evaluating the efficacy of interventions designed to address these important issues which can have a significant impact on young people's long-term mental health and wellbeing.
- Despite the evidence regarding the coexistence of mental health and behavioural problems during adolescence and their combined impact on adult functioning (including mental health, suicidality, low education level, financial difficulties and delinquency), we identified a very limited number of interventions designed to address young people's mental health and behavioural needs. **Future research should examine the efficacy of an integrated prevention model which combines evidence-based mental health and behavioural approaches.**

1 See https://www.eif.org.uk/resource/evaluating-early-intervention-programmes-six-common-pitfalls-and-how-to-avoid-them

Implementation research: priority areas

- Evaluation studies continue to provide limited, if any, data on implementation. Without data on what was implemented (dosage, adherence) and the quality of delivery, **we are unable to determine what led to a programme's success or failure.** In addition, we risk misinterpreting null effects in cases where the intervention was poorly implemented. It is crucial that we address this gap in future research trials.
- As part of evaluation research, there is a need to identify barriers to delivering universal and targeted mental health support within schools (such as resourcing; programme model and its fit within the school context; implementer readiness in terms of skills, knowledge and beliefs; pupil acceptability; stigma associated with receiving targeted interventions, and so on). **Reporting on implementation barriers as part of efficacy trials will advance our understanding of the conditions necessary to support programme outcomes**, which will have implications for future programme development and teacher training.
- **Further clarity on what works for whom is necessary.** While our review provides evidence on the effectiveness of various approaches designed to address young people's mental health and behavioural needs, there is limited evidence on whom these approaches are effective/ineffective with. Future research should investigate which young people (gender, age, risk factors) are more likely to benefit from particular types of interventions (universal, targeted).
- **Research on the sustainability of effective interventions is urgently needed** to progress the field of research beyond our understanding of what works to understanding the supports required to sustain evidence-based interventions over time. Future research should examine barriers and facilitating factors that affect the sustainability of interventions after external funds and other resources end.

Download
To download this report or the appendices, which provide in-depth information on all of the systematic reviews and primary studies that were analysed as part of this systematic review, please visit:
https://www.eif.org.uk/report/adolescent-mental-health-a-systematic-review-on-the-effectiveness-of-school-based-interventions

Background

Adolescence is a particularly important phase of life characterised by many physical, mental and social changes that provide opportunities for exploration and growth. Stressors during this period (such as exam pressure, bullying victimisation, body-image issues) can have a significant impact on young people's mental health and behaviour with negative consequences that can remain into adulthood.

Research carried out during the Covid-19 pandemic suggests that while some young people are coping well, others are at increased risk of experiencing poor mental health through a combination of new and additional stresses and pressures at home, reduced access to much-needed services, and limited opportunities for social interaction and support from friends and wider family (Ford et al., 2021). There is some evidence to indicate that the pandemic has had a disproportionate impact on the most vulnerable children and young people, including those whose parents suffer with poor mental health, young carers, children and young people with special needs, children and young people at risk of suffering harm, and those living in poverty and overcrowded housing (Lewis et al., 2021; Viner et al., 2021).

Prevalence data from the Mental Health of Children and Young People (MHCYP) survey suggests that young people's mental health has been deteriorating over the past two decades. In 2017, approximately one in seven young people were identified as having experienced at least one mental disorder (NHS Digital, 2018). The most recent data, which was collected during the first national lockdown (July 2020), suggests that in comparison to previous waves, young people's mental health has deteriorated further. Probable mental health conditions among 11–16-year-olds increased from 12.6% in 2017 to 17.6% in July 2020 (NHS Digital, 2020). Prevalence of probable mental disorders has nearly doubled in Black, Asian and minority ethnic adolescents since 2017. While these increased rates may reflect more accurate reporting – potentially due to increased awareness, reduced stigma and improved screening – they may also represent an increase in prevalence rates, which is of significant concern given what we know about both the immediate and long-term impact of mental health problems experienced during adolescence.

There is growing evidence that young people's mental health is linked to educational success. Emotional problems can undermine academic progress, by eroding cognitive functioning related to learning such as working memory, engagement and persistence, and participation during learning activities. Behavioural problems can limit opportunities for learning to occur in the classroom, and thereby affect academic achievement (Moilanen et al., 2010). Longitudinal research in the UK has found that low levels of socio-emotional development among 11–14-year-olds is associated with a lower likelihood of gaining 5 A*–C GCSEs including maths and English at age 16 (Smith et al., 2019). Additional UK research also presents evidence on the negative impact of behavioural problems on young people's academic achievement (Deighton et al., 2018).

As well as having a negative impact during this key period, young people who experience persistent emotional and behavioural problems during adolescence are at greater risk of negative outcomes throughout their adult life, including increased risk of depression and anxiety during adulthood, poorer employment outcomes and NEET (not in education, employment or training) status (Clarke & Lovewell, 2021). Behavioural problems are also associated with a range of negative physical and social outcomes in adulthood. Our review of the evidence found that while young people with persistent, high-level symptoms appear

to be most at risk, those with subclinical symptoms are also at elevated risk of poorer adult outcomes than their peers (Clarke & Lovewell, 2021). The evidence, therefore, suggests that in addition to the urgent need to prioritise targeted services for those with, or at risk of, persistent emotional or behavioural problems during adolescence, there is a need to invest in the prevention of emotional and behavioural problems – and early intervention support – to reduce vulnerabilities and enhance protective factors.

Schools are seen as an important setting to support young people's mental health and wellbeing and to address emotional and behavioural problems before they become entrenched. The school environment is not only a place of learning, it is an important source of friends, social networks and adult role models, which can have a significant influence on young people's development (Barry et al., 2019). School staff are also in a position to notice changes in young people and to intervene early in relation to mental health or behavioural concerns.

We know that schools want to address young people's mental health and wellbeing. In a survey of over 700 teachers and school leaders conducted for the Early Intervention Foundation by the National Foundation for Educational Research, 85% of respondents reported that mental health was a priority for their schools. We also know that parents support this level of attention. In a survey with over 600 parents conducted for EIF by Ipsos MORI in September 2020, 7 in 10 parents said they wanted schools to do more to support their children's mental health and wellbeing.

In England, schools deliver support for all pupils through personal, social, health and economic (PSHE) education. PSHE covers many areas of study including drug education, financial education, sex and relationship education, and physical and emotional health. In 2017, the government's green paper *Transforming Children and Young People's Mental Health* recommended increasing the role of schools in the provision of mental health services. This has resulted in the provision of funding for training for Designated Senior Leads for Mental Health in every school and college to oversee their approach to mental health and wellbeing. In addition, Mental Health Support Teams, supervised by the NHS are being created to assist schools in providing early intervention support for children and young people with mild to moderate mental health problems.

The delivery of mental health support in schools through Designated Senior Leads and Mental Health Support Teams provides real promise in terms of addressing some of the biggest challenges currently being faced by young people, their families, schools and society as a whole. It is, however, essential that decisions made by policymakers and professionals about what should be delivered in schools are informed by the evidence base. In this systematic review we examine the latest evidence on the effectiveness of universal and targeted mental health and behavioural interventions implemented with young people in secondary schools. We have synthesised the evidence from 34 systematic reviews published since 2010 and 97 primary studies published over the past three years. This review also seeks to address for whom and under what circumstances programmes have been shown to be effective. Understanding factors that moderate programme outcomes is essential to advancing our understanding of how to implement mental health and behavioural interventions in schools.

Structure of the report

In the remainder of the report we provide a detailed overview of our work and findings.

- In the Methodology chapter, we describe our methodology for conducting our systematic search of the literature.
- Part 1 – **Promotion** – presents evidence on the effectiveness of school-based interventions designed to enhance young people's mental health and wellbeing. This includes social and emotional learning, positive psychology interventions, mindfulness-based interventions, positive youth development interventions and mental health literacy interventions.
- Part 2 – **Prevention** – examines the effectiveness of interventions to prevent mental health difficulties including anxiety and depression prevention interventions and suicide and self-harm prevention interventions.
- Part 3 – **Behaviour** – presents evidence on the effectiveness of interventions designed to prevent behavioural problems in young people. We examine aggression and violence prevention interventions, bullying prevention interventions and sexual violence prevention interventions.
- The final chapter summarises our key findings, and presents our recommendations for policymakers and future research.

In-depth appendices

The appendices of this report are available as a separate document.[2] These provide detail on the systematic reviews and primary studies that fulfilled our inclusion criteria and were analysed as part of this systematic review.

Each appendix (on Promotion, Prevention and Behaviour) includes a table of systematic reviews and a table of primary studies.

- The table of systematic reviews provides specific detail on the type of analysis, inclusion criteria, number of studies included, quality assessment rating and key findings.
- The table of primary studies briefly describes each intervention in terms of content, duration, format and facilitator, the study design and sample, quality assessment rating and key findings.

2 Available at: https://www.eif.org.uk/report/adolescent-mental-health-a-systematic-review-on-the-effectiveness-of-school-based-interventions

Methodology

Aims

The aims of this systematic review were to:

- examine evidence on the effectiveness of school-based mental health and behavioural interventions implemented with young people aged 12–18 years of age nationally and internationally (*what works*)
- ascertain the characteristics (age, gender, ethnicity, socioeconomic status) of young people who experience the largest impact from school-based mental health interventions (*for whom*)
- determine the conditions under which programmes have been proven to be effective (*under what circumstances*)
- identify gaps in the evidence base and directions for future research.

Methods

This evidence review consists of:

- a systematic review of meta-analyses and narrative reviews published between January 2010 and August 2020
- a systematic review of primary studies published between January 2017 and August 2020.

The rationale for this approach is to bring together the evidence from across the various narrative reviews and meta-analyses of mental health and behavioural interventions. Focusing exclusively on systematic reviews, however, would have meant our review missed out on the latest evidence of what works as well as additional information regarding for whom and under what circumstances effects were observed. For this reason, we conducted a 'top-up search' of primary studies published in the past three years. We contrast the findings from primary studies with findings from the review of the evidence from 2010 to 2020, so we can understand whether gaps identified through the review of reviews persist, whether conclusions hold, and what additional insights we can gain from the most recently published research.

Glossary

Review of reviews

A systematic review of systematic reviews.

Systematic review

A piece of research that involves systematically assessing evidence that relates to a specified topic. A systematic approach avoids confirmation bias as included studies are not selected based on their findings but based on the research question. A systematic review (i) has a specific research question; (ii) has clear inclusion/exclusion criteria for screening; (iii) searches databases systematically, complemented by manual searches to identify relevant papers; (iv) included papers need to be thoroughly quality appraised to assess the robustness of findings; (v) the heterogeneity of primary studies must be considered; and (vi) an appropriate way to synthesise findings must be applied.

Narrative synthesis

A type of systematic review, where findings from primary studies are synthesised narratively; that is, combined using text.

Meta-analysis

A type of systematic review, where findings are synthesised using statistical methods; findings from different primary studies are pooled to understand the effect interventions had on average. This is only sensible if primary studies are sufficiently similar in terms of which interventions are included and which outcomes are measured and how.

Eligibility criteria for primary studies (top-up search)

We included evaluations of interventions that met the following criteria:

Participants: Interventions were delivered to young people aged 12–18 years. Interventions delivered to personnel working with adolescents in secondary schools (for instance gatekeeper training) were included if the evaluation report focused on adolescent outcomes, rather than on the personnel's knowledge or competencies.

Intervention type: Interventions were considered relevant if they were aimed at:

- enhancing young people's mental health, wellbeing or mental health literacy skills
- preventing/reducing mental health difficulties (including depression, anxiety, stress, self-harm or suicide)
- preventing behavioural difficulties (including antisocial behaviour, conduct problems, aggression, violence, bullying).

Interventions could be delivered face-to-face or online. In addition, interventions could be:

- universal (offered to whole school, whole year or whole class) or
- targeted selective (implemented with students considered at risk of developing mental health or behavioural difficulties) or
- targeted indicated (aimed at students with symptoms of poor mental health or aggressive behaviour but below clinical thresholds).

Comparison: Only empirical studies that used quantitative methods were eligible for inclusion. In addition to randomised controlled trials, we included quasi-experimental designs that allow causal inference as well as non-randomised pre/post designs. Studies without a control group were excluded. Studies could include comparator groups that receive no intervention, usual practice, or an active control.

Outcomes: This evidence review included primary studies that assessed the effectiveness of interventions to improve adolescent mental health and behavioural outcomes including:

- Wellbeing outcomes:
  - Subjective wellbeing – measures of happiness, life satisfaction, perceived quality of life, positive emotions, quality of life, mindfulness, relaxation
  - Psychosocial wellbeing – for example, measures of self-esteem, coping skills, emotional regulation, self-efficacy, decision-making, conflict resolution, problem-solving
- Mental health outcomes/Psychological wellbeing: symptoms of depression, anxiety, stress; suicidality and self-harm
- Mental health literacy outcomes: mental health stigma, knowledge and attitudes towards mental health, help-seeking intentions, help-seeking behaviour
- Behavioural outcomes: aggressive behaviour, violent behaviour, antisocial behaviour, peer-to-peer violence, student-to-teacher violence; (cyber)bullying; perpetration or victimisation of the above.

Outcomes could be measured using any appropriate standardised measure.

Setting: The intervention must have been received by young people in a secondary school in a higher-income country. International terminology to describe secondary school level varies, so eligible school settings were included, but were not limited to secondary school, middle school, high school. Studies conducted in primary school or in tertiary educational institutions were excluded.

Eligibility criteria for systematic reviews (review of reviews)

Systematic reviews were eligible for inclusion if they included primary studies that met the inclusion criteria above. In addition, reviews had to meet the following criteria:

- **Participants:** The review searched for adolescent-focused interventions. Reviews that searched for interventions for 'children and adolescents', 'kindergarten to grade 12' or 'adolescents and young adults older than 18 years' were excluded.
- **Interventions:** The review had to report on secondary school-based mental health or behavioural interventions.
- **Methodology:** Reviews were only included if they systematically searched a minimum of two databases. Reviews of reviews were excluded, but their reference lists were screened to identify relevant review papers.

Exclusion criteria

Neither primary studies nor systematic reviews were excluded based on publication status.

Interventions which were excluded included:

- interventions designed to treat emotional or behavioural disorders
- universal and targeted interventions delivered to young people in the community setting
- interventions delivered to family members (such as parenting interventions)
- interventions which used schools for recruitment purposes only
- interventions which were implemented with children younger than 12 years of age or young people older than 18 years of age.

Only papers where the full text was available in English were included. Evaluations published prior to 2017 were excluded due to the overlap with the review of reviews. Systematic reviews published before 2010 were excluded, and so were reviews that did not include at least one relevant primary study that had been published in or after 2010. Evaluations or reviews that did not report mental health or behavioural outcomes were also excluded (such as academic attainment, physical health, risky health behaviour).

Search strategy

To identify relevant papers for this evidence review, we used the search terms identified in table 1. Terms in each column were connected with a Boolean OR; columns were connected with the Boolean AND (meaning that papers where at least one of the terms from each of the columns occurred were identified). Asterisks were used to ensure the search would pick up on papers regardless of British or American English spelling (such as behavior vs behaviour) and on different forms of the term (such as efficacy and efficacious). The systematic search for reviews and primary studies was conducted in August 2020.

TABLE 1
Search terms

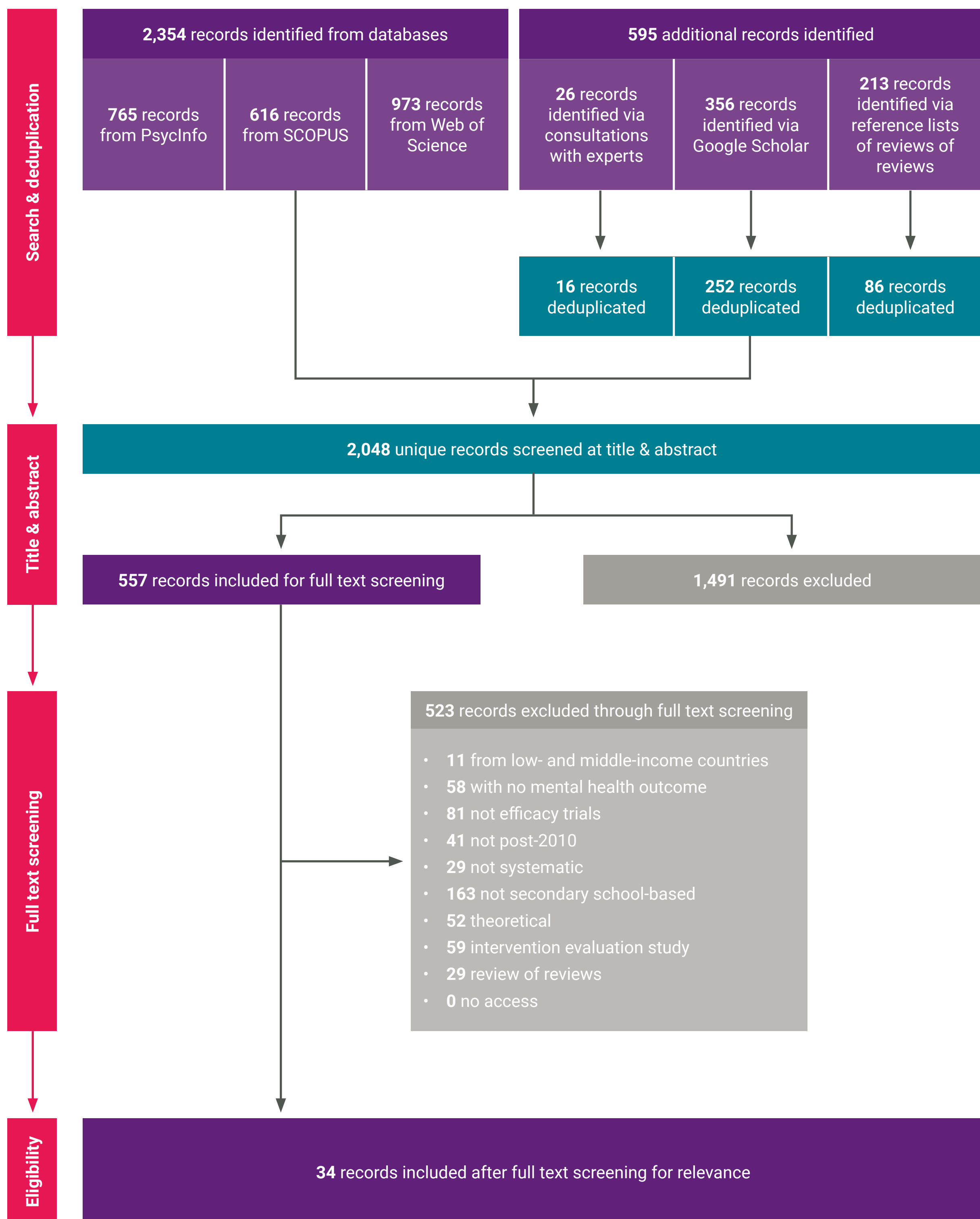
Mental health/behaviour		Early intervention	Setting	Population	Programme	Study	For review of reviews
anxiety	externali*	prevent*	secondary school	adolescen*	intervention	RCT	synthesis
mood	mental health	promot*	middle school	young people	program*	trial	evidence review
depress*	literacy	universal	middle school	youth	online	quasi-experimental	literature review
self-harm	mindful*	indicated	high school	young adult	training	evaluation	scoping
self-injury	character	targeted	school-based	teenager	therapy	study	meta-analysis
suicid*	youth development	at risk	classroom	student*	web	impact	
mental health	bullying	selective	whole school	pupil	internet	effica*	
well-being	cyber bullying	enhance			electronic	effective*	
wellbeing	aggressi*	support*			digital	implement*	
resilien*	violen*	improv*					
social	antisocial						
emotional	prosocial						
positive	conduct						
psychology	behavio*						
internali*							

Identification and selection of systematic reviews

To identify relevant systematic reviews, we searched three databases (PsycInfo, SCOPUS, Web of Science), consulted with experts, and conducted complementary manual searches on Google Scholar. We also screened the reference lists of reviews of reviews that were identified through the searches to identify additional systematic reviews. We identified 2,048 unique records. Search results were uploaded to Zotero for de-duplication and subsequently screened at title and abstract (n=2,048) and full-text level (n=557).

A total of 34 records met all inclusion criteria and are reported on in this evidence review. Figure 1 presents the identification and selection of systematic reviews. A PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) flowchart is available upon request.

FIGURE 1
Flowchart for review of reviews



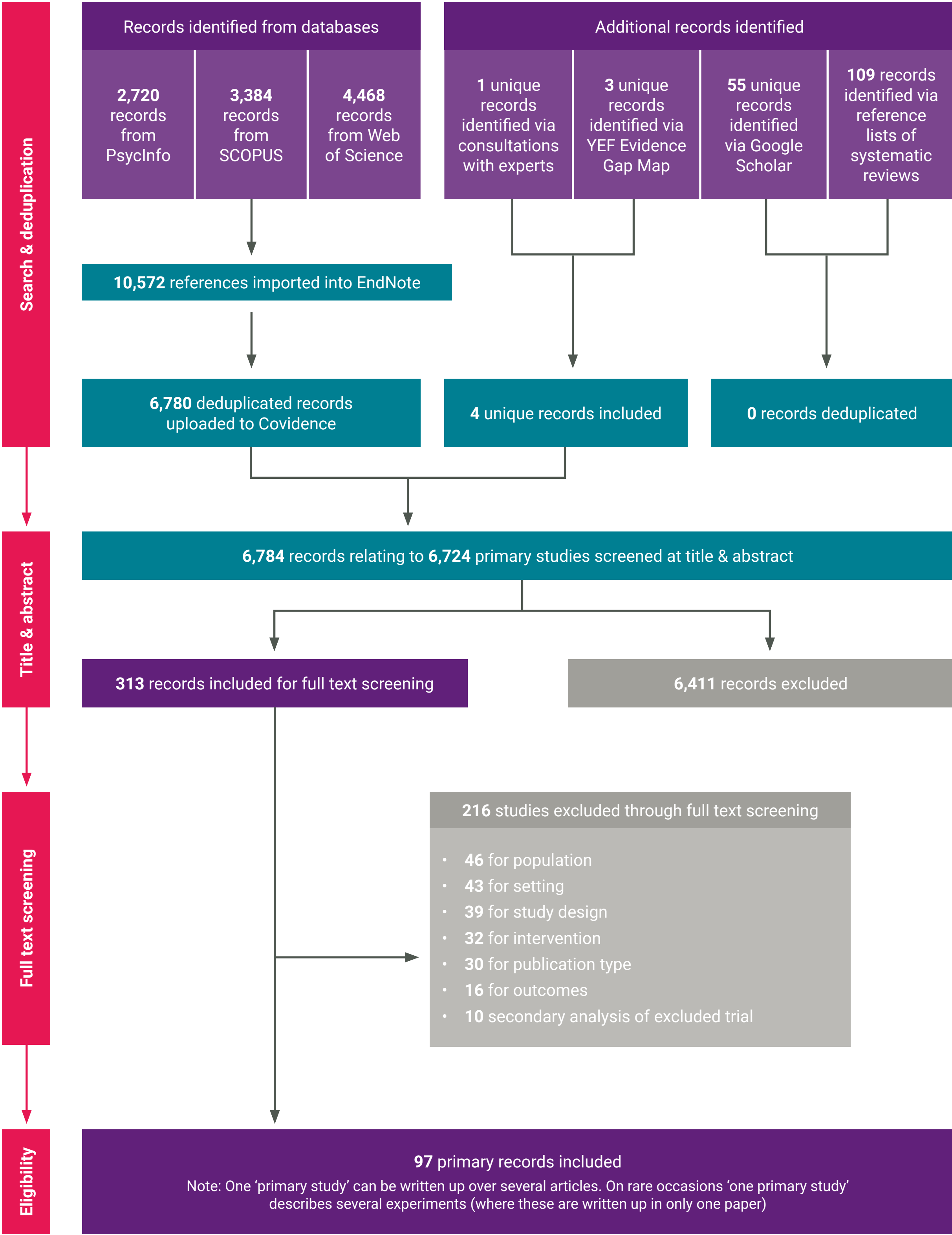
Identification and selection of primary studies

To identify relevant primary studies, we searched three databases (PsycInfo, SCOPUS, Web of Science), reviewed the reference lists of included systematic reviews, screened the YEF Evidence and Gaps Map, and conducted complementary manual searches on Google Scholar.

We identified a total of 6,784 unique records, which we uploaded to Covidence for title and abstract screening. There were 6,724 unique primary studies. At title and abstract level, 6,411 studies were excluded. Of the remaining 313 studies, 216 were excluded during full text screening. The remaining 97 studies were included. Figure 2 presents the identification and selection of primary studies. A PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) flowchart is available upon request.

FIGURE 2

Flowchart for primary studies



Data extraction

Data was extracted by four researchers using separate Excel spreadsheets for the systematic reviews and for the primary studies.

Data extraction from the systematic reviews focused on:

- bibliographic information
- main aim of the research
- methods (PICOS, search window)
- results: summary of included primary studies
- conclusions: reporting of effects, adverse events, theoretical implications, implementation results or barriers/facilitators.

Data extraction from the primary studies focused on:

- bibliographic information
- main aim
- methods
- participants
- intervention
- outcome measures
- results.

Quality appraisal

The quality assessment tools that were used as part of this research were chosen based on recommendation from the Cochrane Collaboration regarding the review of public health interventions (Armstrong et al., 2007; Jackson & Waters, 2005). Systematic reviews that fulfilled the criteria for this evidence review underwent an assessment of their methodological quality using the *Quality Assessment Tool for Review Articles* (Health Evidence, 2005). Reviews were assessed in terms of:

- having a clear research question
- reporting appropriate inclusion criteria
- using a comprehensive search strategy
- covering at least a decade of primary research
- describing the level of evidence of included studies
- reporting appropriate robust quality assessments of included studies
- transparency of quality assessment
- assessment of heterogeneity to determine appropriateness of combining results
- weighting using appropriate methods based on the synthesis method
- appropriate interpretation of results.

Based on these 10 criteria, each review paper received a strong (total score 8–10), moderate (total score 5–7) or weak (total score 4 or less) assessment rating. Review papers were rated independently by two reviewers and any discrepancies were discussed until consensus was reached.

The methodological quality of primary studies was assessed using the *Quality Assessment Tool for Quantitative Studies* (EPHPP, 1998). Studies were assessed for:

- selection bias
- study design
- confounders
- blinding
- data collection methods
- dropouts.

Based on the ratings of the six criteria, each study received an overall quality rating of strong, moderate or weak. All studies were independently reviewed by two researchers. Any ratings that differed across the reviewers were discussed with the team until consensus was reached.

Data analysis

This review provides a narrative synthesis of the findings from the systematic reviews and primary studies.

Where this report mentions **significant effects**, this refers to the intervention group experiencing a significantly larger effect than the control group in the desirable direction. Significant effects can be improvements in positive outcomes (for instance wellbeing, resilience) or reductions in symptoms (such as depression, anxiety). Where treatment groups experienced significantly worse outcomes than the control group, we refer to this as 'adverse' outcomes. Regardless of the significance level applied within individual studies, in this report effects were described as significant, where p was less than or equal to 0.05.

We interpret **effect sizes** in line with Cohen's rule of thumb which sets thresholds for small effects at .2, moderate effects at .5, and large effect at .8 (Cohen, 2013). Cohen stresses the importance to apply these thresholds carefully and states that the terms 'small', 'medium' and 'large' are relative, not only to each other, but to the area of behavioural science or even more particularly to the specific content and research method being employed in any given investigation.

In order to more accurately appraise the different effect sizes reported across the included sources, we have adopted the 'very small' threshold at .1 introduced by Sawilowsky (2009). Lipsey and Wilson (1993) showed that the vast majority of meaningful effect sizes across psychological, educational and behavioural interventions fall within Cohen's small range. Therefore, we have introduced thresholds midway through the small and moderate intervals, and discuss 'small' and 'small-to-moderate' as well as 'moderate' and 'moderate-to-large' effects. This enables us to present a more accurate picture of the differential impact that intervention evaluations and meta-analyses have detected.

TABLE 2
Interpreting effect sizes of psychological, educational and behavioural interventions accurately

$d < .1$	$.1 < d < .2$	$.2 < d < .35$	$.35 < d < .5$	$.5 < d < .65$	$.65 < d < .8$	$.8 < d$
Negligible	Very small	Small	Small-to-moderate	Moderate	Moderate-to-large	Large

Collating findings and reporting on the nature of the evidence

In this report, when we are discussing evidence of effectiveness in relation to reviewed approaches, **'good evidence'** is established by a meta-analysis with a strong quality assessment rating that includes at least five primary studies. Alternatively, 'good evidence' is established by a narrative synthesis with a quality assessment rating of nine or above. In both cases, evidence is only described as 'good' if recent primary studies are in line with review findings. Where there is good evidence that an intervention approach (for instance cognitive behavioural therapy) is generally successful, this does not mean that each intervention within this space has good evidence; however, it does say that there are fewer concerns about a programme's theory of change.

'Promising evidence' in our review is established by a meta-analysis or by several narrative syntheses that do not meet the above criteria, but are of moderate or strong quality. Moreover, in order for this review to describe evidence as 'promising', recent primary studies need to echo review findings. Where there is promising evidence, further research is needed to better understand under what circumstances interventions usually replicate effects and whether interventions are transferable to other contexts. Larger trials that enable sub-group and moderator analyses are necessary to better understand for whom interventions are effective, and under what circumstances.

'Emerging evidence' is established by narrative synthesis only, whether this was conducted as part of the top-up search or whether this was extracted from the reviewed literature. Where there is emerging evidence, generalisability of results is limited. While some interventions of a particular type have had encouraging results, more research is required to understand the effectiveness of an approach. Rigorous, medium-sized trials are required to better understand the potential of an approach.

Mixed or **inconsistent evidence** is present where there are contradictory review findings, where recent primary studies do not echo review findings, or where significant effects are not consistently reported across individual studies.

Limited evidence describes the absence of strong research.

Presentation of results

The results section of this evidence review is presented according to three categories:

- interventions to promote mental health and wellbeing
- interventions to prevent or reduce mental health difficulties (including symptoms of depression/stress/anxiety, self-harm, suicidality)
- interventions to prevent or reduce behavioural problems, such as aggression, conduct problems or bullying.

Each of the following three results chapters presents the evidence on universal interventions, followed by targeted selective and targeted indicated. Findings in relation to 'for whom' and 'under what circumstances' interventions have been shown to be effective are subsequently presented. Within each results chapter we showcase a number of interventions identified through our search of primary studies (presented as 'Intervention spotlights'). These interventions have been selected because their approach and findings were thought to be particularly promising or relevant to the UK context.

Table 3 provides an overview of the 34 systematic reviews and 97 primary studies which inform the results chapters.

TABLE 3

Overview of systematic reviews and primary studies included in each results chapter

Systematic reviews

Promoting positive mental health and wellbeing N=11 systematic reviews	Preventing poor mental health N=12 systematic reviews	Preventing maladaptive behaviour N=11 systematic reviews
Baños et al., 2017 Chis & Rusu, 2019 Cilar et al., 2020 Curran & Wexler, 2017 Grant, 2013 Kuosmanen et al., 2019 McKeering & Hwang, 2019 Patafio et al., 2021 Seedaket et al., 2020 Tejada-Gallardo et al., 2020 van de Sande et al., 2019	Calear et al., 2016 Carnevale, 2013 Feiss et al., 2019 Gee et al., 2020 Harlow et al., 2014 Klimes-Dougan et al., 2013 O'Dea et al., 2015 Scott, 2016 Shelemy et al., 2020 Ssegonja et al., 2019 van Loon et al., 2020 Wei et al., 2015	Alford & Derzon, 2013 Castillo-Eito et al., 2020 Cox et al., 2016 De Koker et al., 2014 De La Rue et al., 2017 Gavine et al., 2016 Leen et al., 2013 Lundgren & Amin, 2015 McElwain et al., 2017 Ng et al., 2020 Reed et al., 2016

Primary studies

Promoting positive mental health and wellbeing N=46 trials		Preventing poor mental health N=23 trials	Preventing maladaptive behaviour N=28 trials

Ahmad et al., 2020
Allara et al., 2019
Allen et al., 2020
Andrés-Rodríguez et al., 2017
Åvitsland et al., 2020
Beaudry et al., 2019
  Swartz et al., 2017
  Townsend et al., 2019
Campos et al., 2018
Carissoli & Villani, 2019
Coelho & Sousa, 2017
Coelho et al., 2017
DeLuca et al., 2020
Dowling et al., 2019
  Dowling & Barry, 2020
Duthely et al., 2017
Felver et al., 2019
Flynn et al., 2018
Frank et al., 2017
Freire et al., 2018
Fung et al., 2019
Hart et al., 2018, 2020
Howard et al., 2018
Johnson et al., 2017
Johnson & Wade, 2019
Kang et al., 2018
	Kelley et al., 2021
	Knight et al., 2019
	Lam & Seiden, 2020
	Larsen et al., 2019
	Link et al., 2020
	Lombas et al., 2019
	Lubman et al., 2020
	Moore et al., 2019a, 2019b
	Muratori et al., 2020
	Pannebakker et al., 2019
	Roberts et al., 2019
	Rodríguez-Ledo et al., 2018
	Saxena et al., 2020
	Schoeps et al., 2018
	Sinyor et al., 2020
	Stapleton et al., 2018
	Takahashi et al., 2020
	Tokolahi et al., 2018
	Truskauskaitė-Kunevičienė et al., 2020
	Umaña-Taylor et al., 2018a, 2018b
	Veltro et al., 2020
	Volanen et al., 2020
	Wahl et al., 2019
		Barry et al., 2017
		Brière et al., 2019
		Brown et al., 2019
		Burckhardt, 2018
		Burckhardt et al., 2017,
		García-Escalera, 2020
		Garmy et al., 2019
		Harrison & Wang, 2020
		Haugland et al., 2017, 2020
		Kozina, 2020
		Makover, 2019
		  Blossom et al., 2020
		Ohira, 2019
		Pearce et al., 2017
		Perry et al., 2017
		Putwain et al., 2018, 2020
		Sælid & Nordahl, 2016
		Schleider et al., 2019
		Teesson et al., 2020
		Terry et al., 2020
		Torcasso et al., 2017
		Weeks et al., 2017
		Young et al., 2019
		  Benas et al., 2019
			Acosta et al., 2020
			Banyard, 2019
			Benítez-Sillero, 2020
			Bonell et al., 2017, 2018, 2020
			Calvete et al., 2019a, 2019b
			Carrascosa et al., 2019
			Castillo-Gualda et al., 2018
			Cross et al., 2018
			DeGue et al., 2020
			  Niolon et al., 2019
			  Vivolo-Kantor et al., 2019
			Densley et al., 2017
			Goyer et al., 2019 (2 trials)
			Greco et al., 2019
			Ingram et al., 2019
			Martinez & Zhao, 2018
			McQuillin & McDaniel, 2020
			Midgett et al., 2017
			Morgan-Lopez et al., 2020
			Muñoz-Fernández et al., 2019
			Obsuth et al., 2017
			Peskin et al., 2019
			Reidy et al., 2017
			Sánchez-Jiménez et al., 2018
			Sargent et al., 2017
			Smokowski et al. 2018
			Suh, 2019
			Van Ryzin & Roseth, 2018
			Wójcik & Hełka, 2019

Promotion

Interventions to enhance mental health and wellbeing

Overview

In this chapter, we examine evidence on the effectiveness of school-based interventions designed to promote young people's mental health and wellbeing, the majority of which are delivered universally. Enhancing young people's mental health and wellbeing is fundamental to their overall development and supports the achievement of positive life outcomes including educational attainment, employment and health (Durlak et al., 2011; Guerra & Bradshaw, 2008; OECD, 2015). There are a variety of approaches and terms used to describe the work carried out in schools aimed at supporting young people's mental health and wellbeing, including 'character education', 'social and emotional learning', 'mental health literacy', 'strengths-based education', 'mindfulness-based interventions'. Through our search of the literature, we identified the following five main approaches.

Social and emotional learning (SEL) interventions: which includes curriculum-based and whole-school programmes with an explicit focus on the development of pupils' social and emotional skills, including emotional knowledge and expression, emotional regulation, communication skills, relationship skills, conflict resolution skills, and responsible decision-making. These skills are generally taught through a developmentally appropriate curriculum.

Positive psychology interventions: focus on strengthening young people's positive emotions, relationships and character strengths in addition to fostering skills for happiness and wellbeing. Similar to SEL, these interventions are generally delivered through a classroom curriculum.

Mindfulness-based interventions: originally derived from eastern traditions and Buddhist psychology, these interventions require participants to focus their awareness on the present moment. Mindfulness practice is sometimes integrated with other elements including physical movement such as yoga practice. Sessions include both formal and informal practices in breath awareness, mindful attention, awareness of body sensation, and awareness of thoughts and feelings.

Positive Youth Development interventions: cover an array of approaches, including personal mentoring, engaging youth in sports, recreations activities and youth leadership programmes. While these interventions may contain didactic elements very similar to SEL instruction, they usually include youth-led activities. Programmes are often designed around youth-led projects that allow young people to develop their self-esteem, sense of purpose, decision-making, leadership skills and positive interactions with others.

Mental health literacy interventions: provide psychoeducation in relation to mental health aimed at increasing young people's understanding of how to obtain and maintain positive mental health, decreasing stigma in relation to mental disorders, and enhancing help-seeking knowledge, attitudes and behaviours.

We have identified 12 systematic reviews examining the effectiveness of interventions designed to enhance young people's mental health and wellbeing. The reviews varied in their focus with some examining the impact of a particular approach – for instance mindfulness interventions (McKeering & Hwang, 2019) – while other reviews had a broader focus examining impact of interventions designed to promote young people's mental health and wellbeing – such as Kuosmanen et al. (2019).

Through our search of primary studies, we identified 46 studies published over the past three years. Studies evaluated the impact of a range of approaches including:

- social and emotional learning (N=13)
- positive psychology interventions (N=4)
- mindfulness-based interventions (N=12)
- positive youth development interventions (N=5)
- mental health literacy interventions (N=10)
- other approaches (N=2).

Programme facilitators across these interventions include trained teachers and to a lesser degree, external professionals (such as psychologists). The majority of studies were carried out in Europe (N=17) or North America/Canada (N=15). One study was carried out in the UK (Kelley et al., 2021). The main outcomes examined as part of these trials were 'psychosocial wellbeing' (social and emotional skills including coping skills, emotional regulation, self-control), 'psychological wellbeing' (depression and anxiety symptoms) and 'subjective wellbeing' (for instance, quality of life). A relatively small number of studies examined impact on behaviour outcomes and academic achievement.

Key points: Mental health promotion and wellbeing interventions

What works?

Most mental health promotion interventions are delivered universally in the form of a classroom curriculum. Evidence of the impact of mental health promotion interventions varies across approaches, with findings being most consistent for SEL interventions.

- There is good evidence that **SEL interventions** can have a small to moderate impact on young people's social and emotional skills and symptoms of depression and anxiety in the short term. There is limited evidence from a number of primary studies of mixed quality regarding the long-term (ranging 3–20 months) impact of SEL interventions on young people's social and emotional skills, symptoms of depression and behaviour.
- There is emerging evidence from a limited number of studies that **positive psychology interventions** can have a small impact in enhancing young people's psychological wellbeing (satisfaction with life) and in reducing symptoms of depression and anxiety in the long term.
- While **meditation and mindfulness-based interventions** have grown in popularity over the last few years, evidence of effectiveness in improving mental health and wellbeing outcomes is limited and where impact was found, often methodological concerns were identified. Interventions appear to be most effective in enhancing young people's cognitive capacity, such as attention.
- While **positive youth development interventions** cover an array of approaches implemented in secondary schools, there is very limited evidence that these interventions have an impact on young people's mental health and wellbeing.
- There is good evidence that **mental health literacy interventions** can have a positive impact on young people's mental health knowledge. There is, however, limited evidence that these interventions can have an impact on stigma, attitudes towards mental health, and help-seeking behaviour. Further research is required to understand what additional supports are needed to enhance help-seeking behaviour, in particular for those at heightened risk of developing poor mental health.

For whom and under what circumstances?

- Moderator analyses conducted on a limited number of studies revealed that intervention effects were larger among youth with more severe symptoms of poor mental health and perceived stress compared with students with lower severity at baseline.
- Interventions that adopt a structured approach to the explicit teaching of skills had a more consistent positive impact on pupils' outcomes. These interventions in general adopt the **SAFE** principles (**S**equenced set activities which develop skills chronologically, **A**ctive forms of learning, **F**ocused time to develop skills and **E**xplicit targeting of a core set of skills). Interventions which were more likely to adopt SAFE principles included SEL interventions.
- Quality of implementation matters. Where monitored, research has shown that positive effects are observed when programmes are implemented with a high degree of quality (measured in terms of dosage, adherence, quality of delivery and participant responsiveness). These findings are consistent with several reviews which have demonstrated a relationship between implementation quality and programme outcomes.

- Classroom teachers were shown to be effective programme facilitators. The delivery of universal interventions by classroom teachers has a number of advantages, including embedding practices within the context of the wider curriculum and providing young people with continuous, consistent opportunities to practise these skills 'in real time'.

Take-home messages

- There is good evidence from our review that universal social and emotional learning (SEL) interventions can have a significant impact on the development of social and emotional skills and in the reduction of symptoms of depression and anxiety in young people. Supporting young people in the development of skills such as emotional identification, coping skills, communication skills, resilience and self-efficacy are essential for the increasingly complex and rapidly changing world in which we live. Good social and emotional skills can act as a protective factor, not only for mental health problems but also a wider range of negative educational, social and health outcomes.
- There is strong evidence demonstrating a relationship between high-quality programme implementation and improved outcomes in young people. Simply adopting an evidence-based programme is not a guarantee to ensuring enhanced mental health and wellbeing outcomes in young people. To realise the potential of school-based mental health promotion interventions, schools need to be supported in the delivery of evidence-based interventions with high quality, which also includes addressing barriers to implementation.
- To deliver mental health promotion programmes to a high standard, teachers and schools require high-quality training, monitoring and support structures. There is a need to invest in appropriate training and ongoing support to ensure teachers are equipped with the knowledge and skills necessary o ensure effective implementation of evidence-based interventions.

Research recommendations

- There is a need to invest in long-term evaluation studies. The majority of studies we reviewed did not include long-term follow-up data. Without follow-up data being consistently collected across studies, it is not possible to determine whether short-term improvements in young people's mental health are maintained in the long term.
- Given the heterogeneity of results across mindfulness-based interventions, there is a need for more robust research to determine programme efficacy and with whom and under what conditions these programmes are most effective.
- While mental health literacy interventions have good evidence of improving young people's knowledge, further research is required to understand what is needed to support help-seeking behaviours, in particular for those at heightened risk of developing poor mental health.
- Measuring implementation and its impact on programme outcomes is a significant gap in the current evidence base. In order to understand the evidence underpinning school interventions, it is essential that we monitor and report implementation findings including programme dosage, adherence, quality of delivery, participant responsiveness and experienced barriers to implementation. This will assist us in understanding programme outcomes, will reduce the risk of misinterpreting insignificant findings, and will advance our understanding of the conditions necessary for a programme to succeed.

Quality of research

Three of 11 reviews we identified were meta-analyses of interventions designed to promote young people's mental health and were of strong/moderate quality (table 4). The remaining reviews were narrative syntheses of the literature and of mixed quality. Five of the narrative syntheses were of moderate quality while two were weak and one was strong. Our analysis of the evidence focused on reviews which received a strong or moderate quality rating (N=9).

TABLE 4
Quality assessment rating of mental health promotion systematic reviews

Author	Type of evidence review	Quality assessment rating
Banos et al., 2017	Narrative synthesis	Moderate
Chis & Rusu., 2019	Narrative synthesis	Weak
Cilar et al., 2020	Narrative synthesis	Moderate
Curran & Wexler, 2017	Narrative synthesis	Weak
Grant, 2012	Meta-analysis	Moderate
Kuosmanen, Clarke & Barry, 2019	Narrative synthesis	Moderate
McKeering & Hwang, 2019	Narrative synthesis	Strong
Patafio et al., 2021	Narrative synthesis	Moderate
Seedaket et al., 2020	Narrative synthesis	Moderate
Tejada-Gallardo et al., 2020	Meta-Analysis	Moderate
van de Sande et al., 2019	Meta-Analysis	Strong

The quality of the 46 studies we identified through our top-up search was quite mixed which is in line with what was reported across the systematic reviews. Around a third of studies were of high (N=14), moderate (N=17) and weak (N=15) quality, respectively. It is difficult to draw strong conclusions from weak-quality studies. As a result, our analysis focuses on studies which received a moderate or strong quality assessment rating.

Download
To download this report or the appendices, which provide in-depth information on all of the systematic reviews and primary studies that were analysed as part of this systematic review, please visit:
https://www.eif.org.uk/report/adolescent-mental-health-a-systematic-review-on-the-effectiveness-of-school-based-interventions

What works?

Universal interventions

We identified five main approaches to supporting young people's mental health and wellbeing, including social and emotional learning, positive psychology interventions, mindfulness-based interventions, positive youth development interventions and mental health literacy interventions. The strength of the evidence varies across these approaches with findings most consistent for social and emotional learning interventions.

Social and emotional learning interventions (SEL)

SEL-based interventions are curriculum-based and whole-school programmes with an explicit focus on the development of pupils' social and emotional skills. The majority of SEL interventions target one or more of the five core skills identified by the Collaborative for Academic, Social and Emotional Learning (CASEL). These five skills include:

- *self-management* – regulating one's emotions; managing stress; self-control; self-motivation; setting and achieving goals
- *relationship skills* – building relationships with diverse individuals and groups; communicating clearly; working cooperatively; resolving conflicts; seeking help
- *responsible decision-making* – considering the wellbeing of self and others; recognising one's responsibility to behave ethically; basing decisions on safety, social and ethical considerations; evaluating realistic consequences of various actions; making constructive, safe choices for self, relationship and school
- *self-awareness* – labelling one's feelings; relating feelings and thoughts to behaviour; accurate self-assessment of strengths and challenges; self-efficacy; optimism
- *social awareness* – perspective taking; empathy; respecting diversity; understanding social and ethical norms of behaviour; recognising family, school and community supports.

Most interventions are based on social learning theory (Bandura & McClelland, 1977) and cognitive behavioural model (Beck, 1979). Classroom-based SEL interventions in general consist of between 10 and 21 sessions delivered over a school year, and lessons tend to last between 45 and 90 minutes.

A meta-analysis which examined the impact of 32 secondary school SEL interventions reported **significant improvements across all five SEL competencies** (van de Sande et al., 2019). Effect sizes were largest for social awareness (medium E.S.=0.59), followed by self-awareness (small-to-medium E.S.=0.42), self-management (small-to-medium E.S.=0.39), decision-making (small-to-medium E.S.=0.34) and relationship skills (small E.S.=0.24). **SEL interventions were also shown to have a significant small effect on depression (E.S.=0.31), anxiety (E.S.=0.27), aggression (E.S.=0.33) and a small-to-medium effect on substance use (E.S.=0.39).**

Consistent with the findings from this meta-analysis, other systematic reviews reported that SEL interventions improve young people's social-emotional skills, as well as psychological wellbeing (depression, anxiety), behaviour and academic performance (Chis & Rusu, 2019; Cilar et al., 2020; Kuosmanen et al., 2019). Another meta-analysis, of moderate quality, examined the impact of middle school interventions designed to support young people's social skills, reduce aggressive behaviour and improve academic achievement (Grant, 2013). Results indicated a very small but significant intervention effect (d=.18). This estimate is less reliable, however, as effects on social skills, behaviour and academic achievement were all combined into an aggregate measure of effect.

The evidence from the primary studies that we identified mirrors key findings from the systematic reviews with the majority of studies reporting positive findings including improved emotion or self-regulation (Coelho & Sousa, 2017; Knight et al., 2019), improved social awareness (Coelho et al., 2017; Coelho & Sousa, 2017), increased comfort with classmates or reduced social isolation (Allen et al., 2020; Coelho et al., 2017), improved prosocial behaviour (Muratori et al., 2020), improved empathy (Knight et al., 2019) and improved resilience (Knight et al., 2019).

There is consistent evidence from across the primary studies that SEL interventions also improve psychological wellbeing with evidence of reduced depressive symptoms (Allen et al., 2020; Pannebakker et al., 2019), anxiety (Coelho et al., 2017) or overall internalising symptoms (Muratori et al., 2020). One evaluation found effects on depression at four months follow-up which had not been detectable post-intervention (Allen et al., 2020).

There is emerging evidence from the primary studies that SEL programmes can have a positive impact on behaviour. Three studies, including one weak evaluation, reported positive impact on behavioural outcomes including prosocial behaviour (Muratori et al., 2020), problematic behaviour (Pannebakker et al., 2019), and cyberbullying victimisation and perpetration (Schoeps et al., 2018). There is very limited evidence from the primary studies on impact on academic outcomes with only one SEL study reporting impact at follow-up (Allen et al., 2020).

There is limited evidence from recent primary studies regarding the long-term impact of SEL interventions on young people's mental health and wellbeing. The number of studies that report 3–20 months follow-up effects is small, and findings are inconsistent; three of the five studies that report on long-term effects are of weak quality, the other two are of moderate quality. Both moderate studies found follow-up effects that were not significant post-intervention (Allen et al., 2020; Pannebakker et al., 2019). One weak-quality study reported effects were maintained at seven months follow-up (Coelho & Sousa, 2017); the other two studies reported mixed results (Carissoli & Villani, 2019; Schoeps et al., 2018).

Overall, the results from moderate and high-quality studies highlight the positive impact of SEL intervention in the development of young people's social and emotional skills and in the reduction of symptoms of depression and anxiety in the short term. Further research is required to understand the relationship between social and emotional skills and broader mental health and behavioural outcomes including depression and anxiety symptoms, in particular at long-term follow-up (Domitrovich et al., 2017; Durlak et al., 2011; van de Sande et al., 2019). A meta-analysis of primary and secondary school-based SEL interventions found that an increase in social and emotional skills at post-intervention predicted the positive effect found across emotional distress, behaviour problems and academic performance at long-term follow-up, ranging from 6 months to 18 years post-intervention (Taylor et al., 2017). Further insight into this relationship for adolescent interventions could help to ensure interventions target the appropriate skills with sufficient intensity to achieve long-term impact across mental health and wellbeing outcomes. Consistently measuring follow-up effects and monitoring change across all wellbeing domains is crucial to strengthen our understanding of which programmes can achieve sustainable effects.

›› *See intervention spotlight: The Dutch Skills for Life Programme (S4L)*

Positive psychology interventions

Positive psychology interventions (PPIs) are psychological interventions that are aimed at strengthening positive emotions, thoughts and behaviours through activities that can be easily implemented into daily routines (Schotanus-Dijkstra et al., 2015). Key practices include increasing positive emotions, building character strengths and promoting optimal experiences.

» Intervention spotlight

The Dutch Skills for Life Programme (S4L)

Pannebakker et al., 2019

What is the programme?

The Skills for Life (S4L) programme is a universal programme that adopts a social and emotional learning approach to supporting young people's mental health and wellbeing. The S4L programme is derived from rational emotive behavioural therapy (REBT) and social learning theory, and consists of 26 modules taught over two academic years. The first four lessons of the programme are designed to familiarise students with the programme's underlying principles, including raising students' awareness of their own thoughts, feelings and behaviour; the option of alternative lines of thoughts; and correcting faulty, irrational reasoning. The lessons also address general skills such as interpersonal problem-solving skills, emotion regulation skills and critical thinking. The remainder of the lessons in the first year focus on their ability to deal with specific problem situations applied to six themes: substance abuse, gambling, conflicts, gossip, bullying and sexuality. Each session ends with a 'behavioural commitment for the week'. During the second year of the programme, the lessons address three themes: dealing with emotional problems and suicidal tendencies; dealing with aggression; and presenting yourself.

How is it delivered?

The programme is delivered by teachers who receive three days of training, including general and curriculum-specific pedagogic instructions and self-reflection assignments. Teachers use an instruction manual and students received a workbook. The S4L curriculum comprises 17 weekly classes of one hour in the first year and nine weekly classes during the second year. Throughout all lessons, a combination of methods are employed, including information transfer, instruction, discussion, modelling, behavioural rehearsal, feedback, role-plays, video presentations, social reinforcement and extended practice.

Programme outcomes: Improvements in mental health

The programme has been evaluated in the Netherlands. A randomised controlled trial with a sample of 1,505 students from 26 schools found significant long-term (20-month follow-up) improvements in students' self-efficacy, depressive symptoms and teacher-reported problem behaviour. Importantly, the programme was shown to be effective in improving self-efficacy among lower educational students. No impact was detected among higher educational students.[1] Teacher reported problem behaviour and depressive symptoms also significantly decreased between baseline and 20-month follow-up among lower educational students, compared to corresponding control students, but not among the higher educational students.

Shows promise: Positive long-term effects

The S4L programme shows promise for improving mental health, self-efficacy and problem behaviour in the long term (20 months). While the vast majority of SEL interventions have demonstrated impact in the short term, the results from this study add to the emerging literature on the long-term impact of social and emotional skills-based interventions on young people's mental health and wellbeing.

Shows promise: Particularly effective for at-risk students

Importantly, these long-term effects appear to be stronger among students with lower educational levels; a group that is more at risk of developing mental health and behavioural difficulties. S4L, delivered as a universal programme, therefore may be an effective way to improve outcomes for all young people, in particular those at greater risk of poor outcomes.

1 Lower educational students: Students following an educational curriculum for vocational training. Higher educational students: Students following an educational curriculum designed for university preparation

We identified one meta-analysis which examined the impact of a relatively small number of positive psychology interventions (N=9) (Tejada-Gallardo et al., 2020). Results from this study indicated these interventions had a **small significant effect on subjective wellbeing**, including satisfaction with life positive affect (E.S.=0.24) and a small but non-significant effect on **students' psychological wellbeing**, including self-efficacy, positive relationships and purpose in life (E.S.=.31). Follow-up results did not show interventions had any significant effect on subjective or psychological wellbeing. (Note results presented here are excluding low-quality studies).

The meta-analysis also synthesised the effects interventions had on depression and anxiety. The overall effect on depression symptoms at post-intervention was small (E.S.=0.28). The effect on anxiety on the other hand was non-significant. At follow-up, the effect on depression was maintained, and became significant for anxiety symptoms (E.S.=0.21). These findings are in line with a narrative synthesis which reported that positive psychology interventions led to increased happiness and a reduction in depressive symptoms among youth (Cilar et al., 2020).

We identified three primary studies evaluating the impact of positive psychology interventions. Two of these demonstrated **positive effects on subjective wellbeing**, namely life satisfaction (Freire et al., 2018; Lombas et al., 2019) and self-esteem (Freire et al., 2018). The third was a weak evaluation and found no effects on subjective or psychosocial wellbeing (Truskauskaitė-Kunevičienė et al., 2020). None of these studies reported on psychological wellbeing or behavioural outcomes.

Collectively, these results provide promising but limited evidence that positive psychology interventions improve subjective wellbeing including life satisfaction in the short term, and can reduce depressive symptoms and anxiety in the long term. It is argued that these interventions might work especially well for students at risk of developing mental health problems given their potential to reduce depression and anxiety symptoms (Cilar et al., 2020). Additional research examining both short- and long-term impact among at-risk adolescents is needed to test this hypothesis and better understand how to maximise the potential of positive psychology interventions to improve outcomes for adolescents.

Meditation or mindfulness-based interventions

The implementation of mindfulness-based interventions in schools has become increasingly popular in the last few years and accompanying research on its efficacy is growing. Mindfulness is defined as the psychological capacity to stay willingly present with one's experiences with a non-judging or accepting attitude (Kabat-Zinn, 2005). These interventions usually combine didactic and experiential learning through the provision of lessons about mindfulness as well as elements of practising mindfulness. Practical activities can involve formalised body scan meditations or informal mindful activities (conscious eating, walking or listening) (McKeering & Hwang, 2019). As part of this approach, we also examined the impact of meditation and yoga interventions.

We identified a strong narrative review which reported on 11 studies examining the effectiveness of mindfulness-based interventions for young adolescents (McKeering & Hwang, 2019). Some studies reported positive findings, including a reduction in suicidal ideation and affective disturbance, and increases in self-reported optimism and positive affect. Several studies, however, identified no impact and one study reported adverse effects with higher anxiety levels among boys after participating in the intervention (Johnson et al., 2016, in McKeering & Hwang, 2019).

The same pattern of mixed evidence is echoed by the latest findings we identified through the search of primary studies. Intervention approaches varied significantly, with some focusing on mindfulness practice exclusively (Johnson et al., 2017; Johnson & Wade, 2019),

while others included yoga practice (Saxena et al., 2020), meditation techniques (Duthely et al., 2017; Kang et al., 2018) and positive psychology (Lombas et al., 2019). Across the 11 studies, there is limited evidence on most outcomes, and where impact was found, often methodological concerns were identified.

Regarding impact on **psychosocial wellbeing**, one study reported improvements in resilience (Volanen et al., 2020); however, the remaining five studies found either no effects, or effects only on subscales of the measurement tools (Lam & Seiden, 2020; Lombas et al., 2019; Takahashi et al., 2020).

Two out of three studies, one of which was of weak quality, reported a positive impact on **subjective wellbeing**. Findings relate to improved life satisfaction and emotional wellbeing (Kang et al., 2018; Lombas et al., 2019).

Psychological wellbeing including impact on symptoms of depression, stress and rumination was measured across six studies. One study reported an impact on stress (Lombas et al., 2019). None of the studies reported an impact on depression or anxiety symptoms.

In terms of behaviour, three studies measured behaviour outcomes with only one reporting a reduction in aggressive behaviour (Lombas et al., 2019).

There is some evidence to suggest **a positive impact on cognitive skills** with two studies reporting improvements in young people's inattention (Saxena et al., 2020; Takahashi et al., 2020) and one study reporting improvements in academic motivation (Lombas et al., 2019). These findings are in line with previous reviews which have reported the positive impact of mindfulness training on increasing children and young people's cognitive capacity of attending and learning (Zenner et al., 2014).

Although there is some evidence that mindfulness-based interventions can enhance young people's outcomes, there is just as much evidence of such interventions having no impact. The mindfulness intervention .b (dot-b), which has been evaluated several times has demonstrated impact on selected outcomes across rigorous trials (as our Guidebook entry for the programme reflects[3]), while other studies (Johnson et al., 2017) found no significant intervention effects.

It is important to note that there is considerable heterogeneity both in terms of the studies (measures, students, quality) and the interventions themselves (dosage, programme facilitator). Furthermore, there is limited information on quality of implementation and how well a programme was accepted in a particular school context which we know can impact on programme outcomes. In their review of mindfulness-based interventions, McKeering and Hwang (2019) suggest that student motivation was an issue in some studies and appears to be a key ingredient for success. Further research, using more robust research methods with long follow-up measures is required. As part of this, implementation research is necessary to understand programme acceptability and outcomes. In addition, more research is needed to identify the optimal participant age, programme content, duration and facilitator to effectively deliver mindfulness to adolescents.

Positive youth development interventions

Positive youth development (PYD) interventions cover an array of approaches, including personal mentoring, engaging youth in sports, recreational activities and youth leadership programmes. While methods differ, these programmes share similar aims of increasing self-esteem, sense of purpose, decision-making, leadership skills and positive interactions with others.

3 See https://guidebook.eif.org.uk/programme/b

One weak narrative synthesis examined the impact of positive youth development interventions which were categorised as curriculum-based approaches, leadership development and student-based mentorship programmes (Curran & Wexler, 2017). Results from this review which included both qualitative and quantitative studies suggests that these types of interventions can have an impact in enhancing a range of social and emotional skills, including communication skills, critical thinking, leadership, self-esteem and broader feelings of school-connectedness. The evidence to date, however, is very limited.

In our search for recently published primary studies, we identified four evaluations of universal PYD programmes, all of which were of moderate or strong quality. One intervention used multi-modal psychoeducation and had no effect on social acceptance or aggressive behaviour and had an adverse effect on self-reported wellbeing (Allara et al., 2019). Two interventions combined positive youth development with physical activities (Åvitsland et al., 2020; Moore et al., 2019). There is limited evidence from these studies with only one intervention, a martial arts programme, reporting improvements in young people's psychosocial wellbeing, namely resilience and self-efficacy (Moore et al., 2019). Another whole school intervention reported no impact on wellbeing outcomes (Larsen et al., 2019).

Overall, these results indicate that there is currently very limited evidence on the impact of positive youth development intervention on young people's mental health and wellbeing.

Mental health literacy

The construct of mental health literacy, arising from health literacy, has evolved over the years. Originally it was conceptualised as knowledge and beliefs about mental disorders which aid recognition, prevention or management of symptoms of poor mental health. More recently, mental health literacy has been defined as understanding how to obtain and maintain positive mental health; understanding mental disorders and their treatments; decreasing stigma related to mental disorders and enhancing help-seeking efficacy (knowing when and where to seek help and developing competencies designed to improve one's mental health care and self-management capabilities (Kutcher et al., 2016). It is argued that poor mental health literacy can result in delayed help seeking, which can in turn have a negative impact on prognosis and recovery (Jorm, 2012). Mental health awareness on the other hand has been shown to increase the likelihood of young people feeling equipped to seek support for mental health problems (Rickwood et al., 2007).

Mental health literacy interventions usually use psychoeducation as a means to impart information about mental health and available support for young people. Interventions are commonly delivered over short time frames (1–3) sessions (Patafio et al., 2021).

We identified two narrative reviews of mental health literacy promotion programmes, both of which were of moderate quality (Patafio et al., 2021; Seedaket et al., 2020). In addition, through our search of primary studies published between 2017 and 2020, we identified 11 studies, the majority of which received a strong/moderate quality assessment rating (N=6).

In examining the impact of these interventions on young people's mental health literacy, outcomes generally include knowledge, attitudes or help-seeking behaviour. Results are **most consistent for improvements in mental health knowledge**.

In their review of school-based mental health literacy interventions, Patafio and colleagues (2021) reported that 86% (of 92 studies) demonstrated positive impact on mental health knowledge. Regarding impact on attitudes and stigma, 22% (of 98 studies) which measured attitudes showed mixed results and 14% found null or negative effects. Only seven studies reported on help-seeking behaviours, two of which showed positive effects.

The results from the primary studies we identified echo these findings. Evaluations suggest that mental health literacy inter¬ven¬tions most consistently improved students' awareness and knowledge of mental health (Campos et al., 2018; Howard et al., 2018; Swartz et al., 2017; Townsend et al., 2019; Wahl et al., 2019), as well as their comfort in talking about mental health (including suicidality) (Hart et al., 2018, 2020), self-reported ability to recognise signs of mental health crisis (Hart et al., 2018, 2020) and students' ability to administer mental health 'first-aid' (Campos et al., 2018).

Findings in relation to attitudes and stigma are more mixed with several studies reporting short-term improvements (Andrés-Rodríguez et al., 2017; DeLuca et al., 2020; Hart et al., 2018, 2020) but, equally, other studies found no significant improvement in stigma (Ahmad et al., 2020; Howard et al., 2018; Link et al., 2020; Swartz et al., 2017). Only three of the 11 studies (Howard et al., 2018; Link et al., 2020; Lubman et al., 2020) reported some impact in relation to help-seeking intentions.

Collectively, these results suggest that mental health literacy interventions are not sufficient in supporting behavioural change. Further research is required to understand what additional supports are needed to enhance help-seeking behaviour, in particular for those at heightened risk of developing mental health problems. We did not identify any targeted selective or targeted indicated mental health literacy interventions. Given selective and indicated samples are likely to have symptoms of depression and anxiety, there is a need for research examining the potential of mental health literacy for at-risk young people. Incorporating longer-term follow-up periods would be beneficial as the timeframe needs to be appropriate for participants to experience an event or outcome of interest. In addition, research is required to examine the types of mental health literacy messages required for different groups of young people depending on need and how these messages should be delivered – for instance using social media or online resources.

Other approaches

We identified two additional studies on interventions which were quite dissimilar to the approaches discussed above in terms of theoretical underpinning and content. One study was of weak quality providing inconclusive evidence of the programme's ('Emotional Freedoms Technique') impact on mental health and wellbeing outcomes (Stapleton et al., 2018) Another study which was a high-quality study had particularly noteworthy findings (Umaña-Taylor, Douglass, et al., 2018; Umaña-Taylor, Kornienko, et al., 2018). This study examined the impact of the universal psychoeducational intervention the 'Identity Project', which aims to increase student's psychosocial wellbeing by engaging them in ethnic–racial identity exploration. The programme is designed to be relevant for all youth including youth from minority and majority ethnic backgrounds. It is based on the notion that allowing students to explore their own ethnic–racial identity will provide a clearer sense of inner identity, of who they are and who they can become. Results from a randomised controlled trial in the US revealed significant improvements in young people's self-esteem, ethnic–racial identity, depressive symptoms and academic achievement in Maths, English, Science and Social Studies.

›› ***See intervention spotlight: The Identity Project: Promoting Adolescents' Ethnic–Racial Identity Exploration and Resolution)***

Targeted selective interventions

Mental health difficulties are more common among certain groups of young people including, for example, those living in the most deprived neighbourhoods or those having experienced certain types of adversity in their lives. It is essential that the mental health needs of these at-risk groups of young people are appropriately supported. Targeted selective interventions – that is, interventions adapted to the needs and realities of groups

Intervention spotlight

The Identity Project: Promoting Adolescents' Ethnic–Racial Identity Exploration and Resolution

Umaña-Taylor, Douglass, Updegraff, & Marsiglia, 2018 &
Umaña-Taylor, Kornienko, Bayless & Updegraff, 2018

What is the programme?

The Identity Project is a universal programme for secondary-school students that aims to increase psychosocial wellbeing. The programme is based on the notion that allowing students to explore their own ethnic–racial identity and understand how this part of their identity forms part of their sense of self, will provide a clearer sense of inner identity of who they are and who they can become. In the programme, two processes are key to ethnic–racial identity: 1) exploration of their ethnicity and race and 2) their sense of resolution about the personal meaning(s) associated with this aspect of their identity. The theory underpinning the programme suggests greater exploration and resolution (that is, increased identity cohesion) is essential for developing a secure sense of self and identity cohesion that promotes positive psychosocial functioning. Each session covers a new topic, helping students to build knowledge as they explore different aspects of their ethnic–racial identity each week and form their own ethnic–racial identity cohesion. Topics covered include: unpacking identity, within- and between-group differences, stories of the past, family history, symbols and traditions, ethnic–racial identity as a journey, and storyboarding identity journeys. The programme adopts a psychoeducational approach to increase student's understanding and awareness of their own ethnic–racial heritage(s), historical discrimination and racism in history, group differences, and identifying with an ethnic group. The content aims to provide students with the capability and opportunity to explore and discuss their own backgrounds. Importantly, activities and sessions are designed to be relevant regardless of the ethnic composition of a classroom. For instance, examples in the lessons are generated by student participants' experiences and backgrounds rather than predetermined in the curriculum.

How is it delivered?

The programme is an eight-week curriculum with one session (55 minutes) per week. Sessions are delivered to classes as a group as part of their regular school routine. Two researchers lead the intervention programme, delivering each of the sessions face to face.

Programme outcomes: Improvements in mental health and academic outcomes

A randomised controlled trial of the Identity Project was carried out in the US with a sample of 218 pupils from eight public high schools (mean age 15 years). At one-year follow-up, students reported significant improvements in global identity cohesion, depressive symptoms, self-esteem and academic grades (English, Maths, Science and Social Studies). It is important to note these improvements were directly attributed to increases in students' identity exploration and resolution, demonstrating the intervention worked as expected.

Shows promise: Can be implemented among students from all ethnic backgrounds, with potentially greater effects among students from minority ethnic backgrounds

The Identity Project is designed to be delivered universally, rather than targeting young people identified as being at higher risk of poor mental health outcomes. Furthermore, it is designed for young people from both ethnic–racial minority and majority backgrounds. Evidence from the studies show the programme was effective at improving racial identity exploration and racial identity resolution among all students, but that students from minority ethnic backgrounds (in this case Black or African American, Latino, Asian American, American Indian or Native American or 'other') had higher scores than their White peers. As a result of increased exploration and resolution, significant improvements in students' depressive symptoms, self-esteem and grades were found one year following the intervention.

Shows promise: As a tool to address racial and health inequalities

There are recognised racial and ethnic inequalities in young people's mental health outcomes in the UK with students from minority ethnic and marginalised backgrounds fairing worse than their peers. Universal mental health promotion programmes that are particularly beneficial for students from marginalised ethnicities provide tools to address this inequality. For the Identity Project specifically, the programme further benefits from adopting a universal approach by encouraging all students from all ethnic–racial backgrounds to increase their awareness of their own ethnic identity, which may help to raise awareness of wider sociocultural issues of diversity, equality and inclusion.

of young people identified at particular risk of developing mental health difficulties – have the potential to enhance young people's mental health and address problems before they become engrained and difficult to reverse. To date, however, targeted selective mental health interventions are under-researched. We did not identify any systematic reviews examining the effectiveness of mental health promotion interventions designed for at-risk groups of young people. Two reviews that focused on universal provision identified a limited number of targeted selective interventions and pointed to the methodological limitations of these studies, resulting in no meaningful conclusions being drawn from these studies (Chis & Rusu, 2019; Curran & Wexler, 2017).

Most recent evidence from the primary study search does not show that this research gap has been filled. Indeed, none of the interventions we identified were designed for specific sub-groups of the population; however, four universal interventions that were designed for the general population were trialled with diverse groups or in socioeconomically deprived areas. A fifth intervention was trialled with a group of students at risk of school failure or related poor outcomes. All five evaluations demonstrated positive effects on at least one outcome.

A universal SEL intervention, MindOut (see intervention spotlight), was trialled with disadvantaged schools in Ireland (that is, 70% of the students are classified as educationally disadvantaged by the Irish Department of Education and Skills) and showed promising effects on psychosocial wellbeing (emotional regulation, coping skills, social support coping) and symptoms of depression at post-intervention (Dowling et al., 2019). As part of their research, Dowling and colleagues (2020) examined the impact of implementation quality on programme outcomes. Results revealed that some positive effects of the programme were only observed where the programme was implemented with high quality, as measured by dosage, adherence, quality of delivery and participant responsiveness. The findings from this study are important given the limited number of studies which examine the degree to which implementation affects programme outcomes and demonstrates the importance of ensuring strategies are in place to support high-quality implementation in order for positive outcomes to be achieved.

Three mindfulness interventions that were designed as universal interventions were trialled at schools in deprived areas and with particularly diverse populations in the US. One intervention that was trialled in a high-poverty catchment area had promising effects on academic outcomes (Frank et al., 2017). Another study reported improvements in young people's gratitude, life satisfaction and school satisfaction (Duthely et al., 2017). The third mindfulness intervention delivered to an ethnically diverse sample reported improvements in resilience but had no effect on behavioural problems and school grades (Felver et al., 2019).

The Personal Leadership Programme (PLP) (Roberts et al., 2019) was trialled with a select sample involving young people in Australia who were at risk of school failure or related poor outcomes. The study reported improvements in positive emotions and student engagement. As the study is of weak quality, we can only draw limited conclusions on this basis.

These studies point to the potential of mental health promotion interventions, such as SEL programmes, when delivered to groups of students identified at heightened risk of developing mental health difficulties including socioeconomically deprived young people, minority ethnic students, or students at-risk of poor academic outcomes. It is, however, important to note that none of the interventions were specifically designed for an underserved or at-risk group. Additional research is needed to better understand whether specific adaptations would make it easier for underserved population groups to engage with the intervention content, and ultimately experience greater improvements.

›› ***See intervention spotlight: The MindOut Programme***

» Intervention spotlight

The MindOut Programme

Dowling et al., 2019, 2020

What is the programme?

The MindOut Programme is a universal[1] social emotional learning (SEL) programme designed for older adolescents (15–18 years) in secondary school. The programme aims to promote young people's social and emotional wellbeing and is implemented in Ireland through the Social, Personal and Health Education (SPHE) curriculum. The programme is based on CASEL's[2] five core competencies for social and emotional learning: self-awareness, self-management, social awareness, relationship management and responsible decision-making. Students engage in a number of skill-building activities, such as identifying and managing emotions, coping with challenges, overcoming negative thinking, communication, and empathy and relationship skills. The programme also promotes a whole-school approach by providing staff with a menu of strategies for promoting social and emotional development at a wider-school level. For example, practice-at-home activities, teacher reflection, whole-school activities, and tips for staff for engaging students, parents and the community.

How is it delivered?

The MindOut programme consists of 13 weekly sessions which are intended to be delivered by trained teachers. A teaching manual is provided, with structured activities and resource materials. Interactive teaching strategies are employed throughout the programme, including collaborative learning, structured games, scenarios and videos.

Programme outcomes: Improvements in social and emotional skills

A cluster randomised controlled trial (RCT) was carried out with a sample of 675 students from 32 disadvantaged schools in Ireland. Results from this study revealed significant improvements in students' social and emotional skills at post-intervention, including: reduced suppressing of emotions, reduced avoidance coping, increased social support coping, and a reduction in self-reported stress and symptoms of depression. Importantly, high levels of implementation quality — a composite score derived from student and teacher reports of dosage, adherence, quality of delivery and participant responsiveness — were associated with significantly lower levels of avoidance coping, reduced expressive suppression, higher levels of social support coping, lower levels of stress and depression, and more positive attitudes towards school compared to low levels of implementation quality. Additionally, at 12-month follow-up, compared to control schools, high-implementation schools demonstrated significantly lower avoidance coping.

Shows promise: Positive effects on disadvantaged adolescents

The MindOut programme shows promise for improving mental health and wellbeing outcomes among disadvantaged adolescents and older adolescents. The results from this study suggest that social and emotional learning interventions can be successfully embedded within a school curriculum.

Shows promise: Importance of implementation quality

This study highlights the importance of high-quality implementation in producing programme outcomes, and underscores the need to (i) evaluate programme implementation as a means to understanding programme outcomes and (ii) support teachers in the delivery of the programme with high quality.

1 The programme appears under our targeted selective section as it was implemented and evaluated with disadvantaged schools in Ireland, that is, 70% of students in these schools are classified as educationally disadvantaged by the Irish Department of Education and Skills.

2 Collaborative for Academic, Social, and Emotional Learning.

Targeted indicated interventions

Most mental health promotion and wellbeing interventions are universal. Hence, it is no surprise that we did not identify any reviews which reported on the effectiveness of mental health promotion interventions designed for adolescents with elevated baseline depressive or anxiety symptoms.

Nevertheless, we have identified two targeted indicated promotion interventions which were designed for young people with elevated but subclinical symptoms of poor mental health. Both evaluations were of high quality. The New Zealand positive youth development intervention Kia Piki te Hauora: Uplifting our Health and Wellbeing reported mixed results (Tokolahi et al., 2018). This intervention had no effect on subjective wellbeing or symptoms of poor mental health; however, it did marginally improve child-rated academic participation.

A high-quality study evaluating the Learning to Breathe mindfulness intervention reported improved outcomes among minority ethnic youth with elevated depressive symptoms (including young people who identify as Asian American – 42.8% of the sample; Latino – 42.8% of the sample; young people born outside the US – 17.9% of the sample). Results revealed improved psychosocial wellbeing (emotional regulation), reduced stress and externalising behaviour. Effects were medium and maintained at 3 months follow-up (Fung et al., 2019). Evaluations of an adapted version of Learning to Breathe (6 sessions as opposed to 12) implemented as a universal intervention have revealed mixed findings with improvements reported in young people's internalising symptoms and executive functions (Lam & Seiden, 2020), but no improvements in stress or negative thinking (Lam & Seiden, 2020). A further evaluation with an ethnically diverse at-risk student sample revealed improvements in psychosocial resilience but no change in behavioural problems or academic outcomes (Felver et al., 2019).

Limited evidence of the effectiveness of targeted indicated mental health promotion interventions suggests that cognitive behavioural therapy interventions, as discussed in results chapter 2, may be more suitable than mental health promotion programmes to prevent poor mental health in young people with elevated symptoms of depression or anxiety.

Virtual and digital delivery of mental health promotion interventions

A number of narrative reviews reported on the effectiveness of online mental health promotion interventions (Cilar et al., 2020; Kuosmanen et al., 2019). Results from these reviews indicate there is some evidence that digital SEL interventions (such as SPARX and MoodGYM) can have a positive impact on psychological wellbeing (depression and anxiety symptoms) (Kuosmanen et al., 2019); however, positive psychology interventions delivered through digital means have shown less positive results in improving mental health and reducing risk-taking behaviours (Baños et al., 2017).

In our search for recently published primary studies, we identified one SEL programme which incorporates digital elements. The universally delivered EmotivaMente programme reported significant short- and long-term (3 months) effects on psychosocial wellbeing (Carissoli & Villani, 2019).

Our 2020 evidence review *Covid-19 and early intervention: Evidence, challenges and risks relating to virtual and digital delivery*[4] showed that digital interventions do not usually outperform face-to-face provision, however, under certain circumstances, comparable effect sizes can be achieved. This insight, in combination with a potentially very large reach at a low unit cost, makes virtual provision an important area of research.

4 See https://www.eif.org.uk/report/covid-19-and-early-intervention-evidence-challenges-and-risks-relating-to-virtual-and-digital-delivery

For whom?

There is, in general a lack of evidence across the systematic reviews and primary studies in relation to with whom these interventions are most effective. Some differences according to gender and ethnicity were identified in our primary studies, although these findings need to be interpreted with caution given the limited number of studies that have reported on this.

Gender

Some primary studies of mental health promotion interventions have reported stronger effects among girls than boys (Coelho et al., 2017; Freire et al., 2018; Volanen et al., 2020). Researchers have proposed a number of explanations for these findings including girls presenting with higher baseline scores of mental health problems. Where young people have higher baseline scores, there is potentially more scope for the intervention to have a detectable impact. Other researchers contend that boys and girls have different developmental timing and characteristics and may come to a programme at different stages of development and readiness and, therefore, respond differently to the intervention (Layous & Lyubomirsky, 2014). Currently, there are too few studies which have examined gender difference to be able to draw strong conclusions. Future research should consider the role of gender to better understand the mechanisms underlying the effectiveness of interventions.

Ethnicity

Several of the primary studies we identified were carried out with ethnically diverse samples (for instance Åvitsland et al., 2020; Duthely et al., 2017; Felver et al., 2019; Fung et al., 2019); however, none of the interventions were designed specifically for minority ethnic groups. It is unclear from these studies whether ethnicity moderated programme outcomes. All interventions that were evaluated with diverse samples had positive effects – the researchers, however, did not analyse whether the effects were the same for all ethnic groups, whether effect sizes varied by ethnic group, or whether effects were only significant for some but not for others. To better understand whether certain approaches (such as SEL, mindfulness) perform better for particular ethnic groups, researchers should examine and report on ethnicity as part of their moderator analysis.

Risk status

Across approaches there is some evidence to suggest that universal mental health promotion interventions are particularly beneficial for students at risk of poorer mental health outcomes. Three primary studies reported that intervention effects were considerably larger among at-risk students than the general student population (Åvitsland et al., 2020; Coelho & Sousa, 2017; Takahashi et al., 2020). These findings suggest that universal mental health promotion interventions can result in significant improvements in the mental health and wellbeing of all pupils, in particular those most at risk of developing emotional and behavioural difficulties. This is hugely encouraging given the universal nature of these interventions in that students do not need to be singled out for an intervention.

Under what circumstances?

Implementation quality

A number of studies observed positive effects, including long-term effects, only when the intervention was delivered with high fidelity (see for example Dowling et al., 2019; Volanen et al., 2020). One study in Ireland which examined the impact of a SEL intervention in disadvantaged schools in Ireland reported positive effects were only observed when the programme was implemented with high quality (measured according to dosage, adherence, quality of delivery and participant responsiveness). Programme effects included reduced suppression of emotions, reduced avoidance coping, increased social support, reduced stress and depressive symptoms (Dowling & Barry, 2020).

These findings are consistent with a number of reviews which have demonstrated the relationship between implementation quality and programme outcomes (DuBois et al., 2002; Durlak et al., 2011; Durlak & DuPre, 2008) and demonstrate the importance of measuring implementation as part of evaluation studies. Furthermore, the findings highlight the importance of supporting high-quality implementation of programmes. As argued by Dowling and colleagues (2020), despite a programme being theoretically sound, this does not guarantee positive outcomes, the programme must be implemented with fidelity and high quality. In order to do this, schools need to be supported in the delivery of evidence-based programmes with quality through the provision of teacher training and ongoing implementation support.

Structured curriculum

Evidence from systematic reviews and primary studies suggests that SEL interventions can have a small–medium effect in enhancing young people's social and emotional skills and in reducing depression and anxiety symptoms (Allen et al., 2020; Cilar et al., 2020; Coelho et al., 2017; Dowling et al., 2019; Kuosmanen et al., 2019; Pannebakker et al., 2019). A common characteristic across these effective interventions is their structured approach to explicitly teaching social and emotional skills. Pupils are actively engaged in the learning and practice of these skills through a sequenced set of lessons. It is likely that the explicit focus on skill development is central to enhancement of young people's mental health and wellbeing. In their meta-analysis of SEL interventions in both primary and secondary schools, Durlak and colleagues (2011) identified four core practices (**SAFE** practices) which moderated programme outcomes including **S**equenced activities, **A**ctive forms of learning, **F**ocused on developing one or more skills, **E**xplicit about targeting social and emotional skills. It is important that these practices are incorporated into the development of future SEL interventions. The application of these practices to other approaches, such as positive youth development interventions, is worthy of investigation.

Programme facilitator

Another important finding is that class teachers can successfully implement universal mental health promotion interventions (Curran & Wexler, 2017; Kuosmanen et al., 2019; McKeering & Hwang, 2019; van de Sande et al., 2019). Programme outcomes across the various approaches were not impacted by the programme facilitator. Evidence from the primary studies reinforces this finding. The successful delivery of universal mental health promotion interventions by teachers is important in terms of embedding these interventions within routine educational practice and teachers being able to reinforce skills development through everyday interaction with pupils both within the classroom and beyond. Evidence suggests that for targeted indicated mental health interventions, however, external staff (such as psychologists) are better placed to effectively deliver these programmes to at-risk pupils (see chapter 2).

Training, support and quality

Teacher training appears to be essential to the high-quality delivery of mental health promotion interventions with the majority of studies reporting on the training and support provided to programme facilitators. High-quality training includes:

- materials such as a standardised manual and lesson plans
- a standard, replicable training format and a team of qualified trainers
- initial training on the programme's theory, design, activities and expected outcomes
- a coherent systematic approach grounded in research-based practices (Barry et al., 2019).

In the case of mindfulness-based interventions, McKeering and Hwang (2019) suggest that intervention-specific training may not be sufficient to ensure intervention success. The authors contend that extensive and ongoing practice in mindfulness is required by the facilitator in order to best support the delivery of a mindfulness-based intervention. However, this systematic review found that two of the reviewed interventions which were delivered by an external practitioner with 10 years' mindfulness experience, were ineffective. These results suggest that practitioner experience alone does not ensure efficacy. A review of qualitative data concluded that the teachers' ability to embody mindfulness, support from parents and school administrators, as well as a relaxing physical environment and students' willingness to learn are conducive to the interventions having the desired effects, while time pressure, crowded curriculum content, and students' disengagement with the programme were identified as important barriers.

Study location

One of the systematic reviews reported that the majority of the evidence in relation to mental health promotion interventions emerges from outside Europe (Kuosmanen et al., 2019). While this appears still to be the case, around 40% of the primary studies published in the past three years were conducted in Europe, with the remaining trials carried out in North America, Australia or Asia. This suggests an upward trend in research on the effectiveness of school-based interventions in Europe.

We identified one evaluation of a mental health promotion intervention recently carried out in the UK (Kelley et al., 2021). We are also aware of a number of mental health literacy and mental health promotion and trials that are currently underway, including:

- Education for Wellbeing programme: this consists of two large randomised controlled trials testing five different interventions to support young people's mental health and wellbeing:
  - AWARE – trial compares Youth Aware of Mental Health (see intervention spotlight in Suicide Prevention in part 2), the Mental Health and High School Curriculum Guide (the Guide) and usual practice (Hayes et al., 2019).
  - INSPIRE – trial compares mindfulness, relaxation, strategies for safety and wellbeing and usual practice (Hayes et al., 2019).
- MYRIAD – trial examines the efficacy of a mindfulness-based intervention to prevent depression and build resilience in young people across 76 schools in the UK (Kuyken et al., 2017).

The results from these studies will strengthen our understanding of what works in the UK context, with whom and under what circumstances.

Prevention

Interventions to prevent mental health difficulties

Overview

In this chapter, we examine evidence on the effectiveness of school-based mental health interventions that are designed to prevent or reduce mental health difficulties including depression, anxiety, stress, self-harm and suicidality. While promotion and prevention interventions overlap in terms of their goals and core components, they differ in relation to their target outcomes. Promotion interventions aim to enhance positive mental health and wellbeing outcomes. Prevention interventions on the other hand are primarily aimed at reducing or preventing symptoms of anxiety, depression and stress in young people.

Prevalence data shows that 11% of those aged 11 to 19 years in England had an emotional disorder (anxiety disorder, depressive disorder, mania or bipolar disorder) in 2017; these disorders were more common among girls than boys, and also more common among older than younger adolescents. More than one in five (22.4%) of 17–19-year-old females had an emotional disorder, while 1 in 10 (10.9%) of 11–16-year-old girls had a diagnosable emotional disorder (NHS Digital, 2018).

Depression and anxiety during adolescence are associated with decreased psychosocial functioning, poor academic performance and an increased risk of substance abuse, other mental health problems, and suicide (Birmaher et al., 1996). Because depression and anxiety symptoms rise dramatically during adolescence, it is imperative to implement programmes aimed at intervening early to prevent further escalation of these symptoms. It is argued that prevention interventions are more suited to adolescents compared to children because young people are better able to understand the concepts that are being taught due to their improved reasoning (Stice et al., 2009).

Prevention interventions focus on different populations with different risks of developing depression or anxiety. Universal prevention programmes are delivered to all young people, regardless of their level of risk. Second, selective prevention programmes target populations with risk factors which are known to be related to the onset of depression and anxiety. Third, indicated prevention programmes are designed for adolescents who have elevated symptoms of depression or anxiety, but their symptoms do not qualify for a clinical diagnosis. These interventions are often delivered in small-group or one-to-one format and are designed for pupils with mild to moderate needs.

The vast majority of prevention interventions are based on cognitive behavioural therapy (CBT). CBT supports participants to regulate emotions, identify negative thoughts and unhelpful behaviours, establish helpful patterns of thought and behaviour, and develop personal coping strategies that target solving current problems. In addition to drawing on CBT, universal interventions designed to prevent mental health difficulties often include SEL elements, where students learn social and emotional skills such as emotional identification, communication skills, emotional regulation, and so forth. Moreover, several interventions, in particular those that target stress, draw on mindfulness and controlled breathing principles. Other approaches at the indicated level include counselling and psychotherapy.

Another set of prevention interventions are designed to prevent self-harm, suicidal ideation and suicide attempts. These interventions mostly consist of: (i) psychoeducation which is designed to increase students' knowledge about suicide and help-seeking; (ii) gatekeeper training for teachers, counsellors and mental health professionals in schools to increase their knowledge and skills to identify warning signs and refer students to mental health services; and (iii) screening or motivational interviewing to increase help-seeking and reduce suicidal behaviour.

We identified a total of 12 systematic reviews that focused on school-based interventions aimed at preventing mental health difficulties in young people. Eight of these reviews examined the impact of interventions aimed at reducing symptoms of depression, anxiety or stress. Four reviews focused on preventing suicidality.

Our search of primary studies identified 22 anxiety and depression prevention intervention studies and one evaluation of a suicide prevention intervention.

Key points

Anxiety and depression prevention: what works?

- There is evidence that universal anxiety and depression prevention interventions can work to improve symptoms of depression and anxiety in the short term (with the strongest evidence for depression). From the studies that have examined long term impact, there is limited evidence that impact is sustained over time.
- There is very little research on the impact of programmes which are targeted at young people on the basis of demographic risk factors; however, studies which were identified showed promising results.
- There is good evidence that cognitive behavioural therapy (CBT) interventions, when delivered to young people with subclinical symptoms by external professionals, are effective in reducing symptoms of depression in both the short and medium term.
- There is currently insufficient evidence on the impact of interventions when delivered virtually because the quality of these studies is on the whole weak.

For whom and under what circumstances?

- There is good evidence that universal interventions can be effective when delivered by school staff. Research from multiple studies show that high-quality, robust teacher training and ongoing support is associated with programme effectiveness. This suggests the need for adequate time and support to enable teachers to become familiar with intervention concepts and materials.
- There is consistent evidence that interventions delivered to young people with emerging symptoms of poor mental health are only effective when delivered by an external professional, such as a psychologist.
- Both the duration of individual sessions and the number of sessions across universal prevention intervention have been shown to influence programme outcomes. Lower intensity universal interventions appear to have less of an impact.

Suicide prevention: what works?

- There is limited evidence on the effectiveness of school-based interventions designed to prevent suicide and self-harm. Studies of psychoeducation and gatekeeper training are, in general, of weak quality.
- The Youth Aware of Mental Health (YAM) psychoeducation intervention has produced promising results in relation to reductions in the number of suicide attempts and severe suicidal ideation in a large European trial. This programme is currently being trialled in secondary schools in England (Hayes et al., 2019). Results from this trial will determine the effectiveness of such an approach in the UK context.

Take-home messages

- Universal and targeted school-based prevention interventions can play a significant role in the reduction of depression and anxiety symptoms in young people. Universal prevention programmes can help prevent future incidences of clinical cases by teaching all students effective strategies to manage difficult situations before a crisis occurs. Targeted interventions are effective in addressing the needs of a significant proportion of students who may be falling under the clinical radar.
- As the prevalence of anxiety and depression is increasing among adolescents, there is a need to invest in effective strategies that can be implemented and sustained at scale. While the delivery of interventions for young people with emerging symptoms of poor mental health by external professionals presents a significant challenge in terms of cost and sustainability, it is essential that decisions about the types of programmes schools should invest in is guided by the evidence base. The current evidence highlights the need to invest in mental health professionals embedded within schools to deliver targeted indicated interventions for at-risk pupils.
- To maximise the return on investment in universal prevention interventions, it is essential that universal programmes are accompanied with high-quality teacher training and the provision of ongoing support to teachers to ensure high-quality implementation and sustainability.

Research recommendations

- There is a need to understand the impact of a stepped care model within schools with the provision of universal prevention interventions for all students combined with targeted individualised support for students with elevated symptoms.

- Further research is required to understand the types of additional support required to ensure the long-term impact of school-based prevention interventions. It is likely that a one-size-fits-all approach may not be the best way to maximise the long-term effect of prevention interventions and that there may be value in developing booster strategies that are matched with young people's specific needs.
- In examining the impact of universal interventions, it is currently not clear whether the improved outcomes are for a subset of students or across a larger group of students. Future research examining with whom these interventions are most effective would assist decision-making in relation to intervention approaches and the target audience. Evaluations should report whether students at risk of academic failure or school exclusion, those from lower socioeconomic backgrounds, those who speak English as an additional language, LGBTQI+ young people, minority ethnic students, or students with elevated baseline symptoms experience the same kind of impact as the general population.
- With rates of self-harm and attempted suicide in young people having increased from 5.3% in 2000 to 13.7% in 2014 among 11–16-year-olds, there is an urgent need for robust high-quality studies examining the impact of school-based suicide and self-harm prevention interventions. Future research examining whether depression and anxiety prevention intervention can reduce suicidality in the long term is also warranted.

Download
To download this report or the appendices, which provide in-depth information on all of the systematic reviews and primary studies that were analysed as part of this systematic review, please visit: https://www.eif.org.uk/report/adolescent-mental-health-a-systematic-review-on-the-effectiveness-of-school-based-interventions

Anxiety and depression prevention

Five meta-analyses and three narrative syntheses were identified as part of our review of reviews. While inclusion criteria varied slightly across the identified reviews, their common focus was examining the impact of universal or targeted interventions aimed at reducing symptoms of depression, anxiety or stress.

Half of the 22 interventions designed to prevent depression, anxiety or stress identified in our search for primary studies were delivered universally. The majority of trials took place in European countries (N=6); five interventions were trialled in the UK, five in the US, four in Australia and two trials were carried out in Asia.

The most common approach adopted by the prevention interventions we identified was cognitive behavioural therapy (CBT). This was either used as a standalone approach (N=10), in combination with digital elements (N=5), or as part of a whole-school approach (N=1). Five interventions used psychotherapy, including one intervention that used dialectical behaviour therapy (DBT). One intervention used acceptance and commitment therapy, a form of mindfulness that incorporates self-acceptance.

Quality of research

Six of the reviews we identified were meta-analyses and two were narrative syntheses (table 5). Various methodological concerns were identified across the review papers. Key findings in relation to what works have been drawn from the five strong meta-analyses and the two moderate reviews. The quality of the studies we identified through our top-up search were quite mixed, which is in line with what was reported in the systematic reviews we identified. Seven studies received a strong quality assessment rating, five studies received a moderate quality assessment rating, and 10 were of weak quality. It is difficult to draw strong conclusions from weak-quality studies, as a result our analysis focuses on studies which received a moderate or strong quality assessment rating.

TABLE 5

Quality assessment ratings of systematic reviews of interventions to prevent anxiety, depression and stress in young people

Author	Type of evidence review	Quality assessment rating
Carnevale et al., 2013	Narrative synthesis	Moderate
Feiss et al., 2019	Meta-analysis	Strong
Gee et al., 2020	Meta-analysis	Strong
O'Dea et al., 2015	Narrative synthesis	Weak
Scott, 2015	Meta-analysis	Strong
Shelemy et al., 2020	Meta-analysis	Strong
Ssegonja et al., 2019	Meta-analysis	Moderate
Van Loon et al., 2020	Meta-analysis	Strong

What works?

Universal interventions

Across the systematic reviews, findings were **very consistent in relation to preventing depression through universal interventions**. Interventions generally had a small effect on depression at post-intervention (Scott, 2016; Shelemy et al., 2020). Universal interventions also have evidence of reducing anxiety symptoms, with small effect sizes (Shelemy et al., 2020). A meta-analysis of both universal and targeted depression and anxiety prevention programmes (Feiss et al., 2019) found interventions had a moderate effect on depression and a large effect on anxiety; however, heterogeneity was very high, illustrating that true effect sizes vary across individual programmes.

Evidence of long-term effects is limited. One meta-analysis (Scott, 2016) found marginal improvements of medium-term depressive symptoms (after 7–12 months) across 18 studies, but no significant effect across five studies after more than 12 months. In line with this, another meta-analysis (Shelemy et al., 2020) found no significant effect on depression at follow-up, and a third one found no significant follow-up effects on either depressive symptoms based on 17 studies nor on anxiety symptoms, based on six studies (Feiss et al., 2019).

There is some evidence to suggest school-based interventions can have an impact on young people's stress levels. One meta-analysis reported that intervention effects on PTSD were larger than on depression or anxiety (Shelemy et al., 2020). Another meta-analysis which included 54 primary studies examining impact on stress reported interventions on average had a moderate effect (van Loon et al., 2020). However, the authors point out that heterogeneity was high, meaning the effect sizes vary significantly across the reviewed interventions. A third meta-analysis which included four primary studies on the subject found no significant effect on stress reduction but also identified high heterogeneity (Feiss et al., 2019).

Results from the four strong or moderate quality primary studies we identified are mixed (García-Escalera, 2020; Ohira et al., 2019; Schleider et al., 2019; Teesson et al., 2020). One intervention reported improvements in young people's depressive symptoms including a reduction in symptoms that would indicate a referral to a mental health professional (Schleider et al., 2019). Another intervention evaluation observed improvements in students' anxiety symptoms (Teesson et al., 2020). Two interventions which found no impact on depression or anxiety were of relatively short duration (consisting of eight or fewer lessons) (García-Escalera, 2020; Ohira et al., 2019).

A common finding across the evidence reviews and primary studies was the lack of evidence in relation to long-term follow-up. Of four studies that report follow-up findings, one high-quality study found significant effects at 3 months follow-up (García-Escalera, 2020), and another found effects at 12 and even 30 months follow-up (Teesson et al., 2020). Two low-quality studies on the other hand found no significant effects at 12 months (Garmy et al., 2019) or 18 months (Perry et al., 2017). It is possible that the application of skills and strategies to real-world practice is difficult. Some studies have suggested the use of additional maintenance strategies such as booster sessions as a way of supporting students to integrate changes in their life (Ssegonja et al., 2019). Future research should examine if booster sessions or other maintenance strategies can have an impact on long-term findings and how and when these strategies should be embedded within the school system.

Targeted selective interventions

No systematic reviews reported on the effectiveness of targeted selective interventions implemented with young people identified at-risk on the basis of broad demographic risks. This is likely because of the dearth of research in this area as indicated by the number of interventions identified through our search of primary interventions.

We identified two targeted selective interventions. The DISCOVER 'How to handle stress' one-day workshop was delivered to a diverse sample of young people in deprived areas of London. The intervention was designed to reduce stress, depression and anxiety symptoms (Brown et al., 2019). Results from this study, which received a strong quality assessment rating showed significant improvements in depressive symptoms (d=0.27), anxiety symptoms (d=0.25), quality of life (d=0.36), mental wellbeing (d=0.46) and emotional symptoms (d=-0.28).

The second intervention, Footprints, employed motivational interviewing, modular cognitive behavioural therapy (CBT) and the enhancement of protective factors, and was delivered to students at risk of poor mental health outcomes. This intervention is a good example of a multi-component programme designed to address mental health, behavioural and academic needs of at-risk young people. Students participated in small-group CBT sessions and also individual motivational interviewing sessions aimed at helping them achieve an academic or behavioural goal identified by the student. Results from a small feasibility and preliminary effectiveness study which was of weak quality revealed significant improvements in young people's emotional symptoms (d=0.41), self-efficacy (d=0.86), behaviour (d=0.41), maths grades (d=0.53) and academic motivation (d=0.82) (Terry et al., 2020). Given the particularly promising preliminary findings from this study, further testing of integrated interventions which combine evidence-based approaches to address young people's mental health, behavioural and academic needs is warranted.

Despite the advancements in school mental health, there is a **lack of established evidence on the effectiveness of targeted interventions for underserved or at-risk population groups**.

›› *See intervention spotlight: The DISCOVER 'How to handle stress' Workshop programme*

Targeted indicated interventions

At the targeted indicated level, there is evidence of the effectiveness of school-based interventions in improving depression and anxiety under certain circumstances. Systematic review findings show that these prevention interventions can have a moderate effect on anxiety symptoms (Feiss et al., 2019; Gee et al., 2020) as well as a small to moderate effect on depression (Gee et al., 2020; Scott, 2016; Ssegonja et al., 2019) in the short term.

In terms of long-term outcomes, Gee and colleagues (2020) reported reductions in depression were maintained at short-term follow (<6 months). In their review of CBT-only interventions, Ssegonja and colleagues (2019) reported a gradual decrease in effects identified between post-intervention and six months. Thereafter, intervention effectiveness increased between six and 12 months before decreasing again at 12 months follow-up. The results from these meta-analyses suggest that delivering CBT in schools to pupils at risk of developing mental health problems is a very promising approach to preventing or postponing the onset of depressive disorders for up to 12 months after receiving the intervention. Additional research comparing the long-term effects of adaptations with and without booster sessions is needed to better understand how effects can be maintained and positive results consolidated.

» Intervention spotlight

The DISCOVER 'How to handle stress' Workshop programme

Brown et al., 2019

What is the programme?

The DISCOVER 'How to handle stress' Workshop is a cognitive behavioural therapy programme designed for pupils aged 16–19 years. It is a targeted selective group intervention for students who have been identified as at risk of poorer mental health and academic outcomes (minority ethnic pupils, young people from low socioeconomic background). The intervention aims to reduce stress, depression and anxiety by focusing on methods for coping with common personal and academic stresses, such as social anxiety and worry, dealing with coursework, dealing with family expectations and exam anxiety. The workshop focuses on teaching students cognitive behavioural therapy (CBT) principles and methods, including fear exposure, thought challenging, mindfulness, problem-solving, sleep hygiene and time management. Video vignettes are used to demonstrate the impact of stress on young people's thoughts and behaviours, and to illustrate other students using the techniques with success. Students use a workbook to set personal goals, which are reviewed at the telephone follow-up.

How is it delivered?

The programme is delivered by external professionals. In the case of the UK trial, two clinical psychologists and one assistant psychologist (graduate; no clinical training) co-facilitated the intervention face to face across 10 secondary schools in London. A one-day workshop is delivered to a group of up to 15 students. One week after the group workshop, students have a telephone follow-up with one of the facilitators (20–30 minutes) to discuss progress and support their new CBT skill use. Students were offered up to two additional telephone check-ins as and when needed within 12 weeks of the workshop.

Programme outcomes: Improvements in mental health outcomes, including symptoms of depression and anxiety

In a randomised controlled trial of 155 students from 10 secondary schools in the UK, the DISCOVER programme showed notable promise for overall improvements in student's mental health and wellbeing compared to students in a wait-list control. Students reported significantly fewer symptoms of depression and anxiety at three months post-intervention. Students also reported significant improvements in quality of life, mental wellbeing and emotional symptoms in the same timeframe.

Shows promise: Effective among at-risk and 'hard to reach' students

While the DISCOVER workshop was not specifically designed as a targeted selective intervention, it was trialled and delivered to a cohort of students at risk. Schools within the London boroughs of Lambeth and Southwark rank among some of the most deprived areas in the UK. In addition, the schools served a high proportion of students from Black and minority ethnic backgrounds. Among secondary school students, around 85% of pupils in Lambeth and 76% of pupils in Southwark are from Black and minority ethnic groups (ONS, 2015).

The intervention successfully recruited students with increased risk for poorer mental health outcomes (i.e. Black minority ethic, female), and was also able to reach students who were in need of mental health support. Over two-thirds of students who took part in the intervention had never accessed formal psychological support. This is important to consider when we acknowledge that more than one in four students recruited (27.3%) scored above a clinical cut-off for depression at baseline and almost one in two students (48.7%) scored above the threshold for concern on anxiety measures. While most students (70%) self-referred to take part, 28.6% of students needed encouragement from a teacher to self-refer. This self-referral model with the support of teacher encouragement provides a promising approach in the context of students who may be considered traditionally 'hard to reach' in mental health prevention interventions.

Seven primary studies received a strong or moderate quality rating and reinforce key findings emerging from the evidence reviews (Blossom et al., 2020; Brière et al., 2019; Brown et al., 2019; Harrison & Wang, 2020; Haugland, 2020; Makover et al., 2019; Pearce et al., 2017; Sælid & Nordahl, 2017; Young et al., 2019). These interventions were delivered to students with elevated but subclinical levels of anxiety or depression. **Significant short-term reductions in depressive symptoms (small–medium effect sizes) were consistently reported across CBT interventions** (Blossom et al., 2020; Brière et al., 2019; Haugland, 2020; Makover et al., 2019). One study observed sustained improvements in depressive symptoms at 12 months follow-up (Haugland, 2020).

Findings regarding improving students' anxiety symptoms were positive, although slightly less consistent than impact on depressive symptoms. Two CBT-based interventions showed small but significant improvements in students' anxiety symptoms, with results sustained between 3 and 12 months (Haugland, 2020; Makover et al., 2019). The Blues Programme (Brière et al., 2019) which was designed for students with elevated depression levels, did not improve students' anxiety levels over time. Two weak studies carried out in the UK which evaluated an indicated CBT intervention aimed at addressing exam pressure and stress reported significant improvements in students' anxiety symptoms (Putwain & Pescod, 2018; Putwain & von der Embse, 2020). However, another small-group CBT intervention delivered in the UK, which also received a weak quality assessment rating, failed to show positive impact on anxiety or wellbeing (Weeks et al., 2017).

Similar to findings emerging from our review of systematic reviews, interventions which adopt other approaches than CBT to addressing mental health symptoms, including psychotherapy and counselling appear to have mixed evidence. Two interventions (counselling and rational emotive behaviour therapy) reported improvements in students' depressive symptoms and psychological distress (Pearce et al., 2017; Saelid & Nordahl, 2017). Two studies examining the effectiveness of counselling and interpersonal psychotherapy reported no impact on mental health outcomes (Harrison & Wang, 2020; Young et al., 2019).

›› *See intervention spotlight: The Blues Programme*

Virtual and digital delivery of mental health interventions is of growing interest particularly given current circumstances with Covid-19 and schools being closed for extended periods. Our recent rapid review of virtual and digital interventions found that virtual interventions can achieve similar effects as face-to-face interventions under certain circumstances, but rarely outperform these (Martin et al., 2020).[5] Nevertheless, due to the potentially vast reach at a low unit cost, virtually delivered interventions are an emerging practice that needs further exploration to ensure young people can be supported both effectively and cost-efficiently.

Results from a narrative review of online interventions to prevent poor mental health provide emerging evidence regarding the effectiveness of online cognitive behavioural therapy interventions for reducing symptoms of anxiety and depression in young people (O'Dea et al., 2015). Four out of five randomised controlled trials within that review demonstrated positive effects; however, the overall quality of this narrative synthesis is weak and further evidence is warranted.

Four of the prevention interventions we identified in our search for primary studies contained a digital component. Two of these interventions combined face-to-face delivery with a digital component (Putwain & Pescod, 2018; Putwain & von der Embse, 2020; Teesson et al., 2020). Another two interventions were delivered digitally, one intervention using a fantasy game (SPARX-R; Perry et al., 2017) and another using a self-guided single computerised session (Growing Minds; Schleider et al., 2019). While the quality of these studies ranged from moderate to weak, their results are encouraging with evidence of significant improvements

5 See https://www.eif.org.uk/report/covid-19-and-early-intervention-evidence-challenges-and-risks-relating-to-virtual-and-digital-delivery

» Intervention spotlight

The Blues Programme

Brière et al., 2019

What is the programme?

The Blues Programme is a group-based targeted indicated cognitive behavioural therapy programme for pupils aged 13–19 years who experience depressive symptoms. It aims to support adolescents to identify negative thoughts, change their thinking patterns, increase their involvement in pleasant activities, and enhance their coping flexibility. It is a manualised intervention and focuses on two core concepts: 1) changing thinking, which involves noticing and changing negative thinking patterns; 2) changing doing, which involves increasing participation in pleasant activities and behavioural coping. Each group session involves talking therapy, group discussion, and sharing lived experiences from the group. Students are provided with homework exercises which are designed to reinforce the learning from the group sessions.

How is it delivered?

Group-based CBT sessions (one hour long) are delivered to groups of five to nine students, one session per week over the course of six weeks. Each group is facilitated by trained psychoeducators (Master's-level clinicians) and psychologists. The intervention is delivered to students with elevated but sub-clinical levels of depression who were identified through screening.

Programme outcomes: Improvements in depression and psychosocial wellbeing for students at risk

In a randomised controlled trial of 74 students from three schools in Canada, the Blues Programme showed notable promise for overall improvements in students' wellbeing. Students reported significant improvements in depressive symptoms, although these improvements were not maintained at the six-month follow-up. However, after taking part in the intervention, students had a significantly reduced risk of developing a diagnosis of major depressive disorder (MDD) at six-month follow-up compared to students in the control condition with elevated symptoms who received only an information leaflet on depression. This shows promise for the intervention in being able to prevent the worsening of symptoms of poor mental health over time. Results from this study also revealed a significant increase in how often students reported engaging in pleasant activities following the intervention (although the increased frequency was not maintained at the six-month follow-up). Furthermore, students who took part in the intervention reported they had significantly improved interactions with their parents through decreased conflict (rather than increased positive interactions). The skills students learn in the school setting may, therefore, be transferred to situations outside the school environment, helping to improve wellbeing across other aspects of their life.

Shows promise: As being low-cost and effectively implemented in school settings by external professionals

Evidence for the Blues Programme has been evaluated as part of the EIF Guidebook.[1] The programme received a level 4+ rating meaning there is evidence of effectiveness from at least two rigorous evaluations, such as randomised controlled trials or quasi-experimental trials. The Blues Programme has also been rated with a cost rating of 1, meaning it is low cost to set up and deliver.

In the current study the intervention was delivered by school professionals (school counsellors and a psychologist) specialising in mental health support – that is, not teaching staff. They were able to deliver the intervention with relatively minimal support (a one-day training session) and with high adherence to the intervention manual. The notable improvements in depression and psychosocial wellbeing among students at risk in this study highlights the real potential for targeted mental health interventions when they are delivered by professionals who are external to the core teaching staff. Overall, the intervention shows promise for being an effective, low-cost, targeted intervention that can prevent the worsening of mental health among students who most need support.

1 See: **https://guidebook.eif.org.uk/programme/blues-programme**

in symptoms of depression (Perry et al., 2017; Schleider et al., 2019) and anxiety (Putwain & Pescod, 2018; Putwain & von der Embse, 2020; Teesson et al., 2020).

Digital interventions offer a range of potential advantages to supporting adolescent mental health including extending reach of an intervention, removing logistical barriers, and lowering the unit cost of delivery (Lehtimaki et al., 2021). To date, very little work has been done to understand how face-to-face adolescent mental health interventions can be adapted for virtual delivery or whether digital interventions are more effective when specifically designed for remote delivery. There is some evidence that participant face-to-face and or web-based support is an important feature in terms of programme completion and outcomes (Clarke et al., 2015; Lehtimaki et al., 2021). Given the role of online technology in young people's lives, it is likely we will see more digitally delivered mental health interventions over the coming years. Further work is required to strengthen the quality of research underpinning these studies and to understand conditions necessary to ensure programme outcomes.

›› *See intervention spotlight: SPARX-R*

What works for whom?

At-risk students

There is evidence that **CBT interventions show greater impact among students identified at risk of developing mental health problems** (Feiss et al., 2019; Scott, 2016). These findings are in line with other reviews which have found larger effect sizes across targeted depression prevention intervention compared to universal delivery (Werner-Seidler et al., 2017). Offering school-based indicated interventions to young people with elevated mental health symptoms has the potential to significantly expand mental health provision for this group of young people who are faced with numerous barriers in relation to help-seeking. Such barriers include limited capacity of specialist mental health services and reluctance to seek help from mental health professionals, and concerns around stigma which is particularly salient for socially disadvantaged and minority ethnic young people (Brown et al., 2019; Cauce et al., 2002; Michelson & Day, 2014).

There is some preliminary evidence from primary studies regarding the effectiveness of interventions implemented with young people from minority ethnic groups in the UK. The DISCOVER programme showed small and small-to-moderate effect sizes in reducing depressive symptoms and improving quality of life and overall wellbeing among at-risk young people, the majority of whom were from minority ethnic backgrounds (Brown et al., 2019).

Under what circumstances?

Programme facilitator

Across the reviews and primary studies, we can see that the majority of prevention interventions are delivered by either school staff or external professionals including psychologists and counsellors. A strong meta-analysis of teacher-delivered anxiety and depression prevention interventions found universal interventions had a very small effect on depression and anxiety; teacher-delivered selective or indicated interventions, on the other hand, had no effect (Shelemy et al., 2020). Another strong meta-analysis found that externally delivered indicated interventions were effective, while internally facilitated interventions had no effect (Gee et al., 2020).

It is likely that school staff do not currently have the level of knowledge and expertise required to deliver indicated interventions effectively, and that external professionals are better qualified to support the needs of more at-risk pupils. A dependence on external

Intervention spotlight

SPARX-R

Perry et al., 2017

What is the programme?

The SPARX-R programme is a universal digital cognitive behavioural therapy (CBT) programme designed for students in the upper end of secondary school. It aims to prevent depression using cognitive behavioural skills where students navigate a computerised fantasy world that has been overrun by GNATs (gloomy, negative, automatic thoughts) with the mission of restoring balance to the world. Topics in the modules covered: finding hope, being active, dealing with strong emotions, overcoming problems, and recognising and challenging unhelpful thoughts. The final module explores how all of the skills can be brought together. Key skills covered in the programme include relaxation, activity scheduling and behavioural activation, emotion regulation, interpersonal skills, problem-solving, cognitive restructuring and distress tolerance. The programme is designed to be completed before a major stressor (that is, final year exams).

How is it delivered?

SPARX-R is delivered on computers via the internet. Students navigate a digital fantasy world individually during class time, where a teacher provides supervision. The programme has seven modules (completed as levels) which each take between 20–30 minutes to complete. The programme is delivered over five to seven weeks.

Programme outcomes: Improvements in depressive symptoms among a universal sample of students

A randomised controlled trial of 540 students from 10 secondary schools in Australia revealed promising results with a significant reduction in students' depression levels prior to final school exams when compared to students in the control group that received another virtual programme (lifeSTYLE). Significant improvements (reduction) in depression symptoms were also noted at six-month follow-up. Although effects were small, they reflected clinically significant improvements, showing promise for the intervention in producing meaningful change in students' mental health. Results showed that effects were maintained where students only completed four out of the seven modules, but not if they completed fewer than four. Improvements in depressive symptoms were not maintained to 18 months, and there were no improvements in anxiety, suicidality or academic grades.

Shows promise: As an online universal intervention that can be delivered as a first step in a multi-tiered approach

SPARX-R is a mental health prevention intervention that is delivered online as a digital game where students are self-guided in programme completion. The intervention can be delivered without direct facilitation, meaning it requires fewer resources (such as teacher training, face-to-face contact time, curriculum timetabling). This provides a promising approach for preventing mental health problems with the potential to be implemented at scale. In addition, the intervention produced significant reductions in depressive symptoms under universal administration showing promise as a 'first-step' universal intervention that is part of a multi-tiered approach. Improvements are particularly promising considering the intervention resulted in clinically meaningful reductions in depressive symptoms among students facing the real-world stressor of final year exams.

professionals to deliver all prevention interventions presents a significant challenge in relation to costs and sustainability of school-based interventions, particularly given major capacity issues across the child and adolescent mental health workforce.

Results from a number of reviews and primary studies which examined the impact of universal interventions provide good evidence in relation to teacher-delivered interventions and their impact on depression and anxiety outcomes (Carnevale, 2013; Feiss et al., 2019; Garmy et al., 2019; Shelemy et al., 2020; Teesson et al., 2020). These results suggest that when provided with the appropriate training and supervision, teachers can effectively deliver *universal* mental health prevention interventions. This is an important finding given the extensive contact school staff have with students beyond the lifetime of an intervention, providing them with opportunities to integrate core skills and teaching within the wider curriculum and school environment. Further research into the training and supervision/support necessary to enable teachers to deliver high-quality prevention interventions is required.

Training, support and quality

The training provided to teachers has been identified as an important moderator in intervention effectiveness. One meta-analysis reported that where teacher training lasted less than two days, interventions had no effects on depression or anxiety, but where the training lasted two or more days, studies found significant improvements (Shelemy et al., 2020). This review also found that regular supervision for teachers was related to intervention efficacy for depression outcomes. These results build on a body of research which highlights the importance of high-quality teacher training and the provision of ongoing support. Shelemy and colleagues (2020) suggest that the level of teacher engagement may be crucial to intervention outcomes. Teacher engagement can be supported through increased supervision, the provision of adequate time for teachers to become familiar with intervention concepts and approaches and selecting an intervention that meets the needs of pupils and school staff.

Individual vs group format for indicated interventions

There is some evidence to suggest that the delivery of indicated interventions in group or individual format is an important consideration in relation to the outcome being targeted. Results from one meta-analysis revealed that for depression prevention interventions, individual interventions may have a larger effect on depression symptoms than group interventions (Shelemy et al., 2020). In contrast to this finding, individual interventions did not have a significant effect on anxiety symptoms whereas group interventions had a medium effect. While the authors underscore the need to interpret these findings with some caution as a result of the small number of trials included in this subgroup analysis, they hypothesise that group delivery may be suited to young people with anxiety symptoms because of the opportunities provided for normalisation, peer modelling, reinforcement and exposure to social situations. Young people with depressive symptoms may benefit more from one-to-one support and an approach that is more tailored to their individual needs.

Results from our primary studies also highlight the potential of combining individual and group format in prevention programming. The Footprints Programme integrates three empirically supported approaches (motivational interviewing, modular CBT and the enhancement of protective factors) and takes a novel approach in that these three components were presented in both group-based sessions and also individual motivational interviewing sessions. Students have the flexibility to apply relevant components of the group sessions to their individualised goal and change plans (Terry et al., 2020). Results from this study provide preliminary evidence on the efficacy of an integrated approach which utilises a combination of individual and group formats. However, further research is required to determine whether a flexible, more tailored approach consistently addresses an individual's needs and increases the impact of targeted indicated interventions.

Dose

The impact of dose on programme outcomes has been examined across a number of meta-analyses and results seem to indicate that dosage matters in the context of universal interventions. Shelemy and colleagues (2020) found that improved outcomes for prevention interventions (94% of which were universal) were associated with interventions with 8 to 16 sessions of 45–90-minute duration. Interventions with more than 16 sessions were not effective. Feiss and colleagues (2019), on the other hand, reported that universal anxiety reduction programmes with 'higher doses' were more effective, but it is unclear how the authors define higher dose. Results from our primary studies appears to support Shelemy's findings. Two universal studies which consisted of fewer than eight sessions showed no significant impact across depression and anxiety symptoms (Burckhardt et al., 2018; Ohira et al., 2019). Both studies suggest the low intensity and short duration may explain the outcomes observed.

Suicide prevention interventions

Four narrative syntheses on preventing suicidality were identified as part of our review of reviews. Inclusion criteria varied substantially across the four systematic reviews. The reviews reported on suicidal behaviour including **self-harm, suicidal ideation, attempt or completion**. One review examined effects on help-seeking attitudes (Klimes-Dougan et al., 2013).

Only one primary study on suicide prevention met our inclusion criteria. This paper reports on the effects of a combination of psychoeducation and universal screening on help-seeking and suicidality among 9th graders in a US-American high school (Torcasso & Hilt, 2017).

Quality and quantity of research

Various methodological concerns were identified across the four systematic reviews we identified, two of which were of weak and two of moderate quality. All four reviews were published in or prior to 2015 and were narrative syntheses. As the systematic reviews are not only dated but also of moderate to weak methodological quality, the conclusions we can draw here in relation to preventing suicidality through school-based interventions are limited.

The primary study we identified was of weak quality (Torcasso & Hilt, 2017).

TABLE 6

Quality assessment ratings of systematic reviews of suicide or self-harm prevention interventions

Author	Type of evidence review	Quality assessment rating
Calear et al., 2015	Narrative synthesis	Moderate
Harlow et al., 2012	Narrative synthesis	Weak
Klimes-Dougan et al., 2013	Narrative synthesis	Weak
Wei et al., 2015	Narrative synthesis	Moderate

What works?

Universal interventions

Psychoeducational interventions are designed to increase participants' understanding of how to obtain and maintain positive mental health; typically targeting stigma, young people's understanding of mental health problems, and attitudes, intentions or actual behaviours towards help-seeking.

Psychoeducation has limited evidence of reducing suicidality. Wei and colleagues (2015) found 'inconclusive' and 'insufficient' evidence on the effectiveness of psychoeducation for reducing suicidal behaviour. Calear and colleagues (2015) reported that psychoeducation reduced suicide attempts, but not ideation. Psychoeducation to prevent suicidality has proven feasible in selected studies; however, additional research is needed to understand how content must be packaged to consistently achieve positive effects.

A weak study conducted in the US of an intervention that combines screening and psychoeducation provides preliminary evidence of positive programme effects (Torcasso & Hilt, 2017). Mental health service utilisation increased, and suicide ideation and attempts decreased.

Gatekeeper training is another approach used to prevent suicide and self-harm. It is designed to teach lay and professional 'gatekeepers' the warning signs of mental health crisis and how to respond. Gatekeepers can include anyone who is strategically positioned to recognise and refer someone at risk of suicide (such as teachers, other school staff). Evidence across systematic reviews indicate that gatekeeper training currently has no evidence of effectiveness. Wei and colleagues (2015) rate an evaluation of gatekeeper training as 'ineffective' as the study in question was rigorous but showed no effects. Indeed, Klimes-Dougan and colleagues (2013) report that gatekeeper training demonstrated adverse effects on help-seeking.

Targeted indicated interventions

Motivational interviewing was identified as a targeted indicated approach to suicide prevention. Motivational interviewing is described as an empathic, supportive, yet directive, counselling style that provides conditions under which change can occur (Rollnick & Miller, 1995).

Motivational interviewing as a school-based targeted indicated intervention has inconclusive evidence of effectiveness. Calear and colleagues (2015) identified a small number of trials where motivational interviewing was offered in combination with different forms of support. One study showed no effects, another had effects on suicide ideation but not on attempts, and a third study showed effects on suicide ideation only in the trial arm where parents as well as school counsellors were involved.

Additional research is needed to understand for whom and under what circumstances motivational interviewing in schools can reduce or prevent suicidal behaviour.

Intensive psychotherapy

Calear and colleagues (2015) identified one evaluation of intensive psychotherapy for depressed adolescents with suicidal risk. This intervention was shown to reduce suicide ideation (Tang et al., 2009). While this preliminary evidence is encouraging, further research exploring the potential of school-based intensive psychotherapy to prevent suicidality, and the conditions under which it is effective is needed, in particular in the light of limited evidence supporting the effectiveness of school-based psychotherapy in reducing depression, anxiety or stress.

Latest developments

One study, Saving and Empowering Young Lives in Europe (SEYLE), which did not meet our inclusion criteria (published in 2015) is noteworthy. In this large European trial, three suicide prevention interventions were compared with a control condition. The study involved 11,110 adolescents from 168 schools in 10 European Union countries. Schools were randomised to a gatekeeper training module targeting teachers and other school personnel, a psychoeducational intervention (Youth Aware of Mental Health) or screening with referral of at-risk pupils (Wasserman et al., 2015). The gatekeeper intervention had no impact on suicide ideation and attempts, and neither did the screening programme. The psychoeducational intervention, Youth Aware of Mental Health (YAM), on the other hand, reduced both the number of suicide attempts and severe suicidal ideation. This programme is aimed at young people aged 13–17 years and consists of five one-hour classroom sessions to support youth-led dialogue about mental health. YAM is currently being evaluated as part of a large UK trial called AWARE (Hayes et al., 2019).

›› ***See intervention spotlight: Youth Aware of Mental Health Programme (YAM) as part of the Saving and Empowering Young Lives in Europe trial (SEYLE)***

What works for whom, and under what circumstances?

There is very little evidence from across the systematic reviews and primary studies regarding what works for whom and under what circumstances. In line with the findings reported above, a narrative review of suicide prevention interventions highlighted the lack of evidence and provided a series of recommendations to address the design, content and delivery of school-based suicide and self-harm prevention interventions, including the following (Surgenor et al., 2016).

- Programmes should be implemented as part of a longer-term strategy.
- Decision-makers should take the context into consideration when selecting the programme.
- Programmes should be facilitated by external staff because there is some evidence that students are more reluctant to accept and to engage in teacher-delivered suicide prevention interventions. Practical and safeguarding issues do, however, need to be taken into account.
- Implementation facilitators should familiarise themselves with the setting before the programme starts.
- The design and delivery of programmes should be flexible.
- Programme content and delivery should be varied, interactive and engaging.
- Learning outcomes of psychoeducational programmes should be clearly defined.
- Programmes should be comprehensive, given the complexity and interaction of factors that may lead to suicidal behaviours, and prevention programmes should move beyond prioritising and addressing single issues.
- Risk factors should be recognised but not overemphasised. Overemphasising some risk factors may result in overlooking others, or in under-identifying those who are at risk of making impulsive suicidal attempts.
- Programme outputs and effects should be consistently monitored even outside formalised trials to understand whether any impact achieved is sustainable.

Intervention spotlight

Youth Aware of Mental Health Programme (YAM) as part of the Saving and Empowering Young Lives in Europe trial (SEYLE)

Wasserman et al., 2015

What is the programme?

The Youth Aware of Mental Health (YAM) Programme is a mental health awareness and suicide prevention intervention designed to increase adolescents' knowledge of mental health and healthy behaviours. It is a universal prevention programme aimed at 14–16-year-olds. The programme works on the assumption that increasing adolescents' knowledge and awareness of mental health facilitates communication about mental health concerns, but without raising unrealistic expectations about the availability of professional mental health care. The programme combines cognitive learning (through lectures about mental health) and emotional learning (through role-play sessions) with a 'hands-on' approach to sensitive topics by leaving space and time for in-depth discussion in small groups. Role-play sessions allow students to learn about mental health and develop problem-solving skills that enable them to approach distress and identify circumstances where they can apply their skills. This includes learning opportunities to identify when and how escalation of mental health problems occur, and exploring the impact of poor mental health and suicide on those directly and indirectly involved. A didactic booklet is given to students at the end of the programme covering topics of mental health awareness: self-help, stress and crisis, depression and suicidal thoughts, helping a troubled friend, and contacts for help and advice.

How is it delivered?

The four-week interactive programme is delivered through a combination of lectures and role-play sessions. Each session includes an opening lecture, three role-play sessions, and a closing lecture with a discussion session, each lasting between 45–60 minutes. Sessions are delivered in small groups with 10–15 students each. The programme is delivered by external professionals who are child psychologists and psychiatrists, as well as a team of instructors dedicated to the delivery of sessions — particularly the role-play sessions which are labour-intensive. The programme specifically does not include regular school staff to reduce concerns about stigma and being judged.

Programme outcomes: Improvements in suicide attempts and suicidal ideation long term

YAM was evaluated as part of the SEYLE trial across 12 European countries involving 12,395 pupils from 179 schools. Results from this study showed no significant differences between intervention and control conditions at three-month follow-up. However, at 12-month follow-up, adolescents allocated to YAM had significantly reduced likelihood of attempting suicide and having severe suicidal ideations. Adolescents who took part in YAM had 55% lower chance of suicide attempt incidents and 50% reduced chance of severe suicidal ideation compared to students in the control group. This translated to considerable reductions in the absolute number of suicide attempts and occurrence of ideation. In YAM, 14 students (0.70%) reported suicide attempts (vs 34 [1.51%] control group), and 15 students (0.75%) reported severe suicidal ideation (vs 31 [1.37%] control group).

Shows promise: For cultural adaptability, acceptability and adolescent engagement

YAM has been implemented across 12 European countries and was adapted to fit the local languages of the participating sites. The intervention shows promise as an adaptable programme that can be tailored to suit the needs of the local population and remain effective. An evaluation of the acceptability of the programme[1] revealed the interactive approach helped to engage students, and coordinators reported that students preferred it to the standard classroom set-up. Interviews with awareness coordinators also showed discussions of mental health problems are still uncommon and stigmatised, so the role-play component of the programme was much appreciated. The programme shows promise for being able to offer a forum for students to be able to discuss mental health without judgement and develop experiential knowledge of approaching sensitive topics of depression and suicidality. The intervention is currently being evaluated in the UK context.[2]

Shows promise: For cost-effective reductions in suicide attempts

A cost-effective analysis[3] of the programme showed that of the three interventions trialled in SEYLE (YAM; Question, Persuade & Refer gatekeeper programme; ProfScreen programme for identifying students at risk), YAM was most cost-effective to implement. To reduce the risk of attempted suicide by 1%, YAM cost €34.83, and to reduce the risk of severe suicide ideation by 1% YAM cost €45.42. YAM also showed a cost per quality-adjusted life year (QALY) of €47,017 for incident of suicide attempt and €48,216 for severe suicidal ideation, both of which are substantial.

1 Wasserman et al. (2012). Suicide prevention for youth-a mental health awareness program: lessons learned from the Saving and Empowering Young Lives in Europe (SEYLE) intervention study. *BMC Public Health, 12*(1), 1–12.

2 Hayes et al. (2019). School-based intervention study examining approaches for well-being and mental health literacy of pupils in Year 9 in England: study protocol for a multischool, parallel group cluster randomised controlled trial (AWARE). *BMJ Open, 9*(8), e029044.

3 Ahern et al. (2018). A cost-effectiveness analysis of school-based suicide prevention programmes. *European Child & Adolescent Psychiatry, 27*(10), 1295–1304.

Behaviour

Interventions to prevent behavioural difficulties

Overview

In this chapter, we examine evidence on the effectiveness of school-based interventions designed to reduce behavioural difficulties. Behavioural disorders are the most common disorder type among 11–16-year-old boys in England (NHS Digital, 2018).

Young people who exhibit persistently high levels of externalising behaviour are at increased risk of poor adult outcomes across mental health, education, physical health and social outcomes, including depression, anxiety, school dropout, not in education, employment or training status, substance abuse, early parenthood, and drug-related and violent crime, including violence against women and children (Clarke & Lovewell, 2021). Research has shown that developmental pathways to serious violence often begin with young people engaging in aggressive and antisocial behaviour. This highlights the importance of intervening early to address behavioural problems and promote prosocial behaviour (Dahlberg & Potter, 2001).

The majority of behavioural interventions address young people's knowledge, attitudes and skills to minimise the effects of known risk factors and enhance protective factors as a means to preventing or reducing engagement in violent or aggressive behaviour. In our review of the evidence, we identified four main types of interventions.

Aggression and violence prevention programmes: Target knowledge, skills and attitudes to minimise the effects of known risk factors and enhance protective factors as a means to preventing or reducing engagement in violent or aggressive behaviour. Prosocial skills, including anger management, empathy, problem-solving, communication and decision-

making skills are frequently addressed. Some interventions aim to promote school-wide norms for non-violence.

Bullying prevention interventions: Include both curriculum and whole-school interventions designed to promote antibullying attitudes and behaviour, and to promote prosocial conflict-resolution skills. Most of these interventions draw on the social cognitive principles of behaviour change with a focus on changing attitudes, altering group norms, and increasing self-efficacy (Vreeman & Carroll, 2007).

Sexual violence prevention interventions: Seek to increase knowledge of what constitutes sexual violence, promote attitudes that are not supportive of sexual violence, and build skills to effectively prevent or reduce incidents of sexual violence or harassment. These interventions are delivered through group education and activities, relationship skills building, peer mentor training and bystander approaches (Lundgren & Amin, 2015).

Conduct problems and school discipline interventions: A variety of different intervention modalities are employed across behavioural interventions including classroom-based curricula, digital activities, physical activity, teacher training in restorative practices. Several programmes adopt a whole-school approach to addressing young people's behaviour needs incorporating universal and targeted provision in combination with strategies implemented at the whole-school level through the ethos and environment.

Key points: Preventing aggression, bullying or violence

What works?

- There is evidence that **violence prevention interventions** have a small but positive effect on aggressive behaviour in the short term. There is also evidence that these interventions can have a wider impact on other behavioural outcomes including bullying victimisation and pupil wellbeing.
- **Bullying prevention interventions** have been shown to be effective in reducing the frequency of bullying (both traditional and cyberbullying) victimisation and perpetration. Broader impacts on pupil wellbeing have been observed across several studies. The latest evidence suggests that whole-school interventions are particularly effective in reducing bullying behaviour. While there is some evidence that interventions can have a long-term positive effect on traditional bullying perpetration, evidence of long-term effects on cyberbullying is very limited.
- **Universal sexual violence prevention interventions** have been shown to have a small but positive effect in improving knowledge and attitudes about sexual violence but have minimal impact on perpetration and victimisation. There is promising evidence on the effectiveness of sexual violence prevention interventions when delivered to **young people at risk of experiencing sexual harassment and violence**. The evidence shows these programmes can reduce perpetration and victimisation, in particular if interventions are embedded in a wider, whole-school approach.
- There are insufficient studies to determine the impact of interventions aimed at reducing conduct problems and disciplinary referrals in school.

For whom and under what circumstances?

- The vast majority of behaviour interventions we examined (83%) were implemented with young adolescents (12–15 years). This highlights the lack of school-based interventions addressing the behavioural needs of older adolescents.
- Programme effects for violence prevention interventions have been shown to be greater among students who are considered at high risk of violent behaviour. This might, in part, be due to aggressive behaviour being relatively rare in the general adolescent population where there is less scope for change.

Take-home messages

- A focus on social and emotional skill development and behavioural practice techniques appears to be a core component of effective violence and bullying prevention interventions. These findings highlight the importance of explicitly teaching these skills to prevent the onset of behaviour problems and reduce the likelihood that young people at greater risk will engage in aggressive or bullying behaviour.
- Whole-school interventions which embrace change across the school environment as well as the curriculum have been identified as among the most effective means to prevent and respond to behaviour problems. These interventions have been shown to be more likely to result in enduring positive outcomes. The complex nature of these interventions requires clarity around the operationalisation of what is to be implemented and how it should be implemented in order to achieve optimum results. Long-term evaluations are necessary to ensure components of the whole-school approach are sufficiently embedded within the school system to result in positive change.

Research recommendations

- There is in general a lack of research examining the long-term impact of behavioural interventions, with the majority of follow-up studies ceasing after six months or less. This has been repeatedly highlighted as an issue over the past 15 years. **There is a real need to invest in long-term evaluations to determine if the resources and costs required to implement and sustain these behaviour interventions are a sound investment.**
- We did not identify any primary studies examining the impact of cyberbullying prevention interventions. Given the rise in cyberbullying and the negative impact it can have on young people's mental health, **future research in the UK should invest in evaluation of interventions designed to address both traditional and cyberbullying**.
- Conduct problems and disciplinary referrals and exclusions have been identified as a significant issue faced by many schools in the UK; however, research on effective interventions designed to reduce conduct problems is lacking. **There is an urgent need to invest in further research examining how best to address the needs of students at risk of exclusion as a result of behavioural problems.**

Quality of research

We identified 11 systematic reviews that focused on interventions designed to prevent behavioural problems in young people (table 7). Four of these reviews examined the impact of aggression or violence prevention interventions; two reviews focused on the effects on bullying prevention interventions; and five reviews examined the impact of sexual violence prevention interventions. The quality of the reviews was mixed: three meta-analyses were of strong quality; one meta-analysis and four narrative syntheses were of moderate quality; and another two narrative syntheses as well as one meta-analysis were of weak quality.

TABLE 7
Quality assessment ratings of systematic reviews of behaviour interventions

Reviews on preventing maladaptive behaviours	Type of evidence review	Quality assessment rating
Alford & Derzon, 2013	Meta-analysis	Weak
Castillo-Eito et al., 2020	Meta-analysis	Strong
Cox et al., 2016	Narrative synthesis	Moderate
De Koker et al., 2014	Narrative synthesis	Moderate
De La Rue et al., 2017	Meta-analysis	Strong
Gavine et al., 2016	Narrative synthesis	Moderate
Leen et al., 2013	Narrative synthesis	Weak
Lundgren & Amin, 2015	Narrative synthesis	Moderate
McElwain et al., 2017	Meta-analysis	Moderate
Ng et al., 2020	Meta-analysis	Strong
Reed et al., 2016	Narrative synthesis	Weak

Through our search of primary studies published since 2017, we identified 28 evaluations of interventions aimed at preventing problems including antisocial or aggressive behaviour, bullying, misconduct, sexual violence or harassment. The quality of the studies was mixed, with 16 studies appraised as strong or moderate and 12 studies as weak. As it is difficult to draw strong conclusions from weak-quality studies, our analysis focuses on studies which received a moderate or strong quality assessment rating.

Download
To download this report or the appendices, which provide in-depth information on all of the systematic reviews and primary studies that were analysed as part of this systematic review, please visit:
https://www.eif.org.uk/report/adolescent-mental-health-a-systematic-review-on-the-effectiveness-of-school-based-interventions

What works?

Universal interventions

Aggression/violence prevention

There is evidence from the systematic reviews that school-based violence and antisocial behaviour prevention interventions have a small but positive effect on aggressive behaviour, including physical and non-physical aggression, victimisation and antisocial behaviour (Alford & Derzon, 2013; Castillo-Eito et al., 2020), and a very small but significant effect on antisocial and violence behaviour (Cox et al., 2016). While long-term positive effects on attitudes towards violence were reported occasionally, no long-term impact on violent behaviour or victimisation were found (Gavine et al., 2016).

In trying to identify effective components of aggression prevention interventions, Castillo-Eito and colleagues (2020) found that universal interventions which included *behavioural practice* (that is, prompting the 'practice or rehearsal of the performance of the behaviour') and *problem-solving* techniques (prompting participants to analyse factors influencing the behaviour and generate or select strategies that include overcoming barriers or increasing facilitators) were more effective than interventions without these techniques. The authors noted, however, that all of the studies which used these techniques included them in combination with at least three other behaviour change techniques and more research is needed to determine their impact, both on their own and in combination with other techniques.

In our examination of primary studies examining the impact of aggression prevention interventions, two of the four studies of moderate or high quality provide evidence of reducing aggressive behaviour in young people (Bonell et al., 2018; Castillo-Gualda et al., 2018). The other two studies evaluated whole-school approaches and found no impact on aggression or violence; however, broader impacts on bullying victimisation (Morgan-Lopez et al., 2020; Smokowski et al., 2018), quality of life and wellbeing (Smokowski et al., 2018) were reported.

Both of the interventions which reported programme effects on victimisation contained a social and emotional learning (SEL) component and were implemented over a long period of time (Bonell et al., 2018; Castillo-Gualda et al., 2018). One of these interventions with particularly notable findings is the UK-developed Learning Together programme (Bonell et al., 2018). This programme adopts a whole-school approach to reducing bullying and aggressive behaviour. The programme operates at three levels: classroom SEL curriculum; school ethos and environment; and restorative practice aimed at preventing or resolving conflicts. Results from a large cluster randomised control trial in England provide evidence of a small significant long-term effect (36 months follow-up) on bullying and cyberbullying perpetration, student observation of aggression by other students, and students' own perpetration of aggressive behaviour in or outside school. Several secondary outcomes were detected including improved psychological functioning, wellbeing and quality of life, reductions in police contact, smoking, and alcohol and drug use. Impact on broader education outcomes was also detected including reduced participation in school disciplinary procedures and truancy (Bonell et al., 2018). Interestingly, effects were mostly detected at 36 months and not at 24 months which reflects the time needed for components of the intervention to integrate into mainstream school structures and processes. This study adds to a body of evidence on the impact of whole-school approaches to reduce bullying behaviour. The results also demonstrate that it is possible to achieve improvements in aggressive behaviour and broader social and educational outcomes using a coordinated whole-school approach which focuses on environmental change in combination with supporting skill development. This study also underscores the need to invest in longer follow-up periods, particularly in the context of whole-school interventions, in order to ensure approaches are sufficiently embedded within the school system to result in positive change at both an individual and school level.

We identified two additional whole-school interventions which were aimed at reducing aggressive and bullying behaviour (Morgan-Lopez et al., 2020; Smokowski et al., 2018). One of these interventions provided targeted mental health support to young people at risk of violence perpetration as part of a whole-school approach to addressing young people's mental health and behaviour (Morgan-Lopez et al., 2020). A randomised controlled trial was used to compare the effectiveness of mental health support with differing intensity. The expanded school-based mental health support programme, where funding was available to provide psychotherapy to young people at risk of violence perpetration who were ineligible or otherwise unable to afford services in an alternative study arm, resulted in significant improvements in bullying victimisation compared to standard school-based mental health support. The results from this study suggest there are benefits to be gained from addressing young people's mental health needs as part of efforts to reduce bullying and aggression at a school level.

›› *See intervention spotlight: Learning Together*

Bullying prevention

Bullying behaviour is defined by three core characteristics including intentional harm, behaviour repetition and power imbalance (Olweus, 1993). Cyberbullying shares overlapping characteristics with traditional bullying, but it involves the use of electronic communication devices, with text messages and calls, social media, and instant messaging being identified as the most frequent platforms of cyberbullying (Kowalski et al., 2014; Smith, 2009).

We identified one meta-analysis of bullying and cyberbullying prevention interventions implemented with adolescents (Ng et al., 2020) as well as one narrative synthesis of cyberbullying interventions (Reed et al., 2016). Results from the strong meta-analysis indicate that school-based interventions can have a small but positive effect in reducing the frequency of traditional and cyberbullying victimisation and perpetration. There is limited evidence whether interventions have any long-term positive effects. Across only three studies with follow-ups ranging from 5 weeks to 1.5 years, standardised mean differences show, interventions had a very small effect on bullying victimisation frequency, and a small effect on bullying perpetration frequency (Ng et al., 2020). Across two studies, long-term effects on cyberbullying were either negligible (victimisation) or non-significant (perpetration). These results are generally in line with previous evidence reviews of school-based bullying prevention interventions, which report similar short-term findings for traditional and cyber-bullying prevention interventions (Cantone et al., 2015; Gaffney et al., 2019; Ttofi et al., 2011).

We identified nine primary studies evaluating the impact of bullying prevention interventions in secondary school, six of which were of strong/moderate quality. Programmes varied greatly in their approach to preventing bullying behaviour and their impact on bullying. Two studies with the most promising findings examined the impact of whole-school interventions aimed at addressing bullying behaviour. As outlined in the previous section, the UK-developed Learning Together whole-school intervention reported significant improvements in bullying and cyberbullying perpetration at 36 months follow-up (Bonell et al., 2018). The second whole-school intervention, Friendly Schools (Cross et al., 2018), aims to support young people's transition to secondary school and reduce bullying using a multi-level intervention addressing classroom curriculum, school policies and procedures, the social and physical environment, pastoral care approaches, and school-home community links. Results from a large randomised controlled trial in Australia revealed small but significant improvements in bullying perpetration, victimisation, depression, anxiety, stress, feelings of loneliness, and perceptions of school safety at the end of students' first year in secondary school. These results were only observed after the first year of implementation and not after the second year. The findings from this study are, however, important given the negative outcomes associated with poor

» Intervention spotlight

Learning Together

Bonnell et al., 2018, 2020

What is the programme?

The Learning Together programme, developed and evaluated in the UK, adopts a whole-school approach to reducing aggression and bullying in young people. The programme adopts three approaches to addressing behaviour problems in school. First, a whole-school approach aims to modify school polices and systems rather than merely classroom-based lessons. Second, teacher training in restorative practice aims to prevent or resolve conflicts between staff and students to prevent further harm. Third, social and emotional skills-based lessons teach young people the skills needed to manage their emotions and relationships.

How is it delivered?

In the first year, all school staff are trained, over half a day, in restorative practices. Approximately 5–10 key staff per school are selected to receive in-depth training to deliver restorative conferencing that deals with more serious incidents. Schools are provided with a manual to guide action group meetings – comprising at least six staff and six students and led by a member of the school's senior leadership team – to coordinate the whole-school approach and revise relevant school policies relating to discipline. The action group meets at least six times per school year (approximately once every half term). Schools are also provided with materials to guide the delivery of a social and emotional skills curriculum for students in years 8–10 (age 12–15 years), who receive 5–10 hours of teaching per term. Module topics include establishing respectful relationships, managing emotions, understanding and building trusting relationships, exploring others' needs, avoiding conflict, and maintaining and repairing relationships. The programme is implemented continuously for three years and intends to replace existing non-restorative disciplinary school policies and practices where restorative approaches are deemed by the action group to be more appropriate.

Programme outcomes: Improvements in aggression, bullying and wellbeing outcomes

The results of the evaluation of the Learning Together programme, a cluster randomised controlled trial (RCT) with a sample of 6,667 students from 40 schools in England, showed significant long-term improvements (36 months) in aggression perpetration (in or outside of school), bullying victimisation, cyberbullying perpetration, quality of life, wellbeing, psychological difficulties, participation in school disciplinary procedures and school truancy. Notably, the majority of significant effects were observed at 36-month follow-up but not at 24 months.

Shows promise: Whole-school approach, long-term positive impact, UK trial

This UK programme was implemented on an ongoing basis, at the whole-school level, and found sustained, long-term (36 months) positive effects. Intervention effects were found in the whole sample and in schools with higher baseline aggression and bullying which demonstrates the programme's utility in curtailing existing behavioural problems, and preventing new, aggression and bullying. Notably, effects were not found at 24 months but were found at 36 months; these results suggest the likely time needed for intervention components to be translated into organisational change. The findings provide strong evidence that the Learning Together programme is a cost-effective programme (an additional £47–58 per student in the intervention group) and, despite varied fidelity, can improve multiple health outcomes by focusing on transforming the school environment rather than individual behaviour change.

Evidence for the Learning Together programme has also been evaluated as part of the EIF Guidebook.[1] Overall, the programme received a level 3 rating, meaning there is evidence of short-term positive impact on child outcomes from at least one rigorous evaluation. The Learning Together programme has also been rated with a cost rating of 1, meaning it is low-cost to set up and deliver.

1 See: **https://guidebook.eif.org.uk/programme/learning-together**

secondary school transitions, including mental health and behavioural difficulties, which can have an impact on future learning and overall wellbeing (Akos, 2002; Barber & Olsen, 2004; Blackwell et al., 2007). A moderate-quality evaluation found that a restorative practices intervention which involves training all school staff in restorative practices did not have an impact on bullying, restorative practices or school climate (Acosta et al., 2019).

Two high-quality evaluations evaluated positive youth development interventions and both reported positive results. A karate-based intervention improved resilience and self-efficacy (Greco et al., 2019), and the classroom-based Cooperative Learning Approach improved psychosocial wellbeing and reduced emotional problems (Van Ryzin & Roseth, 2018).

We identified one weak narrative synthesis which examined the impact of two cyber-bullying prevention interventions (Reed et al., 2016). The authors concluded that there is limited research on effective intervention strategies to address cyberbullying to prevent depression. While some studies have explored the application of traditional antibullying programmes for cyberbullying, few specifically target cyberbullying and monitor depressive symptoms. Although the narrative synthesis had a very narrow focus as it only included primary studies where participants displayed depressive symptoms and experienced cyberbullying, our broader search confirms the dearth of research in relation to cyberbullying. While we did not identify any interventions specifically designed to address cyberbullying in schools, a number of evaluations examined the impact of other traditional bullying prevention interventions on cyberbullying victimisation and perpetration. Two of five moderate or strong studies (Bonell et al., 2018; DeGue et al., 2020; Vivolo-Kantor et al., 2019) as well as two weak studies (Benítez-Sillero et al., 2020; Carrascosa et al., 2019) reported reductions in cyberbullying. Three studies found no impact on cyberbullying (Acosta et al., 2019; Calvete, Fernández-Gonzalez, et al., 2019; Calvete, Orue, et al., 2019; Ingram et al., 2019). This inconclusive evidence is a concern given the negative impact of cyberbullying on adolescents including a decrease in academic achievement, increasing isolation, feelings of alienation and increased risk of suicidal ideation and attempts (Hinduja & Patchin, 2007; Marczak & Coyne, 2010; Ybarra et al., 2007). Cyberbullying is on the rise, and we know that adolescents engage regularly in online activities regardless of the risk of cyberbullying. Rigorously designed studies examining the effectiveness of interventions that address cyberbullying in combination with traditional bullying are urgently required.

Sexual violence prevention

In recent months, there has been a significant amount of reporting on the level of sexual harassment and violence in secondary schools in the UK with young people describing a 'rape culture' in schools including groping, coercion, slut shaming and rape. Sexual violence, which includes verbal aggression, relational aggression (controlling behaviours, jealousy), physical aggression/violence, sexual harassment, sexual aggression or coercion has a significant impact on young people across mental health, behaviour and educational outcomes (De La Rue et al., 2017). There are two major approaches to preventing sexual harassment and violence including youth-focused relationship education, and sexual violence prevention interventions. These approaches are designed to address factors such as tolerance of sexual violence, healthy relationships, sexism, fostering gender-equitable norms, non-violent conflict resolution and help-seeking behaviour.

We identified two meta-analyses (De La Rue et al., 2017; McElwain et al., 2017) of interventions designed to support healthy relationships and prevent or reduce sexual violence (referred to in the reviews as relationship violence). Results from these studies indicate that interventions have a small but positive effect in improving knowledge of what constitutes relationship violence (E.S.=.22) and a very small effect on attitudes about relationship-violence (E.S.=.14) (De La Rue et al., 2017). At follow-up, these effects were maintained.

There is emerging evidence of beneficial post-intervention effects on improving behaviour. At post-intervention, studies reported a very small effect on conflict tactics (E.S.=.18), a small effect on sexual violence victimisation (E.S.=.21), but no significant effect on sexual violence perpetration (De La Rue et al., 2017). There is limited evidence, however, that results are maintained in the long term; the effect on perpetration across studies became significant, but the effects on victimisation and conflict tactics became non-significant). There is limited evidence in relation to long-term effects (De La Rue et al., 2017).

A moderate narrative synthesis found that interventions tended to be more effective when school-based interventions were delivered across multiple settings and focused on key people in adolescents' environment (De Koker et al., 2014).

We identified four universal interventions from our search of primary studies which were designed to promote healthy relationships and address unhealthy relationship behaviour. These interventions used social and emotional skills-building curricula in combination with other strategies such as supplementary web-based activities. There is evidence from a limited number of studies that these universal interventions can have a significant impact on improving knowledge (Carrascosa et al., 2019; Sánchez-Jiménez et al., 2018). There is also preliminary evidence of impact on aggressive behaviour and sexism (Carrascosa et al., 2019) and relationship violence at six months follow-up (Muñoz-Fernández et al., 2019). It is, however, important to note that the quality of the studies in general was moderate to weak, highlighting the need for more robust research to determine the impact, what works and under what circumstances programmes can have an impact on behaviour.

The findings from the systematic reviews and primary studies suggest that raising awareness of sexual violence and supporting students' healthy relationship attitudes are not sufficient to lead to changes in actual behaviour. More targeted support may be required. This could include skill-building components aimed at modifying behaviour, providing young people with the opportunity to practise these skills, and embedding this approach within a whole-school approach to developing healthy relationships. Effective programmes which result in behaviour change are essential to addressing the concerns of many adolescents in schools in the UK. These interventions are also important in terms of helping to prevent the possible long-term trajectory of escalating violence in intimate relationships (Cornelius & Resseguie, 2007).

Targeted selective interventions

Similar to mental health and wellbeing interventions, there is limited information from systematic reviews on the impact of targeted selective behavioural interventions implemented with young people identified as at risk on the basis of broad demographic risk. Several reviews have commented on the small number of tested interventions for vulnerable groups such as young people from lower socioeconomic backgrounds (Cox et al., 2016; De Koker et al., 2014; Leen et al., 2013; Lundgren & Amin, 2015).

Aggression/violence prevention

In our review of primary studies, we identified one targeted selective intervention, Growing Against Gangs and Violence, aimed at reducing violent behaviour and gang involvement in high-risk schools which were situated in areas of high knife crime and violent behaviour in the UK. This study, which was of weak quality, provided no evidence to suggest positive short- or long-term intervention effects on gang membership, delinquency, violent offending, attitudes to gangs, refusal skills, conflict-resolution skills, resistance to peer pressure or school commitment (Densley et al., 2017). The results from this study underline the importance of further exploring what works for vulnerable young adolescents at risk of involvement in antisocial and violent behaviour. As part of this work, it is essential to understand if these types of interventions are utilising the correct mechanisms to influence offending behaviour,

are focusing on the most at-risk young people, and are using the most robust research methods to understand programme delivery and outcomes.

Sexual violence prevention

Several systematic reviews report on the positive effect of targeted selective interventions on sexual violence victimisation and perpetration (De Koker et al., 2014; Leen et al., 2013; Lundgren & Amin, 2015).

We identified three interventions which were implemented with selected student groups (Peskin et al., 2019; Sargent, 2017; Vivolo-Kantor et al., 2019). The results from two studies which were of high quality, point to the potential of comprehensive skills-based targeted interventions in reducing unhealthy relationship behaviours. The Me & You intervention provides evidence of reducing sexual violence perpetration and victimisation among young minority ethnic adolescents in the US (Peskin et al., 2019). Me & You was evaluated involving a sample where 21.0% identified as African American and 81.1% identified as Hispanic; 7.9% identified with other ethnic groups.

Dating Matters is an example of another targeted selective intervention with evidence of reducing multiple forms of violence, including sexual violence perpetration, sexual harassment victimisation, bullying and cyberbullying. This intervention was evaluated in high-risk urban communities in the US with above average crime rates and economic disadvantage (DeGue et al., 2020; Niolon et al., 2019; Vivolo-Kantor et al., 2019). A common characteristic across these effective interventions is their multi-component approach to preventing negative relationship behaviours with both interventions providing classroom curricula in combination with whole-school strategies (such as comprehensive teacher training) involving the wider community (for instance parent training and local health department activities to track teen relationship violence).

›› *See intervention spotlight: Me & You*

Reducing conduct problems

We identified two papers that reported on four targeted selective programmes aimed at reducing conduct problems in schools and related disciplinary procedures and exclusions (Goyer et al., 2019; Obsuth et al., 2017).

In the US, there are promising findings regarding the potential of interventions designed to facilitate a sense of belonging, inclusion and growth among Black and Latino boys at risk of negative cycles of interaction with teachers and discipline citations. Described as Identity-Safety interventions, a 'social belonging' and a 'growth mindset' intervention were evaluated as stand-alone programmes, and in combination both with each other and a third 'value affirmation' intervention (Goyer et al., 2019). Results from two RCTs revealed significant reductions in disciplinary citations across all three interventions among Black and Hispanic boys and reduced odds that a first citation in 7th grade led to another citation in 7th grade or any citation in 8th grade. Black boys who received the 'social belonging' intervention received 65% fewer discipline citations over the course of middle and high school. The results from these studies highlight the potential of targeted interventions to interrupt negative cycles of interaction between students and teachers as a means to improving disciplinary outcomes.

In the UK, the London Education and Inclusion Project (LEIP) was implemented with schools with a high eligibility rate for free school meals (>/= 28%). The intervention utilises external providers to deliver communication and social skills training. Adverse short-term effects were found in the intervention group, where students were more likely to self-report being temporarily excluded from school than those in control schools (Obsuth et al., 2017). No effects on antisocial behaviour, bullying, delinquency, arrests, disciplinary measures,

» Intervention spotlight

Me & You

Peskin et al., 2019

What is the programme?

The Me & You programme is a multi-level technology-enhanced sexual violence prevention intervention. The programme adopts a whole-school approach[1] to promoting healthy relationships and address unhealthy relationship behaviour (emotional, physical, sexual, cyber). In the context of the current study, the programme was delivered to a population consisting of predominantly minority ethnic youth. Me & You is adapted from 'Its Your Game…Keep It Real' (IYG), a 7th and 8th grade sexual health and healthy relationships intervention which has been shown to reduce dating violence perpetration and victimisation among minority ethnic youths. The programme was adapted to be more developmentally appropriate for 6th graders (11–12 years), to directly address determinants of physical dating violence perpetration, as well as including dating violence prevention activities for parents and school personnel.

Me & You is grounded in social-cognitive theories, socioemotional learning and uses the sociological model. The programme aims to enhance skills for decision-making in relationships, understanding the consequences of one's actions and problem-solving skills. Students are instructed to select personal rules to have healthy friendships and dating relationships, to detect signs and situations that could challenge rules, and to protect their rules. Additional topics cover modelling and skills practice for managing emotions and constructive communication skills, dating violence and consequences, unfavourable norms towards violence, active consent, power differentials, gender role stereotypes, general online safety, cyber dating violence, and sexting, and resources to leave unhealthy relationships. The programme is comprised of role plays, group discussion and other skill-building activities, and the computer activities include animations, peer video role-modelling of skilled behaviours, interactive quizzes and virtual role-play skills practices.

The programme also includes a parent component: take-home activities, including interactive discussions to promote parent–child communication about dating expectations, characteristics of healthy friendships and dating relationships, communication skills and strategies for getting out of unhealthy relationships; and a newsletter – which includes tips, interactive games and an 'ask the expert' Q&A. Teachers are also instructed on how to recognise dating violence, respond to students involved in dating violence, and refer students to appropriate resources.

How is it delivered?

The student component of the programme comprises 12 lessons (five classroom only, five computer only and three classroom–computer blended) that each last 25 minutes and are delivered by trained facilitators (teachers and external facilitators). The parent component comprises three parent–child take-home activities and two parent newsletters. The whole-school component comprises a two-day teacher training and one school newsletter (delivered during lesson one). As part of the development of the programme, selected activities from the programme (such as managing emotions, consent, dating violence definitions, power differentials, cyber abuse) were pilot tested with an adolescent advisory board comprising 15 ethnically diverse (African American, Asian and Hispanic) students (11 boys, four girls) to ensure language and scenarios were realistic and relevant to urban minority ethnic youths.

Programme outcomes: Improvements in dating violence perpetration

A cluster randomised controlled trial (RCT) of the Me & You programme was carried out in the US with a sample of 921 students from 10 schools that included predominantly minority ethnic youth. Results from this study found the odds of dating violence (DV) perpetration were lower among intervention students, compared to control students. This positive improvement was evident across specific dating violence types, including physical DV perpetration, psychological DV perpetration, threatening DV perpetration and victimisation, and sexual DV victimisation.

Shows promise: Whole-school, multi-component approach for minority ethnic adolescents

The Me & You programme shows promise for reducing dating violence perpetration and some forms of dating violence victimisation (sexual victimisation) among young minority ethnic adolescents. Importantly, this programme adopts a technology-enhanced, multi-component approach, including classroom curricular with whole-school and parent strategies, to effectively reduce dating violence perpetration and some forms of victimisation in minority ethnic middle-school students.

1 The programme appears under our targeted selective section as it was implemented and evaluated with schools that included predominantly minority ethnic youth who have been shown to be at increased risk of sexual violence.

interpersonal communication, prosocial skills or academic aptitude were observed. The findings from this high-quality study suggest that short-term approaches targeting a limited set of skills which are not well integrated into school provision may not be sufficient in addressing the needs of high-risk students at risk of exclusion. As evidenced by international research, a multi-tiered approach which addresses the specific needs of at-risk students within an inclusive whole-school approach, building on principles of inclusion and healthy emotional and behavioural development, is more likely to be effective (Bradshaw, 2013).

The results from the UK study highlight the seriousness of this issue being faced by many schools in the UK with rates of temporary exclusion ranging between 30–50% across both treatment and control schools in the year prior to the study (Obsuth et al., 2017). There is an urgent need to invest in further research examining how best to address the needs of students at risk of exclusion as a result of behavioural problems.

›› *See intervention spotlight: School-Based Mental Health Programme*

Targeted indicated interventions

There is limited evidence from systematic reviews on the effectiveness of targeted indicated interventions, as only a small number of studies were identified (Cox et al., 2016). One meta-analysis reported that the level of risk at the baseline was a significant moderator of programme outcomes, which suggests that programmes are more effective when targeted at adolescents with a higher risk of being aggressive (Castillo-Eito et al., 2020). The authors identified a range of behaviour change techniques being used by effective targeted interventions (such as problem-solving, behavioural practice, instruction on how to perform the behaviour, and information about social and environmental consequences); however, no single technique was identified as significantly more effective than the other. This may suggest that what makes targeted interventions effective is the combination of techniques and not the individual component. This is in line with what Wilson and Lipsey (2005) found in their examination of effective components of targeted interventions.

In our search of primary studies, we identified three evaluations of targeted indicated interventions; however, the majority of studies were of weak quality and had small sample sizes, so it is difficult to draw conclusions about intervention efficacy and the generalisability of findings beyond the trials. There is emerging evidence from strong and moderate evaluations of whole-school approaches which include a targeted indicated component aimed at addressing the needs of those identified most at risk of engaging in violence, or aggressive or bullying behaviour (Morgan-Lopez et al., 2020; Smokowski et al., 2018). These interventions have been shown to have a positive impact on multiple outcomes at the individual (Smokowski et al., 2018) and school level (Morgan-Lopez et al., 2020) which demonstrates that targeted interventions might be best offered as part of a wider approach.

For whom?

At-risk students

Programme effects for violence prevention interventions have been shown to be greater among students who are considered at high risk of violent behaviour (Castillo-Eito et al., 2020). The results from our primary studies are in line with this conclusion. Intervention effects, where analysed and reported in this manner, were larger in young people at risk of poor outcomes, who were most violent at baseline (see for example Bonell et al., 2018; Reidy et al., 2017) or who were lest engaged in school activities (Van Ryzin & Roseth, 2018). Consistent reporting of differential impact based on level of risk across evaluation studies would help us to understand which interventions work best for those most at risk.

»» Intervention spotlight

School-Based Mental Health Programme

Morgan-Lopez et al., 2020

What is the programme?

The School-Based Mental Health (SBMH) programme is designed to supplement existing school-based mental health services already available to students through the provision of private and community-based mental health services within schools. Services are targeted towards addressing mental health problems, reducing disruption in schools, enhancing school climate and safety, and reducing suspensions. The purpose of this current study was to examine the impact of externally delivered targeted mental health support on violent behaviour. The study tested the efficacy of three versions of school-based mental health programming (standard, expanded and enhanced):

- the standard SBMH programme goes beyond traditional school mental health services to include community mental health providers placed within schools
- the expanded SBMH programme expands student access to SBMH for students whose families were unable to afford services, and provides a student service facilitator, offering administrative support, and an increased school psychologist allotment
- the enhanced SBMH model involves the delivery of two evidence-based therapies to address student's mental health problems: dialectical behaviour therapy (DBT) and structured psychotherapy for adolescents responding to chronic stress (SPARCS) – SPARCS is a present-focused, manually guided group treatment specifically designed to improve the emotional, social, academic and behavioural functioning of adolescents exposed to chronic interpersonal or other types of trauma.

How is it delivered?

The programme was delivered in the United States. SBMH providers shared across multiple schools included school counsellors, social workers, therapists and psychologists. The standard SBMH model comprised group and individual counselling sessions for students with emotional and behavioural problems. The dialectical behaviour treatment (DBT) was delivered by private mental health providers, their supervisors and school psychologists in the form of individual therapy, group skills training and weekly DBT peer consultation meetings. SPARCS is a manually guided group treatment delivered by school counsellors and social workers.

Programme outcomes: Improvements in bullying victimisation

A quasi-experimental trial compared each version of the programme to non-SBMH schools and a randomised controlled trial compared the three programme versions with each other (sample N=4,025 students from 36 schools in the US). Results from the quasi-experimental trial showed that the expanded SBMH programme, compared to non-SBMH schools, demonstrated a significant decrease in bullying victimisation over time. Similarly, the RCT showed that the expanded SBMH programme demonstrated a significant decrease in bullying victimisation over time, compared to the SBMH standard programme. There was also evidence suggesting the expanded SBMH model, compared to the standard SBMH programme and compared to non-SBMH schools, may have had positive impact on decreasing aggressive behaviour, although these findings were just above threshold significance.

Shows promise: Whole-school approach with targeted support

This study makes an important contribution in terms of understanding the impact of mental health interventions on behavioural outcomes. The results from this study provide evidence that the expansion of mental health services to youths who are at risk of violence perpetration, but would otherwise be ineligible for – or unable to afford – services, has a significant positive impact on the larger school environment in terms of reductions in aggression and bullying victimisation.

Ethnicity

Regarding sexual violence prevention interventions, one of the primary studies we identified examined programme impact across ethnic groups with improvements in bystander behaviour detected primarily in Hispanic youth, a group known to be at greater risk for experiencing relationship violence than non-Hispanic youth (Sargent, 2017). Another study reported positive immediate and long-term findings for a universally designed intervention (Me & You) that was implemented with minority ethnic adolescents (Peskin et al., 2019). Where interventions are universal, evaluators should report impact on different ethnic groups to better understand what works for whom, and whether additional targeted selective support may be required for at risk groups of young people.

Sex and age differences

The results from our primary studies highlight that for several interventions there are some age and sex differences; however, no group consistently experienced larger benefits than another. This is in line with findings from one meta-analysis which examined age and gender as programme moderators (Castillo-Eito et al., 2020).

All evaluations that assessed sex differences found some differential impact, however, the direction varied. For example, Bonell and colleagues (2018) found that the Learning Together whole-school intervention had a greater impact on boys for bullying perpetration and quality of life when compared to girls. Conversely, one low-quality evaluation of a therapeutic drumming intervention (Suh, 2019) suggested that the intervention was only effective at reducing aggression in female students, but not in male students. Vivolo-Kantor and colleagues (2019) reported the Dating Matters intervention reduced bullying among girls and aggression among boys.

The vast majority of studies we identified in our primary search were implemented with students aged 12–15 (83%). There were considerably fewer studies involving older adolescents aged 16 or over. Only two studies examined impact according to age/grade. One study found the intervention had stronger effects on 8th graders than on 9th or 10th graders (Calvete, Fernández-Gonzalez, et al., 2019). While there is insufficient evidence to draw any robust conclusion about age as a moderator of impact, the findings suggest that students of different ages will respond differently to the same interventions. When schools are considering the adoption of evidence-based interventions, it is important to consider whether the evidence relates to a sample that is sufficiently similar to the target population in terms of age and other characteristics. Additional research is needed to better understand what works to prevent or reduce behavioural difficulties among older adolescents (age 16+).

Under what circumstances?

Whole-school interventions

There is evidence across our primary studies that whole-school interventions which provide multi-level (universal and targeted) support and reinforce skill development beyond the curriculum are more likely to result in enduring outcomes than short-term curriculum-based interventions (Bonell et al., 2018; Morgan-Lopez et al., 2020; Smokowski et al., 2018). These findings are in line with several systematic reviews which have examined the impact of behaviour interventions across primary and secondary school (see for example Cantone et al., 2015; Ttofi et al., 2011).

One of the meta-analyses we reviewed reported that whole-school and classroom-based bullying prevention interventions were equally effective. The authors note, however, that these findings differ from results of previous reviews and acknowledged that the restriction of studies to randomised controlled trials (RCTs) could have meant that effective whole-school approaches evaluated using other research designs were excluded from their analysis.

Furthermore, all of the whole-school bullying-prevention interventions which we identified through our search of primary studies were evaluated using (cluster) RCTs and had positive results (Bonell et al., 2018; Cross et al., 2018; Morgan-Lopez et al., 2020; Smokowski et al., 2018); however, none of these were included in the meta-analysis conducted by Ng and colleagues (2020). This evidence review found consistent evidence from a limited number of studies that whole-school approaches improve bullying behaviour, and promising evidence they can also reduce aggressive behaviour.

Target level

Similar to results from poor mental health prevention interventions, targeted aggression prevention interventions had larger effects on aggression and violence outcomes (d=0.39) than universal interventions (d=0.16)(Castillo-Eito et al., 2020). This might, in part be due to antisocial behaviour being relatively rare in the general adolescent population and, as a result, there is less scope for change when interventions are delivered to all pupils. Further research is necessary to understand whether and to what extent those at risk of poor outcomes benefit from universal prevention interventions.

Mode of delivery

There is limited data on the effectiveness of different modes of delivery (group vs one-to-one) in relation to targeted violence prevention interventions. When examined, delivery format did not predict intervention effectiveness, although the majority of interventions were delivered in group format, and group-based interventions tended to have larger effects (Castillo-Eito et al., 2020).

Programme facilitator

Similar to targeted mental health interventions for at-risk young people, there is evidence that targeted violence prevention interventions are more effective when delivered by an external professional such as a psychologist or social worker (Castillo-Eito et al., 2020).

For traditional bullying prevention interventions, the type of programme facilitator (class teacher or external professional) did not influence programme outcomes (Ng et al., 2020). For cyberbullying prevention programmes, however, interventions delivered by technology experts were shown to be more effective than those delivered by teachers. Ng and colleagues (2020) reported that effects on cyberbullying perpetration and victimisation were non-significant across teacher-implemented programmes. The authors explain that given the unfamiliarity and broad nature of cyberbullying, teachers may not be as well equipped as technology-savvy experts to facilitate interventions, even after receiving a short training session. Further research is required to verify this finding as there were a limited number of studies. The fact that teachers have been shown to be equally as effective as external professionals in delivering bullying prevention programmes suggests that school staff, when appropriately trained, can respond effectively to bullying in schools as well as prevent bullying behaviour.

Training, support and quality

There is limited information on the type of training and support that is associated with effective behaviour interventions. One meta-analysis reported on this (Castillo-Eito et al., 2020). In addition to reporting that external professionals were more effective in delivering violence prevention interventions, the authors also found that interventions were more effective when facilitators did not receive training. These two findings are likely to be related in that external professionals are unlikely to need additional specific training to deliver violence prevention interventions. Further research is necessary to understand the training and support necessary to enable teachers to deliver universal interventions with high quality.

Conclusions and recommendations

In this review we examined the latest evidence on the effectiveness of school-based interventions designed to:

- enhance young people's mental health and wellbeing
- reduce/prevent mental health difficulties including anxiety and depression, self-harm and suicide
- reduce/prevent behavioural difficulties including aggression, bullying and conduct problems.

Drawing together the evidence from 34 systematic reviews published since 2010 and 97 primary studies published over the past three years, this information provides a comprehensive and up to date summary of what works, for whom and under what circumstances.

Strengths and limitations of our evidence review

A strength of this evidence review is that it provides a robust overview of the current evidence on the effectiveness of school-based interventions designed to address young people's mental health and behavioural needs. We adopted a comprehensive search strategy which included a systematic search of academic databases and thorough manual searching to identify relevant systematic reviews published in the past 10 years and a 'top-up search' of primary studies published during the past three years. Despite these strengths, there are some limitations that should be noted. First, a meta-analysis of primary studies identified in this review was not conducted. Second, the possibility of publication bias needs to be considered as there may be studies which did not find positive results and consequently were not published. Third, our review of primary studies covered the past three years (2017–20). This means that key intervention studies that were published prior to 2017 were not included; however, it is likely that their data has been included in the systematic reviews we analysed and reported on. Fourth, we excluded systematic reviews that examined the impact of interventions delivered in primary or secondary schools. Although it is possible that we have omitted some key findings emerging from these reviews, given that these reviews collated the results across primary and secondary school, it was deemed necessary to exclude them. Finally, we did not extract intervention-specific data from the systematic review studies; instead we reported the overarching results from these reviews. Acknowledging these limitations, this evidence review is one of the first to provide a synthesis of the nature and quality of the current evidence from systematic reviews and primary studies examining the effectiveness of school-based interventions designed to address young people's mental health and behaviour needs. This review presents a number of key findings that have implications for future policy, practice and research in this area.

Key findings

- **Universal social and emotional learning (SEL) interventions have good evidence of enhancing young people's social and emotional skills and reducing symptoms of depression and anxiety in the short term.** Other approaches to enhancing young people's mental health and wellbeing have produced inconsistent (mindfulness interventions) or limited evidence of impact (positive youth development interventions). Mental health literacy interventions have been shown to have an impact on young people's mental health knowledge; however, there is limited evidence of impact on improving help-seeking behaviour. Only limited research has been carried out to date on the long-term impact of any of these interventions.
- **Universal anxiety and depression prevention interventions** have been shown to improve symptoms of depression and anxiety in young people in the short term. There is good evidence that **targeted indicated cognitive behavioural therapy (CBT)** interventions are effective in reducing symptoms of depression in both the short and medium term among pupils with minimal but detectable signs of depressive symptoms.
- **There is limited evidence on the effectiveness of school-based interventions designed to prevent suicide and self-harm.**
- **Violence prevention interventions have been shown to have a small but positive effect on aggressive behaviour in the short term.** Programme effects are greater among students considered at high risk of violent behaviour.
- **Bullying prevention interventions are effective in reducing the frequency of traditional and cyberbullying victimisation and perpetration,** with long-term effects on perpetration.
- There is promising evidence on the effectiveness of **sexual violence prevention interventions when targeted at people at risk** of experiencing sexual harassment and violence. The evidence shows that these programmes can reduce sexual violence perpetration and victimisation.
- Across mental health and behavioural interventions, there is evidence that **programme effects are stronger among at-risk students** compared to the general student population. It is likely that interventions aimed at preventing mental and behavioural problems are less effective among the general population because there is less scope for change. This would suggest that prevention interventions might be best directed towards at-risk populations.
- Classroom teachers were shown to be effective programme facilitators in the delivery of universal health and behavioural interventions. However, **young people in need of additional support are only shown to benefit from targeted interventions when delivered by mental health professionals such as psychologists.** The current evidence, however, does not support the delivery of targeted indicated mental health interventions by class teachers.
- Where monitored, research has shown that positive effects are observed when programmes are implemented with high quality (measured in terms of dosage, adherence, quality of delivery and participant responsiveness). This is in contrast to inconsistent/poor implementation which has been shown to result in diminished or null effects. These findings highlight the **importance of high-quality programme implementation in achieving programme outcomes**.

Implications for policymakers

- Schools play a critical role in supporting young people's wellbeing and preventing mental health and behavioural difficulties. **The development of young people's social, emotional and behavioural competencies is foundational to the success of our young people.** These competencies are associated with wage growth, job productivity and long-term employment. They can also reduce mental health problems, violence, drug use and delinquent behaviour. Schools need to be supported in giving equal priority to mental health and academic achievement. The current system weighs heavily on the side of academic performance which makes it difficult for schools to find the time to meet the mental health and behavioural needs of pupils.
- The evidence review shows that when delivered to a high standard, **school-based mental health and behavioural interventions can help us address some of the biggest challenges that young people, families, schools and society as a whole are currently facing.** We have identified several interventions with good evidence of improving young people's wellbeing, reducing symptoms of depression and anxiety symptoms, or reducing aggressive behaviour, bullying perpetration and victimisation. It is vital that evidence-based programmes are prioritised over the vast array of programmes and resources that are available to schools, many of which lack evidence of effectiveness.
- **Programmes are more likely to be effective and result in enduring positive change when they are implemented as part of a multi-tiered whole-school approach to improving young people's mental health and behaviour.** A mental health or behavioural intervention should not be a one-off event, brought in on borrowed school time. Substantial investment is required in the adoption of a whole-school approach which consists of three core pillars:
  - **Classroom teaching and learning** – the provision of evidence-based universal interventions in combination with targeted interventions for students most at risk of mental health and behavioural interventions – effective interventions are characterised by well-scaffolded instruction which actively engages young people in the development of a specific set of skills
  - **School ethos and environment** – embedding work carried out at the classroom level within a supportive school environment and system which fosters positive relationships, a sense of belonging and purpose
  - **Extending learning to home environment** – connecting with community mental health services to protect and support the most vulnerable young people.
- Accomplishing effective implementation of mental health and behavioural interventions in real-world practice requires substantial investment in high-quality teacher training and support. **There is a need for whole-school teacher training to enable all school staff to understand and model these skills and behaviours through their everyday interaction with young people.** Teachers frequently report limited confidence in being able to respond to young people's mental health and behavioural needs. The provision of high-quality pre-service teacher training and continuing professional development is necessary to equip teachers with the knowledge and skills to enable them to develop learning experiences that support young people's social, emotional, behavioural and academic competencies.
- **Schools need to be supported in the identification of vulnerable pupils at risk of developing mental health and behavioural problems to ensure that they can receive timely early intervention support.** As part of this it is essential that the necessary interventions and support are available for young people in need. Our evidence review has shown that for young people with symptoms of depression or anxiety, CBT interventions delivered by external professionals provide the strongest evidence of impact. Schools should be provided with the necessary external support to intervene early with those most

in need. If appropriately resourced and trained, the rollout of the mental health support teams could provide a real opportunity to address this issue.

- International research has confirmed that one of the most important factors affecting programme outcomes is ‘quality of implementation’ with effect sizes being two to three times higher when interventions are delivered with fidelity and high quality. **Implementing evidence-based interventions and support within complex systems like schools requires a supportive implementation system in ensuring successful outcomes.** Schools need to be provided with explicit support in building readiness and commitment for change among all school staff, understanding the needs of the pupil population, developing an action plan, providing high-quality professional development and ensuring ongoing support is available to address barriers to implementation and sustainability.

Recommendations for future research

Our review has identified significant gaps in the evidence base which must be addressed if we are to offer high-quality mental health and behavioural support in secondary schools which has the potential to impact not only short- but long-term mental health, and educational and social outcomes. Key research priorities are presented below.

- Despite the fact that we identified 97 primary studies published in the past three years and nine of these were carried out in the UK, only one UK study was designed to strengthen young people’s mental health and wellbeing. **We need to invest in the evaluation of mental health and behavioural interventions in the UK, in particular interventions designed to enhance young people’s mental health and wellbeing.** As part of this we need to avoid common pitfalls when evaluating interventions to ensure confidence in programme outcomes.
- **Future research needs to examine the long-term impact of school-based mental health and behavioural interventions.** This review repeatedly points to the limited number of studies that examined whether benefits are maintained at follow-up. Of the studies that report long-term follow-up, the evidence is mixed with some studies reporting that effects were maintained, others found that effects had disappeared, and a small number of studies reported that effects had become significant only at follow-up. Future research needs to investigate the additional supports required to maintain positive impact at long-term follow-up.
- Despite consistent evidence on the effectiveness of mental health and behavioural interventions delivered to minority ethnic young people and young people from lower socioeconomic backgrounds, relatively few of these interventions were specifically developed for these at-risk groups. **Future research needs to invest in developing and evaluating interventions which have been specifically designed to meet the needs of minority ethnic young people and young people from a lower socioeconomic background.** As part of this, we need to investigate the degree to which cultural adaptations or the designing of intervention materials that are representative of diverse student populations result in a larger impact on young people’s outcomes.
- **Additional research is necessary to understand the effectiveness of mental health and behavioural interventions among other vulnerable groups of young people including, for example, young people at risk of school dropout, LGBTQIA young people, young people with special educational needs and disability (SEND), young people with chronic illnesses, and young people with autism spectrum disorder.** Research should examine whether interventions that currently exist are equally, less or more effective for vulnerable groups. In addition, research should also examine whether interventions can be effective when delivered at the universal level in order to prevent marginalising vulnerable groups.

- **We identified a very limited number of interventions addressing cyberbullying, conduct problems and self-harm.** Future research should invest in developing and evaluating the efficacy of interventions designed to address these important issues which can have a significant impact on young people's long-term mental health and wellbeing.
- Despite the evidence regarding the coexistence of mental health and behavioural problems during adolescence and their combined impact on adult functioning (including mental health, suicidality, low education level, financial difficulties and delinquency), we identified a very limited number of interventions designed to address young people's mental health and behavioural needs. **Future research should examine the efficacy of an integrated prevention model which combines evidence-based mental health and behavioural approaches.**

Implementation research: priority areas

- Evaluation studies continue to provide limited, if any, data on implementation. Without data on what was implemented (dosage, adherence) and the quality of delivery, **we are unable to determine what led to a programme's success or failure.** In addition, we risk misinterpreting null effects in cases where the intervention was poorly implemented. It is crucial that we address this gap in future research trials.
- As part of evaluation research, there is a need to **identify barriers to delivering universal and targeted mental health support within schools** (such as resourcing; programme model and its fit within school context; implementer readiness in terms of skills, knowledge and beliefs; pupil acceptability; stigma associated with receiving targeted interventions; and so on). Reporting on implementation barriers as part of efficacy trials will advance our understanding of the conditions necessary to support programme outcomes, which will have implications for future programme development and teacher training.
- **Further clarity on what works for whom is necessary**. While our review provides evidence on the effectiveness of various approaches designed to address young people's mental health and behavioural needs, there is limited evidence on whom these approaches are effective/ineffective with. Future research should address which young people (gender, age, risk factors) are more likely to benefit from particular types of interventions (universal, targeted).
- **Research on the sustainability of effective interventions is urgently needed** to progress the field of research beyond our understanding of what works to understanding the supports required to sustain evidence-based interventions over time. Future research should examine barriers and facilitating factors affecting the sustainability of interventions after external funds and other resources end.

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EARLY
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Adolescent mental health

A systematic review on the effectiveness of school-based interventions

Appendices to the report

July 2021

Dr Aleisha Clarke, Miriam Sorgenfrei, Dr James Mulcahy, Dr Pippa Davie, Claire Friedrich, Tom McBride

About this document

This document provides appendices to the EIF report ***Adolescent mental health: A systematic review on the effectiveness of school-based interventions***, published in July 2021.

These appendices should not be read without referring to the main report for background and a summary of findings.

About EIF

The Early Intervention Foundation (EIF) is an independent charity established in 2013 to champion and support the use of effective early intervention to improve the lives of children and young people at risk of experiencing poor outcomes.

Effective early intervention works to prevent problems occurring, or to tackle them head-on when they do, before problems get worse. It also helps to foster a whole set of personal strengths and skills that prepare a child for adult life.

EIF is a research charity, focused on promoting and enabling an evidence-based approach to early intervention. Our work focuses on the developmental issues that can arise during a child's life, from birth to the age of 18, including their physical, cognitive, behavioural and social and emotional development. As a result, our work covers a wide range of policy and service areas, including health, education, families and policing.

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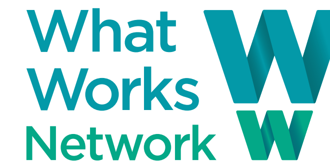

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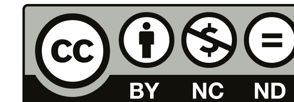

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Appendix A.1: Promotion

Notes

- See page 120 for a detailed glossary and list of abbreviations used in these tables, and page 121 for full references for listed reviews and studies.
- Where these tables mention significant effects, this refers to the intervention group experiencing a significantly larger effect than the control group in the desirable direction.
- Significant effects can be improvements in positive outcomes (such as wellbeing or resilience) or reductions in symptoms (such as depression or anxiety). Where the intervention group experienced significantly worse outcomes than the control group, these are listed as 'adverse' effects.
- Effects (for meta-analyses: pooled effects) were deemed significant where p was less or equal than 0.05 – regardless of the significance level applied by individual studies.

Table of systematic reviews

Systematic reviews of mental health promotion and wellbeing interventions

Reference	Analysis	Quality assessment rating	Inclusion criteria 1 Population/age range 2 Interventions 3 Study design 4 Outcomes assessed	Exclusion criteria	Time frame	Number of studies included in review	Results
Baños et al., 2017 Online positive interventions to promote wellbeing and resilience in the adolescent population: a narrative review	Narrative synthesis	Moderate	1 Adolescents 2 Universal online positive psychology interventions 3 RCTs 4 Wellbeing, resilience	• Review articles • Non-English papers	Up to April 2016	9	No pooled effect size provided: • Overall limited evidence • What evidence there is shows that digital positive psychology interventions had limited effects, in particular for at-risk groups.
Chiș & Rusu, 2019 School-based interventions for developing emotional abilities in adolescents: a systematic review	Narrative synthesis	Weak	1 11–19 years 2 School-based emotional intelligence interventions 3 RCTs, QEDs 4 Emotional abilities	• Non-English papers • Non-mainstream schools	2000–2018	13	No pooled effect size provided: • Emotional abilities training is related to positive educational, behavioural and developmental outcomes.

Systematic reviews of mental health promotion and wellbeing interventions (cont.)							
Reference	**Analysis**	**Quality assessment rating**	**Inclusion criteria** 1 Population/age range 2 Interventions 3 Study design 4 Outcomes assessed	**Exclusion criteria**	**Time frame**	**Number of studies included in review**	**Results**
Cilar et al., 2020 Effectiveness of school-based mental wellbeing interventions among adolescents: a systematic review	Narrative synthesis	Moderate	1 10–19 years 2 School-based interventions for developing young people's mental health and wellbeing 3 Any research design 4 Mental wellbeing	• Non-English/ German/ Slovenian/ Croatian papers • Treatment for young people with clinical disorders	Up to March 2019	57	No pooled effect size provided: • School-based interventions can improve wellbeing although a large proportion of interventions had no effects on one, several or all outcomes.
Curran & Wexler, 2017 School-based positive youth development: a systematic review of the literature	Narrative synthesis	Weak	1 11–18 years 2 School-based positive youth development (PYD) 3 Any research design 4 Any outcome	No exclusion criteria reported	'After 2000', unclear to which date, possibly 2014/15	24	No pooled effect size provided: • Effect sizes were largest in classroom based PYD interventions and effects stronger in those adolescents at risk of antisocial behaviour.
Grant, 2012 A meta-analysis of school-based interventions for middle schoolers: academic, behavioural and social outcomes	Meta-analysis	Moderate	1 10–14-year-old US residents 2 School-based interventions targeting academic, behavioural or social outcomes 3 RCTs, QEDs 4 Academic, behavioural or social outcomes	• After school settings • Residential settings for specialised populations	Not reported	45 (narrative synthesis) 38 (meta-analysis	• Weighted mean effect size across academic, behavioural, and social outcomes: d=0.178 (I^2=81.93%). • 13 interventions were universal, 7 targeted selective, and 18 targeted indicated. • Samples: Mostly African American or Black (n=13), Caucasian (n=11) or diverse (n=18); 7 studies were conducted in schools where >76% of students were eligible for FSM; 15 studies involved at-risk students.

Systematic reviews of mental health promotion and wellbeing interventions (cont.)							
Reference	**Analysis**	**Quality assessment rating**	**Inclusion criteria** 1 Population/age range 2 Interventions 3 Study design 4 Outcomes assessed	**Exclusion criteria**	**Time frame**	**Number of studies included in review**	**Results**
Kuosmanen, Clarke & Barry, 2019 Promoting adolescents' mental health and wellbeing: evidence synthesis	Narrative synthesis	Moderate	1 10–19 years 2 Interventions that promote wellbeing, or prevent behavioural or emotional problems, or suicide and self-harm 3 RCTs, QEDs 4 Wellbeing or mental health outcomes	• Treatment interventions	2005–Sept 2017	66	No pooled effect size provided: • Evidence of effectiveness for (i) universal school-based interventions that promote the development of social and emotional skills, (ii) universal prevention programmes for problems such as bullying and anxiety, (iii) targeted interventions to prevent depression. • Limited evidence of effective suicide prevention, digital and community-based interventions.
McKeering & Hwang, 2019 A systematic review of mindfulness-based school interventions with early adolescents	Narrative synthesis	Strong	1 11–14 years 2 School-based universal mindfulness-based interventions 3 Any research design 4 Any outcome	• Non-English papers • Non-peer reviewed literature; targeted interventions	Up to October 2017	13	No pooled effect size provided: • Inconclusive evidence of effectiveness. • Detailed qualitative discussion of factors that facilitate (teachers' ability to embody mindfulness, collaboration among teachers, support from administrators and parents, relaxing physical environment, students' willingness to learn) and hinder successful implementation (time pressure, crowded curriculum content, students' disengagement).
Patafio et al., 2021 A systematic mapping review of interventions to improve adolescent mental health literacy, attitudes and behaviours	Narrative synthesis	Moderate	1 12–18 years 2 Interventions that aim to improve mental health literacy, attitudes and/or behaviours 3 RCTs, QEDs 4 Mental health literacy, attitudes towards mental illness or the seeking of mental health treatment, and/or mental health behaviours	No exclusion criteria reported	Up to February 2020	140	No pooled effect size provided: • Intervention effectiveness varied across outcomes measured, setting, and control group usage, with mental health knowledge improving most frequently; common limitations included no long-term follow-up or control group inclusion.

Systematic reviews of mental health promotion and wellbeing interventions (cont.)							
Reference	**Analysis**	**Quality assessment rating**	**Inclusion criteria** 1 Population/age range 2 Interventions 3 Study design 4 Outcomes assessed	**Exclusion criteria**	**Time frame**	**Number of studies included in review**	**Results**
Seedaket et al., 2020 Improving mental health literacy in adolescents: systematic review of supporting intervention studies	Narrative synthesis	Moderate	1 10–19 years 2 Interventions to improve mental health literacy 3 Any research design 4 Mental health literacy outcomes	No exclusion criteria reported	2009–Dec 2019	7	No pooled effect size provided: • Interventions most effective in improving young people's mental health knowledge; followed by attitudes or stigma; only one of 4 studies that measured help-seeking reported a positive outcome for this mental health literacy component.
Tejada-Gallardo et al., 2020 Effects of school-based multicomponent positive psychology interventions on well-being and distress in adolescents: a systematic review and meta-analysis	Meta-analysis	Moderate	1 10–18 years 2 Universal positive psychology interventions that target at least 2 components of wellbeing 3 RCTs, QEDs 4 Wellbeing or mental health outcomes	• Non-English/ Spanish papers • Clinical populations • Single component interventions	Up to July 2019	9	Pooled effect size (random effects): • Subjective wellbeing: g=0.25, across 6 studies, I^2=490.09; excluding weak studies: g=0.21, I^2=62.91. • Psychological wellbeing: g=0.25, across 5 studies, I^2=82.29; excluding weak studies: result was nonsignificant. • Depression symptoms: g=0.28, across 4 studies, heterogeneity nonsignificant; excluding weak studies: g=0.34, heterogeneity nonsignificant. • Anxiety symptoms: g=0.14, across 4 studies, heterogeneity nonsignificant; excluding weak studies: g=0.15, heterogeneity nonsignificant. Follow-up: • Psychological wellbeing: g=0.44, across 3 studies; excluding weak studies: result was nonsignificant. • Depression symptoms: g=0.31, across 3 studies; excluding weak studies: g=0.21. • Anxiety symptoms: g=0.15, across 3 studies, heterogeneity nonsignificant; excluding weak studies: g=0.21 across 2 studies.

Systematic reviews of mental health promotion and wellbeing interventions (cont.)							
Reference	**Analysis**	**Quality assessment rating**	**Inclusion criteria** 1 Population/age range 2 Interventions 3 Study design 4 Outcomes assessed	**Exclusion criteria**	**Time frame**	**Number of studies included in review**	**Results**
Van de Sande et al., 2019 Do universal social and emotional learning programmes for secondary school students enhance the competencies they address? A systematic review	Meta-analysis	Strong	5 11–19 years 6 Universal secondary school-based SEL interventions targeting two or more SEL outcomes 7 RCTs, QEDs 8 Studies report on a minimum of two of the following outcomes: self-awareness, self-management, responsible decision-making, relationship skills, social awareness	• Non peer-reviewed literature; non- English/ Dutch/German papers; targeted interventions; primary/ tertiary educational settings	2004–2018	40	Pooled effect size (random effects): $I^2>99.6\%$ for all outcomes: • Self-awareness (d=0.42 across 9 studies, 7,078 participants). • Social awareness (d=0.58, across 5 studies, 2,562 participants). • Self-management (d=0.39, across 17 studies, 8,823 participants). • Decision-making (d=0.34, across 6 studies, 6,316 participants). • Relationship skills (d=0.24, across 11 studies, 11,588 participants). Promotional effects on psychosocial outcomes were larger than preventative effects on: • Depression (d=0.31, across 19 studies, 19,408 participants). • Anxiety (d=0.27, across 8 studies, 5,808 participants). • Aggression (d=0.39, across 11 studies, 15,315 participants). • No mean effect size provided for follow-up; most of the significant follow-up effects in the studies reviewed were found for self-management and relationship skills.

Appendix A.2: Promotion

Table of primary studies

Universal promotion interventions using an SEL approach

Allen et al. (2020)
The Connection Project

Description				
Target level: Universal The Connection Project aims to enhance adolescent peer relationships. The sessions are organised into three phases: establishing buy-in and a safe peer context, developing/enhancing a sense of social belonging and consolidating peer relationships. Activities include values affirmation, activities designed to enhance youths' sense of social belonging, vignettes from older students, and 'strength bombardment' where students become the focal students and peers offer their assessment of the strength of the student.	**Facilitator:** Youth group leaders **Format:** Group sessions of 5–15 students	**Duration and frequency:** Twelve 45–60-minute sessions held once per week	**Booster:** No	**Quality assessment:** 2

Study Design	Results	
RCT **Country:** US **Total sample size:** 610 high school students **14.9% attrition at FU** 50.9% female **Mean age:** Not reported **Control:** Usual care (regular health class)	**Psychosocial wellbeing**	Significant increase in peer-rated approachability at four-month follow-up (p <0.010), but no significant effect post-intervention. In a time-course analysis, the intervention led to an increase in peer-rated approachability over time (B=0.09, p=0.04) (*measured with a tool created for this study, where the control group rated the approachability of intervention group members*). Significant effect on using social support as a coping strategy at four-month follow-up (p<0.050), but no significant effect post-intervention. In a time-course analysis, the intervention led to an increase in use of social coping behaviour over time (B=0.54, p=0.05) (*Social Support Scale from the Self-report Coping Scale*). Significant effect on comfort with classmates at post-intervention (p<0.010) and four-month follow-up (p<0.001). Comfort with classmates increased significantly in both the intervention and control group (post-intervention p<0.010; four-month follow-up p<0.050) at both timepoints (*purpose-designed questionnaire created for this study*).
	Psychological wellbeing	Significant effect showing improvements on depression at four-month follow-up (p<0.050), but no significant effect post-intervention. In a time-course analysis, the intervention led to a decrease in depressive symptoms over time (B=-0.59, p=0.028) (*The Child Depression Inventory*). • Significant mediation effect at four-month follow-up showing increased use of social support significantly decreased depression scores (β indirect effect =–0.01, 95%CI [–0.0003, –0.035]). • At post-intervention, significant interaction between gender and intervention was found on depressive symptoms (β=0.09, p=0.009), although follow-up analyses revealed no significant effect for males or females.
	Academic	Significant effect on academic engagement at four-month follow-up (p<0.050), but no significant effect post-intervention. In a time-course analysis, the intervention led to an increase in academic engagement over time (B=0.44, p=0.020) (*Engagement vs Disaffection Scale*). • Significant mediation effect at four-month follow-up showing increased use of social support significantly increased academic engagement (β indirect effect = 0.01, 95%CI [0.00001, 0.0254]).

Universal promotion interventions using an SEL approach (cont.)

Carissoli & Villani (2019) **EmotivaMente programme**	**Description**				
	Target level: Universal The EmotivaMente programme is a digital SEL intervention and aims to promote students' emotional intelligence. Videogames are used to help students to recognise their emotional reactions to different experiences, develop awareness about the physiological components of emotions and recognise inter-individual differences.	**Facilitator:** Not reported **Format:** Students completed group (group size not reported) and individual activities	**Duration and frequency:** Eight 90-minute laboratory sessions scheduled during the regular school day; six weekly sessions followed by two follow-up laboratories three months later	**Booster:** No	**Quality assessment:** 3

Study Design	**Results**	
QED **Country:** Italy **Total sample size:** 121 **9.9% attrition at FU** 84.3% female **Mean age:** 14.1 years **Control:** Wait-list control	**Psychosocial wellbeing**	Significant effect on emotional intelligence (*The Emotional Intelligence Scale – Italian Version*). • Significant effect on assessment and expression of emotions in relations to the self post-intervention (η^2=0.078, p<0.001). No significant effect at three-month follow-up. • No significant effect on evaluation and expression of emotions in relation to others. • No significant effect on regulation and use of emotions. Significant effect on emotional regulation (*Emotion Regulation Questionnaire – Italian Version*). • Significant effect on cognitive reappraisal (η^2=0.033, p=0.040) at three-month follow-up. No results reported for post-intervention. • No significant effect on emotional suppression (*Emotion Regulation Questionnaire – Italian version*).

Universal promotion interventions using an SEL approach (cont.)

Coelho et al. (2017a)

Positive Attitude

Description

Target level / Description	Facilitator / Format	Duration and frequency	Booster	Quality assessment
Target level: Universal The Positive Attitude programme aims to enhance students' social-emotional competencies. The programme covers modules including self-awareness and self-management, social awareness, relationship skills and conflict management, and responsible decision-making. In the majority of sessions, two of the four possible themes are developed according to an initial assessment of the class profile and after meeting with the class director.	**Facilitator:** Psychologists, in the presence of the class teacher **Format:** Usual classrooms, group-based sessions with 16–25 students	**Duration and frequency:** Thirteen weekly 45-minute sessions which take place within the same school year	**Booster:** No	**Quality assessment:** 2 *Intervention also evaluated by Coelho et al. (2017b)*

Study Design	Results	
QED **Country:** Portugal **Total sample size:** 628 students from six middle schools **2.1% attrition at FU** 50.1% female **Mean age:** 13.5 years **Control:** No intervention	**Psychosocial wellbeing**	Significant effect on the socialisation and social-emotional competencies post-intervention (*Bateria de Socialização-3 (BAS-3) – Portuguese adaption*). • Significant effect on social awareness subscale (p<0.001, d=0.40); increased scores in intervention group. Sub-analyses found girls in the intervention group had significantly greater improvements in social awareness compared to girls in the control group (p<0.001, d=0.42). No significant effect of gender noted for boys. Students with the lowest level of competence (students in the lowest quartile for social awareness) showed greatest improvements and benefited most from the intervention (p=0.006, d=0.62). • Significant effect on self-control subscale (p<0.001, d=0.030); increased scores in the intervention group. • Significant effect on social isolation subscale (p=0.036, d=0.21); decreased scores in the intervention group. Sub-analyses found girls in the intervention group had significantly greater improvements compared to girls in the control group (p=0.004, d=0.29). No significant effect of gender noted for boys. • No significant effect on leadership subscale.
	Psychological wellbeing	Significant effect on social anxiety post-intervention (p=0.007, d=0.22). Control group had significantly increased scores (*Social anxiety subscale of the Bateria de Socialização-3 (BAS-3) – Portuguese adaption*). • Sub-analyses found girls in the intervention group had significantly greater improvements compared to girls in the control group (p=0.004, d=0.29). No significant effect of gender noted for boys.

Universal promotion interventions using an SEL approach (cont.)

Coelho et al. (2017b)

Positive Attitude

Description

Description	Facilitator / Format	Duration and frequency	Booster	Quality assessment
Target level: Universal The Positive Attitude programme aims to enhance students' social-emotional competencies. The programme covers modules including self-awareness and self-management, social awareness, relationship skills and conflict management, and responsible decision-making. In the majority of sessions, two of the four possible themes are developed according to an initial assessment of the class profile and after meeting with the class director.	**Facilitator:** Psychologists, in the presence of the class teacher **Format:** Usual classrooms, group-based sessions with 16–25 students	**Duration and frequency:** Thirteen weekly 1-hour sessions which take place within the same school year	**Booster:** No	**Quality assessment:** 3 *Intervention also evaluated by Coelho et al. (2017a)*

Study Design	Results	
QED **Country:** Portugal **Total sample size:** 746 students from six middle schools **40.1% attrition at FU** 46.3% female **Mean age:** 13.4 years **Control:** No intervention	**Psychosocial wellbeing**	Significant effect on self-reported socialisation and social-emotional competencies post-intervention (*Bateria de Socialização-3 (BAS-3) – Portuguese adaption*). • Significant effect on social-awareness subscale over time (β=−0.19, p=0.039) resulting in significant improvements at post-intervention and seven-month follow-up. A significant interaction effect (β=-0.26, p=0.029) indicated rural students gained more from the intervention than urban students across the whole measurement period. • Significant effect on self-control subscale over time (β=−0.30, p=0.016) resulting in significant improvements at post-intervention and seven-month follow-up. Significant effect on teacher-reported social-emotional competencies post-intervention (*Social and Emotional Competencies Evaluation Questionnaire – Teacher's version (QACSE-P)*). • Significant effect on social-awareness subscale over time (β=−1.96, p<0.001) resulting in significant improvements at post-intervention and seven-month follow-up. Significant interaction effect showed smaller improvements for 9th graders compared to 7th graders (β=2.48, p<0.001) and 8th graders (β=1.66, p=0.001). A significant interaction effect indicated students from rural schools showed a more pronounced decrease than students from urban schools (β=−2.21, p<0.001). • Significant effect on self-control subscale over time (β=-1.20, p<0.001) resulting in significant improvements at post-intervention and seven-month follow-up.
	Subjective wellbeing	Significant effect on self-esteem over time (β=-1.10, p=<0.001) resulting in significant improvements at post-intervention and seven-month follow-up (*Global Self-Esteem subscale of the Self-Description Questionnaire II – Portuguese version*).

Universal promotion interventions using an SEL approach (cont.)							
Flynn et al. (2018) **Dialectical Behaviour Therapy Skills Training for Emotional Problem Solving for Adolescents (DBT STEPS-A)**	**Description**						
	Target level: Universal The DBT STEPS-A is a social-emotional learning programme based on dialectical behaviour therapy (DBT). The programme aims to teach students skills which will aid them with their decision-making and coping strategies, especially when experiencing emotionally stressful times. Each lesson starts with a mindfulness exercise. During the lesson, students are taught new skills and explore in what contexts to use these new skills.			**Facilitator:** Classroom teachers **Format:** Usual classrooms	**Duration and frequency:** 22 weekly classes during the normal school timetable	**Booster:** No	**Quality assessment:** 3
	Study Design	**Results**					
	QED **Country:** Ireland **Total sample size:** 72 students from two Irish post-primary schools in Ireland **Attrition not reported** 100% female **Mean age:** 15.3 years **Control:** No intervention	**Psychosocial wellbeing**	No significant effect on DBT skills (*DBT Ways of Coping Checklist (DBT-WCCL)*). No significant effect on dysfunctional coping (*DBT Ways of Coping Checklist (DBT-WCCL)*).				
		Psychological wellbeing	Significant effect on emotional symptoms post-intervention (Cohen's $F^2=0.65$, $p=0.013$). Intervention group experienced significant reduction in symptoms (*Second Edition of Behaviour Assessment System for Children (BASC-2)*). Significant effect on internalising problems post-intervention (Cohen's $F^2=0.83$, $p=0.0125$). Intervention group experienced significant reduction in problems (*Second Edition of Behaviour Assessment System for Children (BASC-2)*).				

Universal promotion interventions using an SEL approach (cont.)					
Kelley et al. (2021) **Innate Health Education and Resilience Training (iHEART)**	**Description**				
	Target level: Universal iHEART is a structured programme that aims to improve wellbeing and resilience. It is based on the 'three principles' approach to mental health programmes, focusing on how mind, thought and consciousness are related and allow mental health to flourish. The programme is delivered across ten sessions. The first six sessions are based on the topic of 'how the mind works' and teaches pupils about their own psychological systems and how these affect thought processes and feelings. The next four sessions are focused on applying this learning to real-life situations including exam stress, anxiety, managing social media, and bullying. The programme is delivered in groups using a combination of modalities including aminations, video clips, exercises, games, and practical group-based activities. Students also have access to programme materials via an online learning portal.	**Facilitator:** Two trained programme providers **Format:** Classroom-based delivered as part of core learning on health, relationships and sex education	**Duration and frequency:** Ten 50-minute sessions delivered once per week over 10 weeks	**Booster:** No	**Quality assessment:** 3

Study Design	Results	
QED **Country:** England **Total sample size:** 205 students from six secondary schools in London **Attrition not reported** 5.9% female **Age range:** 11–15 years **Control:** Wait-list control	**Subjective wellbeing**	Significant effect on wellbeing ($\eta^2 = 0.04$, $p = 0.002$). Intervention group showed small increase post-intervention ($r = 0.101$, mean increase = 0.10 points). (*The Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS)*)
	Psychosocial wellbeing	Significant effect on resilience ($\eta^2 = 0.04$, $p = 0.001$). Intervention group showed small improvements post-intervention ($r = 0.14$, mean decrease = 0.19 points). (*Purpose designed questionnaire - The Inside-Out Resilience Questionnaire (I-ORQ)*)

Universal promotion interventions using an SEL approach (cont.)

Study	Description				
Knight et al. (2019) **Strategies & Tools to Embrace Prevention with Upstream Programs (SEL@MS, formerly known as STEP UP)**	**Target level:** Universal SEL@MS aims to increase students' social-emotional competencies. Each lesson addresses a specific SEL concept, such as self-regulation, understanding boundaries, or recognising manipulative behaviours. Interactive activities, practice skills and strategies included in the programme incorporate a variety of cognitive behavioural techniques, expressive art, and metacognition and mindfulness techniques that are geared towards improving emotional regulation, social competence, self-awareness and motivation through a generalised learning experience. All instructional blocks incorporate student journalling, and lesson activities can include individual reflection, group discussions, role playing and self-assessments. Lessons also include take-home memos for parents that outline SEL instructions on how to foster these skills at home.	**Facilitator:** Teachers or school counsellors **Format:** Delivered during an advisory class – a period set aside for teachers to work with smaller groups of students in a mentorship capacity; letters to parents	**Duration and frequency:** 25-minute lessons that can be delivered once or twice per week. In year one, 8 weeks of the programme were completed and in year two, 12 weeks were completed	**Booster:** No	**Quality assessment:** 2

Study Design	Results	
QED **Country:** US **Total sample size:** 59 students from one urban private school **8.5% attrition at FU** 48% female **Mean age:** 12.7 years **Control:** No intervention	**Psychosocial wellbeing**	Significant effect on teacher-rated social and emotional assets and resilience (total score) post-intervention ($p<0.001$, $\eta2=0.245$) (*Social Emotional Assets and Resilience Scales – Teacher Rated (SEARS-T)*). • Significant effect on teacher-rated self-regulation ($p<0.001$, $\eta2=0.247$). • Significant effect on teacher-rated social-competence ($p=0.019$, $\eta2=0.112$). • Significant effect on teacher-rated empathy ($p=0.002$, $\eta2=0.193$). • Significant effect on teacher-rated responsibility ($p<0.001$, $\eta2=0.308$). No significant effect on student-rated social and emotional assets and resilience (total score) post-intervention (*Social Emotional Assets and Resilience Scales – Student (Adolescent) Rated (SEARS-A)*).

Universal promotion interventions using an SEL approach (cont.)						
Muratori et al. (2020) **Coping Power Universal (CPU)**	**Description**					
	Target level: Universal The CPU programme aims to enhance students' social and emotional competencies. The programme involves the use of a story as a guide throughout the programme's modules. It uses didactic and experience-based activities, and the establishment of a behavioural contract agreed with pupils. Programme modules include: the achievement of short- and long-term goals, the implementation of feelings awareness, emotional regulation, perspective-taking abilities, problem-solving skills and the promotion of interaction with positive schoolmates.		**Facilitator:** Teachers; CPU trainers provided supervision during programme implementation **Format:** Usual classroom of 25–30 students	**Duration and frequency:** 24 sessions delivered between September and May; sessions take place during school day	**Booster:** No	**Quality assessment:** 1
	Study Design	**Results**				
	RCT **Country:** Italy **Total sample size:** 839 7th and 8th graders from 40 school classrooms in an urban context **4.1% attrition at FU** 51% female **Mean age:** 13.2 years **Control:** No intervention	**Behaviour**	Significant effect for teacher-rated emotional and behavioural difficulties post-intervention. Significant improvements on internalising scores (ES=0.17, p=0.004) and prosocial behaviour (ES=0.36, p=0.003) (*Strengths and Difficulties Questionnaire (SDQ) – Italian version*). Significant effect for parent-rated emotional and behaviour difficulties post-intervention. Significant improvements in internalising scores (ES=0.23, p=0.007), externalising scores (ES=0.14, p=0.043) and prosocial behaviour (ES=0.28, p=0.001) (*Strengths and Difficulties Questionnaire (SDQ) – Italian version*).				

Universal promotion interventions using an SEL approach (cont.)					
Pannebakker et al. (2019) **The Dutch Skills for Life Programme (S4L)**	**Description**				
	Target level: Universal Skills for Life aims to promote students' social emotional development and prevent mental health problems. The programme is delivered over two years with generic skills being taught first (raising students' awareness of their thoughts, feelings and behaviours, interpersonal problem solving, emotional regulation skills and critical thinking). Following the teaching of these skills, problem-specific skills are taught such as giving and seeking help, dealing with bullying, and setting and respecting boundaries. Skills are applied to six themes: substance abuse, gambling, conflicts, gossip, bullying and sexuality. The second-year lessons addressed three themes: 'dealing with emotional problems and suicidal tendencies', 'dealing with aggression' and 'presenting yourself'.	**Facilitator:** Teachers **Format:** Usual classroom	**Duration and frequency:** The programme is delivered over two consecutive school years: 17 weekly one-hour lessons in year one and 9 weekly lessons in year two	**Booster:** Teachers received booster training	**Quality assessment:** 2

Study Design	Results	
Cluster RCT **Country:** Netherlands **Total sample size:** 1,505 students from 26 schools **66% attrition at FU** 47% female **Mean age:** 14.2 years **Control:** Wait-list control	**Psychosocial wellbeing**	No significant effect on social interaction (*The frequency questions of the Scale for Interpersonal Behaviour for Adolescents (SIG-A)*). Significant effect on self-efficacy at 20-month follow-up (Hedges' g=0.18, p=0.030), but no significant effect post-intervention (*10-items Generalized Self-Efficacy Scale (GSES)*). • Self-efficacy significantly increased over time for students in the lower educational group (vocational training), but not for students in the higher educational group (university preparatory level) (Hedges' g=0.20, p=0.050).
	Subjective wellbeing	No significant effect on self-esteem (*Rosenberg Self-Esteem Scale (RSE) – Dutch version*).
	Psychological wellbeing	Significant effect on depressive symptoms at 20-month follow-up (Hedges' g=-0.26, p=0.02), but no significant effect post-intervention (*Beck Depression Inventory (BDI)*). • Depressive symptoms significant decreased over time for students in the lower educational group (vocational training) but not for students in the higher educational group (university preparatory level) (Hedges' g=-0.41, p=0.001) .
	Behaviour	No significant effect on self-reported problematic behaviour (*Strengths and Difficulties Questionnaire (SDQ) – Dutch version*). Significant effect on teacher-rated problematic behaviour at 20-month follow-up (Hedges' g=-0.35, p=0.001), but no significant effect post-intervention (Strengths and Difficulties Questionnaire (SDQ) – Dutch version). • Teacher-ratings of problematic behaviour significantly decreased over time for students in the lower educational group (vocational training) but not for students in the higher educational group (university preparatory level) (Hedges' g=-0.41, p=0.001).

Universal promotion interventions using an SEL approach (cont.)

Schoeps et al. (2018) PREDEMA

Description

Description	Facilitator / Format	Duration and frequency	Booster	Quality assessment
Target level: Universal The PREDEMA programme aims to improve students' social-emotional wellbeing and to prevent bullying behaviour. The programme starts by focusing on basic emotional abilities, including perceiving, labelling, expressing, using and understanding emotions. Next, it targets emotion regulation and management in different contexts and situations. Complementary issues are also discussed, such as personal and global values, responsibility and tolerance, as well as preventing interpersonal conflicts.	**Facilitator:** Psychologists **Format:** Delivered to six classes of 25–30 students; each week students were given home practice activities	**Duration and frequency:** Eleven 50-minute sessions during school hours, delivered over a period of three months	**Booster:** No	**Quality assessment:** 3

Study Design	Results	
QED **Country:** Spain **Total sample size:** 148 students from four high schools in Valencia **43% attrition at FU** 57% female **Mean age:** 12.6 years **Control:** Other intervention proposed by the school (e.g. school counselling or peer mediation programmes)	**Psychosocial wellbeing**	Significant effect on emotional competence at six-month follow-up, but not at post-intervention. Intervention group scored significantly higher on perceived emotions (d=0.49, p<0.001) and on managed emotions (d=0.61, p<0.001). No significant effect on expressed emotions (*Emotional Skills and Competencies Questionnaire (ESCQ) – Adapted into Spanish*).
	Subjective wellbeing	Significant effect on life satisfaction at six-month follow-up (d=0.22, p=0.020), but not at post-intervention (*Satisfaction With Life Scale (SWLS)*).
	Bullying perpetration	Significant effect on cyber-bullying aggression post-intervention (d=-0.60, p<0.001) maintained to six-month follow-up (d=0.38, p=0.010) (*Cyberbullying Aggression Scale (CYB-AG)*).
	Bullying victimisation	Significant effect on cyber-bullying victimisation at post-intervention (d=-0.52, p<0.001), but not at six-month follow-up (*Cyberbullying Victimisation Scale (CYB-VIC)*).

Universal promotion interventions using an SEL approach (cont.)					
Sinyor et al. (2020) **Harry Potter-based CBT Curriculum**	**Description**				
	Target level: Universal The programme aims to enhance students' resilience and prevent symptoms of depression and anxiety. Students read the Harry Potter novels and learn CBT skills along with the main characters. It involves nine modules that follow the Harry Potter books' narratives: 1) Psychoeducation A (risk factors for emotional distress); 2) Psychoeducation B (understanding depression and its treatment); 3) Introduction to Cognitive Distortions; 4) Introduction to CBT treatment; 5) Key CBT skills (fear hierarchies, behavioural activation, managing cognitive distortions, identifying core beliefs); 6) Psychoeducation (handling setbacks); 7) Putting learned CBT skills into practice; 8) Advanced Management of Cognitive Distortions/ Core Belief Work; and 9) Relapse Prevention/Consolidation of Learning.	**Facilitator:** English teachers **Format:** Five classes taught by four teachers (one semester) and 13 classes taught by 11 teachers (one semester, one year later)	**Duration and frequency:** Most teachers completed the curriculum in 8-12 weeks.	**Booster:** No	**Quality assessment:** 3

Study Design	Results	
QED **Country:** Canada **Total sample size:** 594 students from middle schools in one small, rural, publicly funded school board area in Eastern Ontario **0% attrition at FU** 51.9% female **Mean age:** 12.6 years **Control:** No intervention	**Psychosocial wellbeing**	No significant effect on wellbeing (*Well-Being and Resiliency Survey (WBRS)*). No significant effect on resilience (*Well-Being and Resiliency Survey (WBRS)*).

Universal promotion interventions using an SEL approach (cont.)

Veltro et al. (2020)

Psycho-educational intervention for promoting psychological well-being and emotional intelligence at school

Description				
Target level: Universal The programme aims to promote students' psychological wellbeing and emotional intelligence. Lessons address skills such as defining personal goals, using structured problem solving, adopting effective communication skills, using negotiation for improving interpersonal relationships, coping with stress and anger, resolving conflict, and recognising and modifying negative dysfunctional beliefs that precede, accompany and follow unpleasant emotions. The programme comprises a 'peer-to-peer student approach', supervised by trained facilitators.	**Facilitator:** Trained programme facilitators (psychologists and pedagogists) **Format:** Usual classrooms and homework, assignments performed using the notebook	**Duration and frequency:** One-hour sessions per week for 20 weeks	**Booster:** No	**Quality assessment:** 3

Study Design	Results	
QED **Country:** Italy **Total sample size:** 276 students from 12 classes across 3 schools **0% attrition** 51% female **Mean age:** 12.7 years **Control:** Not reported	**Psychosocial wellbeing**	Significant effect within but not between groups on emotional intelligence post-intervention (p<0.010). Significant improvements in both the intervention (p=0.001) and the control (p=0.001) groups (*Index of Emotional Intelligence (IEI)*). Significant effect within but not between groups on social and emotional skills post-intervention, including goal definition (p<0.050), expressing positive feelings (p<0.010), making requests (p<0.01), expressing unpleasant feelings (p<0.010), active listening (p<0.010) and problem solving (p<0.050). • Significant improvements were observed in the intervention group for goal definition (p=0.027), expressing positive feelings (p<0.001), making requests (p<0.001), expressing unpleasant feelings (p<0.001), active listening (p<0.001) and problem solving (p=0.035). • No significant differences in the control group, apart from problem solving where a significant worsening of scores was observed (p= 0.004) (*Learning Abilities Questionnaire*).
	Mental health literacy	Significant effect within but not between groups on irrational/dysfunctional beliefs (Inventory Ideas) post-intervention (p <0.050). Pre- to post-intervention improvements were seen in both the intervention (p<0.010) and the control (p<0.010) groups (*Inventory Idea Questionnaire*).

Universal promotion interventions using a positive psychology approach

Freire et al. (2018) **Challenge: To Be+ program**					
Description					
Target level: Universal The Challenge: To BE+ programme adopts a positive psychology approach to supporting positive youth development. The programme focuses on three main topics: positive emotions, character strengths and optimal experiences. Each session includes several structured activities (oral or written), involving individual reflections and/or interactive group work/discussions.		**Facilitator:** Psychologist (Masters' students) **Format:** Group-based with 13 students per group	**Duration and frequency:** Eight-week sessions of 90 minutes each (one session per week)	**Booster:** No	**Quality assessment:** 2

Study Design	Results	
QED **Country:** Portugal **Total sample size:** 104 students from one school **4.8% attrition at FU** 56% female **Mean age:** 14.3 years **Control:** No intervention	**Subjective Wellbeing**	No significant effect on self-concept post-intervention (*Piers-Harris children's self-concept scale – Portuguese version*). • Gender was a significant predictor of self-concept (β=-3.142, p<0.050) with girls, more than boys, having increased levels post-intervention. Significant effect on self-esteem post-intervention (F=4.364, p<0.050) (*Rosenberg Self-esteem Scale – Portuguese version*). • Gender was a significant predictor of self-esteem (β=-2.443, p<0.050) with girls, more than boys, having increased levels post-intervention. Significant effect on life satisfaction (F=-5.721, p<0.050) (*Life Satisfaction Scale – Portuguese version*). • Gender was a significant predictor of life satisfaction (β=-2.852, p<0.010) with girls, more than boys, having increased levels post-intervention.
	Psychological Wellbeing	No significant effect on psychological wellbeing post-intervention (*Psychological Wellbeing Scale for Adolescents*). • Gender was a significant predictor of psychological wellbeing (β=-7.265, p<0.050) with girls, more than boys, having increased levels post-intervention.

Universal promotion interventions using a positive psychology approach (cont.)

Lombas et al. (2019)

Happy Classrooms Programme (HPC) – Brief Version

Description

Description	Facilitator / Format	Duration and frequency	Booster	Quality assessment
Target level: Universal The Happy Classrooms Programme (HCP) aims to improve students' psychological wellbeing, foster positive classroom climate, and reduce school aggression. HCP relies on mindfulness and character strengths as guiding principles for intervention content. This study evaluates a brief version of the intervention, which contained 13 mindfulness activities and 25 transcendence activities (that is, character strength activities). Teachers receive training in how to deliver and facilitate the activities. This includes learning about (1) theoretical foundations of mindfulness and empirical evidence of the benefits on wellbeing, and (2) experiential practice in the activities of mindfulness and character strengths designed for the students.	**Facilitator:** Teachers **Format:** Class-based (group size not reported)	**Duration and frequency:** Programme delivered over 18 weeks; activities were practised for approximately 5 minutes at least twice per week; estimated total intervention time was 18 week × 2 sessions × 5 minutes = 180 minutes – however, there was large variability among the duration actually delivered	**Booster:** No	**Quality assessment:** 2

Study Design	Results	
QED **Country:** Spain **Total sample size:** 524 students from five public high schools 50.2% female **Mean age:** 13.6 years **Control:** No intervention	**Subjective wellbeing**	Significant effect on mindfulness (β=0.22, SE=0.09, p=0.017); however, effect only observed when pre-test mindfulness levels were medium–high, meaning improvements associated with intervention were mediated by pre-existing mindfulness skills (β= 0.40, SE = 0.16, p = 0.011) (*the Spanish version of the Mindfulness Attention Scale*). No significant effect on self-esteem over time (*the Spanish version of the Rosenberg Self-esteem Scale*). Significant effect on satisfaction with life over time (β=0.33, SE=0.19, p=0.014) (*The Spanish version of the Satisfaction with Life Scale*). Significant effect on emotional intelligence (*the Spanish version of the Trait Meta Mood Scale*): • Significant effect on the emotional repair subscale (β=0.28, SE=0.12, p=0.019). • No significant effect on emotional attention subscale. • No significant effect on emotional clarity subscale.
	Psychosocial wellbeing	Significant effect on psychological need (*the Psychological Needs Satisfaction Scale in Education*): • Significant effect on relatedness subscale (β=0.31, SE=0.12, p=0.008). • No significant effect on autonomy subscale. • No significant effect on competence subscale. No significant effect on empathy (*the Spanish version of the Index of Empathy for Children and Adolescents*). Significant effect on classroom environment (*the Spanish version of the Classroom Environment Scale*): • Significant effect on affiliation over time (β=0.28, SE=0.09, p=0.001). • No significant effect on involvement subscale.
	Psychological wellbeing	No significant effect on depressive symptoms (*the Spanish version of the reduced version of the Scale of Depressive Symptomatology*). • Significant improvements observed when pre-test mindfulness levels were medium-high meaning improvements associated with intervention were mediated by pre-existing mindfulness skills (β=-0.55, SE=0.20, p=0.007).

Universal promotion interventions using a positive psychology approach (cont.)

Truskauskaitė-Kunevičienė et al. (2020)

Try Volunteering

Description

Description	Facilitator / Format	Duration and frequency	Booster	Quality assessment
Target level: Universal The Try Volunteering programme adopts a positive youth development and positive psychology approach promoting student wellbeing. The programme seeks to develop the 'five Cs': Competence, Confidence, Connection, Character and Caring. Session topics address the five C's and include: 'I can be open to new experiences', 'I can learn about my strengths', 'I can cherish my connection with others', 'I can understand my own and other people's feelings', 'I can survive difficult situations', 'I can see life as a meaningful experience', 'I can share what I have with others', and 'I can become a volunteer'.	**Facilitator:** 26 programme leaders (University student volunteers) **Format:** Group based with 15 participants or fewer per group	**Duration and frequency:** Eight classroom sessions (45 minutes each) delivered once a week during the regular school hours over two months	**Booster:** No	**Quality assessment:** 3

Study Design	Results	
QED **Country:** Lithuania **Total sample size:** 615 students from 26 classrooms (9th and 10th grade) from two middle schools **Attrition not reported** 42.8% female **Mean age:** 15.3 years **Control:** Not described	**Psychosocial wellbeing**	No significant effect on competence in the full sample (Positive Youth Development Inventory (PYDI)). • Significant sub-group effect. In classes with the most number of students, significant increase in the intervention group (97%, $p<0.010$) and significant decrease in the control group (90%, $p<0.001$) No significant effect on connection in the full sample (Positive Youth Development Inventory (PYDI)). • Significant sub-group effect. In classes with the most number of students, significant increase in the intervention group (97%, $p<0.001$) but no significant effect in the control group. No significant effect on caring in the full sample (Positive Youth Development Inventory (PYDI)). • Significant sub-group effect. In classes with the most number of students, significant increase in the intervention group (95%, $p<0.001$) but no significant effect in the control group.
	Subjective wellbeing	No significant effect on confidence in the full sample (Positive Youth Development Inventory (PYDI)). • Significant sub-group effect. In classes with the most number of students, significant increase in the intervention group (97%, $p<0.001$) and significant decrease in the control group (84%, $p<0.050$). No significant effect on character in the full sample (Positive Youth Development Inventory (PYDI)). • Significant sub-group effect. In classes with the most number of students, no significant change in the intervention group and significant decrease in the control group (87%, $p<0.050$).

Universal promotion interventions using a mindfulness approach

Johnson et al. (2017) **.b (‘dot be’)**	**Description**				
	Target level: Universal The .b (‘Dot be’) Mindfulness in Schools curriculum is a manualised mindfulness intervention designed for 11- to 16-year-olds. Each week, students are guided through a series of short mindfulness practices. This includes breath counting (stop, feel your feet, feel your breathing, and be present); mindfulness of routine daily activities (walking; watching thought traffic); and two 9-minute guided audio files with two mindfulness exercises. This study evaluated ‘.b’ in a two-armed intervention. In the first arm, students received the intervention according to the manual (described above). In a second intervention arm, students received the same intervention, but parents were also enrolled in the intervention. Once per week, parents received an email with a link to a 10-minute online activity which included a summary of each week’s key points, a guided mindfulness exercise, and an outline of student’s home practice sessions for the week. .b is included on the EIF Guidebook.	**Facilitator:** Researcher-led (first author) **Format:** Group-based intervention (size not reported)	**Duration and frequency:** Weekly lessons (40–60 minutes) for nine weeks	**Booster:** No	**Quality assessment:** 1 *Intervention also evaluated by Johnson & Wade (2019) and Volanen et al. (2020)*

	Study Design	**Results**	
	RCT **Country:** Australia **Total sample size:** 555 students across four co-educational secondary schools (one private, three public) **27% attrition at FU** 45.4% female **Mean age:** 13.4 years **Control:** No intervention	**Psychosocial wellbeing**	No significant effect on depression at post-intervention, six- or 12-month follow-up (*the Depression subscale of the Depression, Anxiety and Stress Scale-Short form (DASS-21)*). No significant effect on anxiety at post-intervention, six- or 12-month follow-up (*the 7-item Generalized Anxiety Disorder Scale (GAD-7)*). No significant effect on wellbeing at post-intervention, six- or 12-month follow-up (*the Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS)*).

Universal promotion interventions using a mindfulness approach (cont.)

Johnson & Wade (2019)

Mindfulness Training for Teens

Description

Description	Facilitator / Format	Duration and frequency	Booster	Quality assessment
Target level: Universal The Mindfulness Training for Teens programme is a mindfulness intervention based on the Mindfulness-Based Stress Reduction (MBSR; Kabat-Zinn, 1990) and mindfulness-based cognitive therapy (MBCT; Segal et al., 2013) programmes designed for adults. The intervention aims to improve the mental health of students through reduction in depression and anxiety, and increases in wellbeing. Students are guided through mindfulness practice each week. Sessions begin with guided sitting or lying meditation for 10–20 minutes, followed by group discussions of experience guided by a facilitator. Sessions also include a presentation on the concepts of mindfulness. Class teachers deliver prompts to students once per week as a reminder to practise mindfulness at home.	**Facilitator:** A mindfulness practitioner **Format:** Group-based sessions led by a facilitator; sessions took place in a carpeted room away from normal classrooms to create a different and special atmosphere compared to normal lessons	**Duration and frequency:** Weekly 90-minute sessions for eight weeks	**Booster:** Students instructed to practise mindfulness exercises at home after the intervention; less than 8% of students reported practice at home at four-month follow-up	**Quality assessment:** 3

Study Design	Results	
QED **Country:** Australia **Total sample size:** 146 students across two secondary schools **50.4% attrition at FU** 45.9% female **Mean age:** Students in year 8 (M=13.5 years) and year 10 (M=15.5 years) **Control:** No intervention	**Psychological wellbeing**	Significant effect on depression at four-month follow-up (p<0.05, d=0.61). No significant effect at post-intervention *(the Depression subscale of the Depression, Anxiety and Stress Scale-Short form (DASS-21))*. • Sub-group analyses at four months showed the intervention may be more effective for older students: year 10 students showed greater improvements in anxiety (d=0.95) than year 8 students, who showed no significant improvements. Significant effect on anxiety at four-month follow-up (p<0.05, d=0.52). No significant effect at post-intervention (*the 7-item Generalized Anxiety Disorder Scale (GAD-7)*). • Sub-group analyses at four months showed the intervention may be more effective for older students: year 10 students showed greater improvements in anxiety (d=0.81) than year 8 students, who showed no significant improvements.
	Psychosocial wellbeing	No significant effect on wellbeing at post-intervention or four-month follow-up (*the Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS)*).

Universal promotion interventions using a mindfulness approach (cont.)

<table>
<tr><td rowspan="4">Kang et al. (2018)
Meditation & Mindfulness Intervention</td><td colspan="6">**Description**</td></tr>
<tr><td colspan="2">**Target level:** Universal
This universal meditation intervention is based on the Integrative Contemplative Pedagogy method (Roth, 2014) that integrates traditional knowledge-based learning (lecture) with first person experiential learning (meditation) to enhance students' mindfulness and improve wellbeing. The mindfulness meditation techniques used in this intervention included: (1) breath awareness/breath counting; (2) awareness of thoughts, feelings, and sensations, and (3) body sweeps.</td><td>**Facilitator:** Teachers
Format: Group-based (size not reported)</td><td>**Duration and frequency:** Meditation sessions four to five times per week at the beginning of each history lesson. Each session lasted between 3–12 minutes (5 minutes on average)</td><td>**Booster:** No</td><td>**Quality assessment:** 3</td></tr>
<tr><td>**Study Design**</td><td colspan="5">**Results**</td></tr>
<tr><td rowspan="2">**RCT**
Country: US
Total sample size: 101 students at a private middle school
1% attrition at FU
46% female
Mean age: 11.8 years
Control: Active control matched for intensity, duration, delivery and activity; for example, students received a lesson on African history delivered by the same facilitator as the intervention group, and made a life-sized model of an Egyptian sarcophagus</td><td>**Subjective wellbeing**</td><td colspan="4">Significant effect on emotional wellbeing (*a modified version of the 20-item Spielberger Anxiety Inventory-Child version*).
Significant effect on global affect disturbance subscale (p=0.05, d=0.41).
Significant effect on positive affect subscale (p=0.04, d=0.41) in the intervention group.</td></tr>
<tr><td></td><td>**Psychosocial wellbeing**</td><td colspan="4">No significant effect on self-compassion (*the 26-item Self-Compassion Scale*).</td></tr>
</table>

Universal promotion interventions using a mindfulness approach (cont.)

<table>
<tr><td rowspan="4">Lam & Seiden (2019)
Learning to BREATHE (L2B)</td><td colspan="6">**Description**</td></tr>
<tr><td colspan="2">**Target level:** Universal
Learning to Breathe (L2B) aims to promote student's wellbeing, social and emotional skills, and learning outcomes by increasing students' emotional regulation, stress management, compassion and executive function through a mindfulness approach. Students are guided through six sessions, which each cover a different topic following the acronym BREATHE: Body, Reflections (thoughts), Emotions, Attention, Tenderness/Take it like it is, and Habits for a healthy mind, with the final E representing the overall programme goal of Empowerment/gaining an inner Edge. The programme also includes homework practice sessions (for instance mindful eating/breathing; stretching). To maximise generalisation, students receive home practice handouts at the end of each session and can download audio files for guided practice.</td><td>**Facilitator:** Clinical psychologist employed at the school, and a graduate-level research assistant provided logistical support to intervention delivery
Format: Group-based in classes with 32–35 students each</td><td>**Duration and frequency:** Six 70-minute sessions, one per week</td><td>**Booster:** No</td><td>**Quality assessment:** 2
Intervention also evaluated by Felver et al. (2019) and Fung et al. (2019)</td></tr>
<tr><td>**Study Design**</td><td colspan="5">**Results**</td></tr>
<tr><td rowspan="2">**QED**
Country: Hong Kong
Total sample size: 115 students at one public high school in the lowest academic tier
0% attrition at FU
35% female
Mean age: 12.4 years
Control: No intervention</td><td>**Psychosocial wellbeing**</td><td colspan="4">No significant effect on emotional regulation (*the Chinese version of the Difficulties in Emotion Regulation Scale (DERS)*).
No significant effect on internalised and externalised emotional and behavioural problems (the Youth Self-Report (YSR)).
No significant effect on rumination (*the Chinese version of the Ruminative Responses Scale (RRS)*).
Significant effect on executive function ($p<0.001$, $\eta^2=0.11$). The intervention group showed slight improvement at post-intervention while the control group reported increased problems.</td></tr>
<tr><td></td><td>**Psychological wellbeing**</td><td colspan="4">No significant effect on perceived stress (*a single-item purpose-designed measure*).</td></tr>
</table>

Universal promotion interventions using a mindfulness approach (cont.)

<table>
<tr><td rowspan="4">Rodríguez-Ledo et al. (2018)
The Emotional Competency Development SEA Programme</td><td colspan="6">**Description**</td></tr>
<tr><td colspan="2">**Target level:** Universal
The Emotional Competency Development SEA Programme is designed to improve student’s attention, life satisfaction and emotional development through a mindfulness approach. SEA programme sessions include guided mindfulness practice sessions for 10–15 minutes using audio-recorded instructions. These practice sessions include activities such as breathing practice, association of words activities and body scanning exercises. The mindfulness techniques are designed to be useful in the participants’ real world by seeking their real practical use and attempting to transfer them to their real lives.</td><td>**Facilitator:** Teachers
Format: Group-based delivered across six classes (size not specified), held at the same time in the morning</td><td>**Duration and frequency:** One hour per week for 18 weeks across the academic year</td><td>**Booster:** No</td><td>**Quality assessment:** 3</td></tr>
<tr><td>**Study Design**</td><td colspan="5">**Results**</td></tr>
<tr><td>**QED**
Country: Spain
Total sample size: 156 students from one public high school
2.6% attrition at FU
44.9% female
Age Range: 11–14 years
Control: Unknown</td><td>**Subjective wellbeing**</td><td colspan="4">No significant effect on mindfulness total score (*The mindfulness scale for school scope*).
• Significant differences within but not between groups on kinaesthetic mindfulness subscale (F_{156}=4.326, η²=0.029, p=0.039); however, it is unknown whether increases or decreases in mindfulness were observed in the intervention and/or control group.
• Significant differences within but not between groups on internal mindfulness subscale (F_{156}=4.979, η²=0.033, p=0.027); however, it is unknown whether increases or decreases in mindfulness were observed in the intervention and/or control group.</td></tr>
</table>

Universal promotion interventions using a mindfulness approach (cont.)

Saxena et al. (2020) **Hatha Yoga**	**Description**				
	Target level: Universal Hatha Yoga is a universal intervention delivered as part of routine health science classes designed to improve student's attention and reduce stress. Hatha yoga encompasses the practices of physical postures, breathing exercises and meditation. Its goal is to develop strength and flexibility of the body, foster a calm and clear mind, and overall good health. The yoga classes are delivered in the morning during the students' health science class, a required course for all 9th graders. Each lesson consists of time for yoga practice facilitated by an instructor, followed by guided meditation practice.	**Facilitator:** Yoga instructor **Format:** Group-based with about 50 students	**Duration and frequency:** 25-minute sessions of yoga and meditation twice per week for twelve weeks; each lesson consisted of 18 minutes of yoga poses and 7 minutes of meditation	**Booster:** No	**Quality assessment:** 2

Study Design	**Results**	
QED **Country:** US **Total sample size:** 174 students in 9th grade of high school **5.4% attrition at FU** 64.4% female **Mean age:** 14.7 years **Control:** Curriculum as usual: students enrolled in usual health science class	**Academic**	Significant effect on ADHD-Inattentive behaviour over time (β=-1.09, SE=0.30, p<0.001). Pairwise t-tests showed a significant reduction in inattention within the intervention group (t=3.239, p=0.002; d=0.27) and a significant increase in inattention within the control group (t=-2.574, p=0.013). (*the Strengths and Weaknesses of ADAH Symptoms and Normal Behaviour (SWAN)*).
	Behavioural	No significant effect on ADHD-Hyperactive/Impulsive behaviour (*the Strengths and Weaknesses of ADAH Symptoms and Normal Behaviour (SWAN)*).
	Psychological wellbeing	No significant effect on perceived stress (*the Perceived Stress Scale (PSS)*).

Universal promotion interventions using a mindfulness approach (cont.)					
Takahashi et al. (2020) **Low-dose ACT**	**Description**				
	Target level: Universal A low-dose intervention which adopts mindfulness and acceptance and commitment therapy (ACT) approaches to improving students' psychological flexibility and addressing emotional and behavioural problems. The intervention is delivered across six sessions, which each focus on a core component of ACT. In the first two sessions, participants learned the meaning of 'values' how to clarify their own values, and how to choose and commit to their values. In the third through fifth sessions, the focus is on acceptance of both aversive and non-aversive emotions and cognitions. The final session is used to plan the everyday implementation of the skills participants acquire.	**Facilitator:** Clinical psychologist **Format:** Group-based (size not reported) delivered in every-day classrooms	**Duration and frequency:** Six bi-weekly sessions each lasting 50 minutes for a total of 5 hours	**Booster:** No	**Quality assessment:** 2

Study Design	Results	
QED **Country:** Japan **Total sample size:** 299 students across four junior high schools in a single district **9.7% attrition at FU** 53.3% female **Mean age:** 14.1 years **Control:** Wait-list control who received education sessions on mathematics and politics before post-intervention measurement	**Psychosocial wellbeing**	Significant effect on continuation of avoidance, a subscale of psychological flexibility, across time (β=0.86, p=0.011). (*Two subscales (Value of clarification and Commitment & Continuation of Avoidance) of the Value of Young Age Scale – VOYAGE*). • Significant effect on continuation of avoidance among students with elevated but 'sub clinical' (students scoring 13 or more on the SDQ total difficulties) levels of behavioural difficulty across time (β=2.02, p=0.008).
	Behavioural	No significant effect on emotional and behavioural difficulties (*the Strengths and Difficulties Questionnaire (SDQ)*). • No significant effect on emotional problems subscale. • No significant effect on conduct problems subscale. • No significant effect on peer relationship problems subscale. • No significant effect on prosocial behaviour subscale. • Significant effect on hyperactivity/inattention subscale over time (β=-0.69, p=0.026).

Universal promotion interventions using a mindfulness approach (cont.)						
Volanen et al. (2020) **.b Mindfulness**	**Description**					
	Target level: Universal The .b ('Dot be') Mindfulness in Schools curriculum is a manualised mindfulness intervention designed for 11- to 16-year-olds. Each week, students are guided through a series of short mindfulness practices. This includes breath counting (stop, feel your feet, feel your breathing, and be present); mindfulness of routine daily activities (walking; watching thought traffic); and two 9-minute guided audio files with two mindfulness exercises. .b is included on the EIF Guidebook.		**Facilitator:** Trained mindfulness facilitators **Format:** Group-based: 1,646 students across 94 classes in 25 schools	**Duration and frequency:** Weekly guided group mindfulness sessions in the classroom at school (45 minutes each) with individual short practice at home: (between five and six times per week, between 3 and 15 minutes per day)	**Booster:** No	**Quality assessment:** 1 *Intervention also evaluated by Johnson et al. (2017) and Johnson & Wade (2019)*
	Study Design	**Results**				
	Cluster RCT **Country:** Finland **Total sample size:** 3,519 students across 56 secondary schools **34.3% attrition at FU** 50.2% female **Age range:** 12–15 years **Active Control:** Relaxation Intervention (9-week programme: each session in two sections: 1) relaxation exercises (breathing exercises, visualisation, emotion focus, rest); 2) group discussions about different topics (stress, relaxation, upsides and downsides of smartphones, sleep, exercising, food and attitudes) **Inactive Control:** Usual school curriculum without intervention	**Psychosocial wellbeing**	Significant effect on resilience. Significant improvements observed in intervention group compared to active control group ($\beta=1.183$, SE=0.570, $p<0.050$) at post-intervention, but no significant improvements in intervention group compared to inactive control. No significant effect at six-month follow-up (*The Resilience Scale (RS14)*). • Significant effect on resilience for students in 7th grade at six-month follow-up ($\beta=2.894$, $p>0.050$), compared to students in 6th grade. Underpowered sub-group analyses suggest this was particularly true for girls ($\beta=3.127$, $p<0.050$).			
		Psychosocial wellbeing	No significant effect on social-emotional functioning at post-intervention or at six-month follow-up (*the Strengths and Difficulties Questionnaire (SDQ)*).			
		Depression	No significant effect on depressive symptoms at post-intervention or six-month follow-up (*the Beck Depression Inventory (BDI)*). • Underpowered sub-group analyses suggest significant effect on depressive symptoms in girls, not boys, at six-month follow up ($\beta=-0.493$, $p<0.050$).			

Universal promotion interventions using a positive youth development approach

Allara et al. (2019)
Diario della Salute
[My Health Diary]

Description				
Target level: Universal The My Health Diary programme aims to improve students' wellbeing. The programme is made up of five sessions (each 2–4 hours) that explore emotional wellbeing, aggressive behaviours, health behaviours, interpersonal relationships and puberty (My emotions; Beyond stereotypes; Becoming men and women; Exploring the world of adults; Let's keep fit). The sessions are multimodal and include a combination of information giving, presentations, brainstorming, role-playing, worksheets, plenary discussions, group work and team games. Each session is designed to increase students' capability to recognise and manage emotions, improving interpersonal and communication skills, developing critical thinking, improve peer pressure resistance skills, and increase self-efficacy.	**Facilitator:** Classroom teachers **Format:** Normal classrooms (not specified) with interactive group sessions, individual worksheets and one homework session	**Duration and frequency:** Five sessions lasting 2–4 hours each	**Booster:** No	**Quality assessment:** 2

Study Design	Results	
QED **Country:** Italy **Total sample size:** 3,476 students from 62 middle schools (156 classes) **16.7 % attrition at FU** 50.1% female **Mean age:** 12.1 years (SD=0.54) **Control:** No intervention	**Psychosocial wellbeing**	**Adverse effect:** Significant adverse effect on wellbeing (p<0.05) (*The WHO/Europe Health Behaviour in School-aged Children (HBSC) Symptom Checklist*).
	Psychosocial wellbeing	No significant effect on social acceptance (*three items designed by study authors*).
	Aggression	No significant effect on aggressive behaviour (*the Italian version of the Physical and Verbal Aggression Scale*).

Universal promotion interventions using a positive youth development approach (cont.)

Avitsland et al. (2020) **Physical Active Learning (PAL) and Don't worry, be happy**

Description				
Target level: Universal The PAL and 'don't worry, be happy' programmes are universal programmes that both adopt a positive youth development and physical activity approach to enhancing adolescent mental health. In the PAL intervention, students undertake weekly physically active academic lessons where the curriculum of the subject (for instance maths) is taught in a physically active manner; participate in additional physical activity sessions (30 minutes per week); and have an extra physical education lesson in addition to lessons offered in the core curriculum. The 'don't worry, be happy' programme involved one additional physical education lesson and one additional physical activity lesson.	**Facilitator:** PE teachers and student-led activities **Format:** Both programmes were delivered to usual school classes. The 'Don't worry, be happy' programme also had students work in small 'activity groups'	**Duration and frequency:** PAL: 29 weekly physically active academic lessons (30 min/week), PA not connected to a curriculum (30 min/ week), and one additional physical education (PE) lesson (45–60 min/ week). Don't worry, be happy: 29 Weeks of one additional PE lesson (45–60 min/ week) and one additional PA lesson (45–60 min/ week)	**Booster:** No	**Quality assessment:** 1

Study Design	Results	
Cluster RCT **Country:** Norway **Total sample size:** 2,084 students from 29 lower secondary schools **1.9% attrition at FU** 49% female **Age range:** 14–15 years **Control:** No intervention	**Psychosocial wellbeing**	No significant effect on peer problems in the total sample (*Strength and Difficulties Questionnaire (SDQ) – Norwegian version*). • **Adverse effect:** Sub-analyses revealed adverse effect dependent on immigrant status (Norwegian Yes/No). Significant increase in peer problems in the non-immigrant group (b=0.32, p=0.034) post-intervention. Peer problems also significantly increased among non-immigrant girls (b=0.42, p=0.010). • **Adverse effect:** Sub-analyses revealed peer-problems significantly increased among students with elevated but sub-clinical (i.e. borderline) total SDQ scores (b=0.89, p=0.029).
	Psychological wellbeing	No significant effect on psychological problems and strengths in the total sample (*Strength and Difficulties Questionnaire (SDQ) – Norwegian version*). • Sub-group analyses show students with elevated SDQ scores (i.e. 'at risk' of developing a mental disorder), significantly reduced their scores by 22% post-intervention (b=-2.9, p=0.045). No significant effect on emotional problems in the total sample (*Strength and Difficulties Questionnaire (SDQ) – Norwegian version*). • Sub-group analyses show significant decreases in emotional problems among students from immigrant backgrounds in both the PAL intervention (b=-1.1, p=0.008) and the Don't worry, be happy intervention (b=-1.0, p=0.036) but not students from non-immigrant backgrounds (i.e. Norwegian).
	Behaviour	No significant effect on conduct problems (*Strength and Difficulties Questionnaire (SDQ) – Norwegian version*). Significant effect on hyperactivity for the PAL intervention group compared to control (p=0.009).

Universal promotion interventions using a positive youth development approach (cont.)

Larsen et al. (2019) **The COMPLETE Project – single and multi-tier intervention (The Dream School Programme (DSP) and the Mental Health Support Team (MHST))**				
Description				
Target level: Universal and Targeted Indicated/Selective The DSP and MHST programmes aim to reduce mental health problems and loneliness. The DSP component adopts a whole-school approach involving all staff and students. The central activity is the dream class where students work with their teachers to discuss their ideal class environment and actions they can take to achieve this. Peer mentors, other students from upper-secondary grades (ages 16–19), aid in dream classes and are involved in creating meeting points for socialisation throughout the year. A resource group is trained with peer mentors and facilitate dream classes and follow up with peer leaders. The MHST component targets students with known mental health problems or those at risk of dropping out. It reorganises student services, for example making services accessible, enhancing the quality of school start, and mapping 1st year upper-secondary school student's health and wellbeing for follow-up where needed.	**Facilitator:** Dream class: teachers, peer leaders, resource group (representatives from school management, staff and student council) MHST: Counsellors, school nurses and follow-up services staff **Format:** DSP only versus combined DSP with MHST versus control; whole-school work, classroom sessions (DSP) and targeted work for specific students (MHST)	**Duration and frequency:** Two dream classes, one in the first week of school, one at the beginning of the second semester of the school year	**Booster:** No	**Quality assessment:** 1

Study Design	Results	
RCT **Country:** Norway **Total sample size:** 3,003 students from 17 upper secondary schools **10.6% attrition at FU** 35% female **Mean age:** 16.8 years **Control:** No intervention	**Subjective wellbeing**	No significant effect on loneliness (*the Loneliness Scale – Norwegian version*). • Increase in loneliness in control group (0.08), DSP group (0.7) and combined DSP & MHST group (0.01).
	Psychological wellbeing	No significant effect on combined symptoms of depression and anxiety (*short form of the Symptom Check List (SCL-5)*). • Increase in symptoms of anxiety and depression in the control group (0.08), DSP group (0.11) and combined DSP & MHST group (0.06). • Significant effect of gender. Girls in the combined DSP & MHST group showed significantly slowed increased mental health symptoms (-0.17, 95%CI -0.32, -0.01, p=0.003) compared to control group. • **Adverse effect:** Girls and boys both report increase in mental health symptoms at follow-up.

Universal promotion interventions using a positive youth development approach (cont.)					
Moore et al. (2018) **Martial arts intervention**	**Description**				
	Target level: Universal The martial arts intervention adopts a positive youth development and physical activity approach to promoting young people's resilience and self-efficacy. Each intervention session included psychoeducation (topics, for example, included respect, goal setting, self-concept and self-esteem), warm-up activities, stretching activities, technical martial arts practice, pattern practice (a choregraphed sequence of martial art movements), sparring and meditation.	**Facilitator:** A psychologist and a Taekwondo instructor **Format:** Delivered in a face-to-face group format	**Duration and frequency:** Ten 50-minute sessions, once per week for 10 weeks	**Booster:** No	**Quality assessment:** 2

Study Design	**Results**	
RCT **Country:** Australia **Total sample size:** 283 students from five secondary government catholic schools in New South Wales **14.8% attrition at FU** 50.5% female **Mean age:** 12.8 years **Control:** Wait-list control	**Psychosocial wellbeing**	Significant effect on resilience total score (ηp^2=0.12, p<0.001) (*the Child and Youth Resilience Measure (CYRM-28)*). • Significant effect on individual capacities and resources subscale (ηp^2=0.07, p<0.001). • Significant effect on relationship with primary caregiver subscale (ηp^2=0.09, p <0.001). • Significant effect on contextual factors subscale (ηp^2=0.09, p <0.001). Significant effect on self-efficacy total score (ηp^2=0.08, p<0.001) (*Self-efficacy Questionnaire for Children (SEQ-C)*). • Significant effect on social self-efficacy subscale (ηp^2=0.04, p<0.010). NB: Intervention group had significantly increased social self-efficacy scores pre-intervention (ηp^2= 0.03, p <0.050). • Significant effect on emotional self-efficacy subscale (ηp^2= 0.06, p<0.001).
	Behaviour	No significant effect on psychological problem behaviour (*Strength and Difficulties Questionnaire (SDQ)*).

Universal promotion interventions using mental health literacy approach

Ahmad et al. (2020)

Let's Erase the Stigma (LETS)

Description

Target level: Universal Let's Erase the Stigma (LETS) is a student-initiated programme designed to improve mental health literacy and reduce mental health stigma. It uses a psychoeducational and positive youth development approach. The programme involves the establishment of student-led school clubs, overseen by a member of staff, which allow students to design and engage in group-based activities and social action with the aim of enhancing humanisation and reducing the stigma of mental health. Student-led school clubs include activities such as: fundraising for mental health causes, educational videos and activities, social media activities/campaigns, and volunteer/community outreach activities, creating flyers during mental health awareness week/month, presenting information at school-wide assemblies, formulating recruitment activities to increase club membership, organising therapy animals to visit the school, and facilitating activities within the larger community (for instance participating in suicide awareness walks).	**Facilitator:** Student-led, but overseen by a sponsor (member of school staff) **Format:** Group-based school clubs; between 4–49 students in each club (mean students per club = 17.4)	**Duration and frequency:** Most clubs met either weekly or biweekly; three clubs met monthly, and one met every two months	**Booster:** No	**Quality assessment:** 2

Study Design	Results	
RCT **Country:** US **Total sample size:** 731 students across 42 high schools **30.6% attrition at FU** 75% female **Mean age:** Not Reported **Control:** Wait-list control	**Mental health literacy**	Significant effect within groups on mental health knowledge. Significant improvements were observed in both the intervention (F (2,59.6)=3.4, p=0.039) and control group (F (2, 70.5)=23.8, p<0.001) over time (*the Knowledge Scale*). No significant effect on attitudes towards mental health over time (*the Attitudes Scale*).
	Mental health stigma	No significant effect on stigma and prejudice towards people with mental health conditions over time (*the Social Distance Scale*). No significant effect on the number of positive actions performed in past three months (*the Positive Actions Scale*).

Universal promotion interventions using mental health literacy approach (cont.)					
Andrés-Rodríguez et al. (2017) **'What's Up!'**	**Description**				
	Target level: Universal 'What's up!' aims to enhance students' mental health literacy skills and reduce mental health stigma using a programme of educational and group-based social activities incorporated into the typical school curriculum. The units in the programme are delivered in the context of different school subjects: Language, Foreign Language, Sciences, Mathematics, Physical Education, and Culture and Ethical Values.	**Facilitator:** Teachers **Format:** Class-based: maximum 25 students per class; some exercises completed in individual and small groups	**Duration and frequency:** Nine modules completed one per week for nine weeks	**Booster:** No	**Quality assessment:** 1

Study Design	Results	
RCT **Country:** Spain **Total sample size:** 446 students across nine high schools **13.7% attrition at FU** 52% female **Mean Age:** 14.0 years **Control:** No intervention	**Mental health stigma**	Significant effect on stereotypic attribution at post-intervention (p<0.010) and at nine-month follow-up (p<0.010), with a small effect (*Catalan version of the Stereotype Scale*). Significant effect on behavioural intentions of social acceptance at post-intervention (p=0.030) and at nine-month follow-up (p=0.010), with a small effect (*the Catalan version of the Social Acceptance Scale*). Significant effect on Stigma Related Behaviour at post-intervention (p=0.010) and at nine-month follow-up (p=0.020), with a small effect (*the Catalan version of the Reported and Intended Behaviour Scale (RIBS)*).

Universal promotion interventions using mental health literacy approach (cont.)						
Campos et al. (2019) **Finding Space**	**Description**					
	Target level: Universal Finding Space aims to enhance students' mental health literacy skills. Session one explores students' knowledge and beliefs about physical and mental health; the signs and impact of mental health problems; risk factors for mental health; symptoms, and signs of five mental disorders; and stigmatisation and inclusivity of mental health disorders. Session two aims to increase students' awareness of mental health problems and their impact; identify help-seeking options, including self-help strategies; and promote the use of mental health 'first aid' skills.		**Facilitator:** One psychologist (assisted by student psychologist) **Format:** Normal classes (20–25 students) lead by a single facilitator	**Duration and frequency:** Two sessions delivered at one-week intervals each lasting 90 minutes	**Booster:** No	**Quality assessment:** 1
	Study Design	**Results**				
	RCT **Country:** Portugal **Total sample size:** 543 students in 22 classes from eight schools **28.7 % attrition at FU** 48% female **Mean age:** 13 years **Control:** No intervention (option for intervention waiting list)	**Mental health literacy**	Significant effect on mental health literacy at six-month follow-up (β=7.707; p<0.001). Students who did not know someone with a mental health problem had smaller improvements than students who knew someone with a mental health condition. Overall, authors suggest older students, female students and students from state-funded schools may benefit more from the intervention (*the Mental Health Literacy Questionnaire*). • Significant effect on knowledge/stereotypes subscale at six-month follow-up (β=5.69, p<0.001). • Significant effect on first aid skills and help seeking subscale at six-month follow-up (β=0.74, p=0.017). • Significant effect on self-help strategies subscale at six-month follow-up (β=1.24, p<0.001).				

Universal promotion interventions using mental health literacy approach (cont.)

DeLuca et al. (2020) **Ending the Silence (ETS)**					
Description					
Target level: Universal Ending the Silence (ETS) is a public health education programme. It consists of a single session that aims to increase students' mental health literacy and awareness of mental health stigma. The session presents information on mental health and mental health stigma, and includes a personal story from someone with lived experience.	**Facilitator:** Trained programme providers **Format:** Classroom based (group size not reported)	**Duration and frequency:** Single session presentation lasting 35–40 minutes	**Booster:** No	**Quality assessment:** 2 *Intervention also evaluated by Wahl et al. (2019)*	

Study Design	Results	
RCT **Country:** US **Total sample size:** 206 students in one public high school **17% attrition at FU** 56.2% female **Mean age:** 15.4 years **Control:** Active control of a presentation about careers in psychology, matched in duration and setting	**Mental health stigma**	Significant effect on negative stereotypes toward persons with mental health problems at post-intervention (p<0.0005), four-week follow-up (p=0.024), but not at eight-week follow-up (*the Attitudes about Mental Illness and Its Treatment Scale (AMIS)*). No significant effect on mental health stigma at post-intervention, four-week or eight-week follow-up (*the 4-item Categorical Thinking subscale of the Attitudes Toward Serious Mental Illness Adolescent Version*). No significant effect on intended social distancing behaviours at post-intervention, four-week or eight-week follow-up (*the Reported and Intended Behaviour Scale (RIBS)*). Significant effect on stigma-related mental health knowledge at post-intervention (p=0.026), four-week follow-up (p=0.010) and at eight-week follow-up (p=0.034), with small-medium effect size (d=0.24) (*The Mental Health Knowledge Schedule*). No significant effect on emotional responses towards a hypothetical student with mental illness at post-intervention, four-week or eight-week follow-up (*the revised Attribution Questionnaire (r-AQ)*). No significant effect on peer support intentions at post-intervention, four-week or eight-week follow-up (*the Peer Support scale*). Significant effect on perceived stigma students anticipate from those they interact with at post-intervention (p=0.032), but not at four-week or eight-week follow-up (*the Perceptions of Stigmatization by Others for Seeking Help scale (PSOSH)*). No significant effect on feelings of inadequacy and inferiority for seeking mental health treatment at post-intervention, four-week or eight-week follow-up (*the Self-Stigma of Seeking Help scale (SSOSH)*). Significant effect on disclosure worries about confidentiality in regard to mental health services at eight-week follow-up (p=0.003), but not at post-intervention or four-week follow-up (*the Disclosure Expectations Scale (DES)*).
	Help-seeking	No significant effect on mental health help-seeking intentions at post-intervention, four-week or eight-week follow-up (*the Intentions to Seek Counselling Inventory (ISCI)*).

Universal promotion interventions using mental health literacy approach (cont.)						
Hart et al. (2018) and Hart et al. (2019) **Teen Mental Health First Aid (Teen MHFA)**	**Description**					
	Target level: Universal Teen Mental Health First Aid is a psychoeducational programme that aims to prevent poor mental health outcomes by developing students' first aid skills so they can provide first aid to peers and individuals who develop a mental health problem or experience a mental health crisis, until appropriate professional help is received, or the crisis resolves. Training is multimodal (presentations, videos, role-plays, group discussion, small group and workbook activities) and focuses on developing knowledge and skills in recognising mental health problems, talking about mental health and appropriate help-seeking. A core message of the training encourages students to seek help from a trusted and reliable adult, so the training programme was also offered to staff and parents at participating schools.		**Facilitator:** Youth Mental Health instructors **Format:** Classroom-based groups of 20-25 students	**Duration and frequency:** Three sessions, one per week each lasting 75-minutes	**Booster:** No	**Quality assessment:** 3
	Study Design	**Results**				
	Cluster-RCT **Country:** Australia **Total sample size:** 1,942 students across four public schools **42.5% attrition at FU** 44.7% Female **Mean age:** 15.9 years **Control:** Active control: Physical First Aid course to match duration and intensity of intervention group	**Mental health literacy**	Significant effect on mental health literacy (*purposed designed surveys*). • Significant effect on intention to use mental health first aid (p<0.001). • Significant effect on confidence in being able to provide mental health first aid (p<0.001). • Significant effect on recognising suicidality at post-intervention (p=0.020), but not at 12-month follow-up. • Significant effect on providing adequate suicide first aid response (p<0.001) post-intervention and at 12-month follow-up (p<0.001). • Significant improvement on avoidance of talking about suicide at post-intervention (p<0.001) and at 12-month follow-up (p<0.001).				
		Mental health stigma	Significant effect on mental health stigma (*the Social Distance Scale and the Depression Stigma Scale modified for use with vignettes*). • Significant effect on social distance subscale (p<0.001). • Significant effect on weak-not-sick subscale (p<0.001). • Significant effect on dangerous subscale (p<0.001). • Significant effect on reporting suicidality subscale (p<0.001).				
		Psychological wellbeing	No significant effect on psychological distress at 12-month follow-up (*the Kessler 6-item Psychological Distress Scale*).				

Universal promotion interventions using mental health literacy approach (cont.)					
Howard et al. (2019) **Brief Biologically-based Psychoeducational Intervention**	**Description**				
	Target level: Universal An online psychoeducational programme which aims to change students' beliefs about the causes of depression, to reduce mental health stigma and increase intentions for mental health help-seeking. Students receive one of two interventions: a biological-based education programme advocating that depression is predominantly biologically caused, or a psychosocial-based education programme advocating for depression as having psychosocial causes. The intervention suggests that attributing depression to biological causes will reduce depression stigma by attributing mental health symptoms to something other than self, and outside the control of the individual. The online sessions describe the causes of depression (either biological or psychosocial) and provide a vignette of a person who met the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) criteria for major depression.	**Facilitator:** Students complete the intervention individually online **Format:** Individual completion online in a classroom	**Duration and frequency:** A single session intervention lasting 40 minutes	**Booster:** No	**Quality assessment:** 1

Study Design	Results	
RCT **Country:** Australia **Total sample size:** 351 students across two catholic schools **6.6 % attrition** 47% female **Median age:** 16 years **Control:** Educational session providing neutral information on the symptoms and causes of depression	**Mental health literacy**	Significant effect on attributions of depression. Compared to the control group, students in the biological intervention had significant increases in believing depression had a biological cause ($p<0.001$, $d=0.79$) and students in the psychosocial intervention group showed significant increases in attributing depression as having a psychosocial cause ($p<0.001$, $d=0.06$) (*adapted versions of the Biological Attribution Scale (BAS) and Psychological Blame Scale (PBS)*).
	Help-seeking	Significant effect on intentions for help-seeking. Compared to the control group, students in the biological intervention showed significant improvement in help-seeking intentions ($p=0.014$, $d=0.24$). No significant effect in the psychosocial intervention group (*the General Help-seeking Questionnaire*).
	Mental health stigma	No significant effect on anticipated internalised stigma about own depressive symptoms (*the 16-item Self-Stigma for Depression Scale*). No significant effect on stigma attitudes towards others with depression (*the 'Personal' subscale of the Depression Stigma Scale*).

Universal promotion interventions using mental health literacy approach (cont.)					
Link et al. (2020) **Eliminating the Stigma of Differences (ESD)**	**Description**				
	Target level: Universal Eliminating the Stigma of Differences (ESD) aims to reduce the stigma associated with mental health conditions and subsequently increase the likelihood that adolescents will seek help for mental health problems when needed. Each session involves an interactive component, group discussion and homework exercises and address specific topics of stigma and mental health, barriers to treatment seeking, and mental health conditions (definition, description, causes and treatments).	**Facilitator:** Physical education teachers **Format:** Classes (not specified)	**Duration and frequency:** Three one-hour sessions delivered within one week	**Booster:** No	**Quality assessment:** 1

Study Design	Results	
RCT **Country:** US **Total sample size:** 751 students across 19 classes in 14 schools **25.0% attrition at FU** 56% female **Mean age:** 11.5 years **Control:** Two active control conditions: 1) Printed materials, posters and written materials provided to students; 2) Contact: two people diagnosed with mental health conditions delivered 10-minute presentation about their experiences, followed by facilitated group discussion, and one inactive control (no intervention)	**Mental health literacy**	No significant effect on knowledge and attitudes towards mental health comparing the intervention to either of the two active or one inactive control group, across time (*the Knowledge and Positive Attitudes measure*). • Significant effect in the intervention group across time (d=0.35; p<0.001), compared to all control arms collapsed into one group.
	Mental health stigma	No significant effect on willingness to interact with someone identified as having a mental illness comparing the intervention to either of the two active or one inactive control group, across time (*the Children's Social Distance Scale*). • Significant effect in the intervention group across time (d=0.16; p<0.050), compared to all control arms collapsed into one group.
	Help-seeking	Significant effect on mental health treatment seeking across time. Students with high symptom levels were significantly more likely to seek help (OR=3.90, 95%CI 1.09, 13.87) than students assigned to any other control group (active or inactive) (*measured dichotomously (yes or no) by asking students whether they had taken medicine for a mental health problem or talked to a therapist or counsellor about a mental health problem*).
	Psychological wellbeing	No significant effect on mental health symptoms across time (*21 questions from the National Institute of Mental Health Diagnostic Interview Schedule for Children (DISC)*).

Universal promotion interventions using mental health literacy approach (cont.)					
Lubman et al. (2020) **MAKINGtheLINK**	**Description**				
	Target level: Universal MAKINGtheLINK aims to increase help-seeking behaviour for mental health issues by improving mental health literacy, identifying barriers to help-seeking behaviour with appropriate solutions, and improving awareness of mental health conditions. Activities focus on recognising mental health crises, identifying help available, and addressing myths about mental health and substance abuse.	**Facilitator:** Not Reported **Format:** Secondary school classrooms (not specified)	**Duration and frequency:** Five interactive sessions over two class periods	**Booster:** Yes: One booster one month post-intervention to reiterate key messages	**Quality assessment:** 1

Study Design	Results	
RCT **Country:** Australia **Total sample size:** 2,447 students across 22 Government, Catholic or Independent schools **25.2 % attrition at FU** 50.3% female **Age group:** 14–15 years **Control:** Wait-list control	**Help-seeking**	No significant effect on overall help-seeking at 12-month follow-up (*an adapted version of the Actual Help Seeking Questionnaire (AHSQ)*). • No significant effect on help-seeking for depression at 12-month follow-up. • No significant effect on help seeking for stress and anxiety at 12-month follow-up. • No significant effect on help seeking for alcohol/other drugs at 12-month follow-up. Significant effect on formal help-seeking at 12-month follow-up (OR=1.81, p=0.005) (*an adapted version of the Actual Help Seeking Questionnaire (AHSQ)*). • Significant effect on formal help-seeking for depression at 12-month follow-up (OR=2.09, p=0.01). • Significant effect on formal help-seeking for stress and anxiety at 12-month follow-up (OR=1.72, p<0.006). No significant effect on likelihood of seeking professional help at six-week, six-month or 12-month follow-up (*one purpose-designed item*). No significant effect on psychological barriers to seeking support at six-week, six-month or 12-month follow-up (*brief version of the Barriers to Adolescents Seeking Help Questionnaire*). Significant effect on confidence in ability to help a peer seek support at six weeks (OR=1.71, p<0.001) and six months (OR=1.45, p=0.006), but the effect was not sustained to 12-month follow-up (*one purpose-designed dichotomous item*).

Universal promotion interventions using mental health literacy approach (cont.)						
Swartz et al. (2017) and Townsend et al. (2019) **Adolescent Depression Awareness Program (ADAP)**	**Description**					
	Target level: Universal Adolescent Depression Awareness Program (ADAP) aims to increase student's depression literacy skills. The core modules of the intervention cover the topics of identifying symptoms of depression, understanding the process of medical decision-making; seeing parallels between depression and other medical illnesses, recognising suicide as a potential consequence of depression, understanding that depression is a treatable medical illness. ADAP focuses on increasing depression literacy as the first step in encouraging youths to seek treatment.		**Facilitator:** School personnel (usually health education teachers) **Format:** Classes (not specified)	**Duration and frequency:** Three hourly sessions designed to be taught in two or three consecutive health classes as part of the health education curriculum	**Booster:** No	**Quality assessment:** 3
	Study Design	**Results**				
	RCT **Country:** US **Total sample size:** 6,679 students across 54 schools **46.7 % attrition at FU** 51.0% female **Age Range:** 14–15 years **Control:** Wait-list control	**Mental health literacy**	Significant effect on depression literacy at six weeks post-intervention (aOR=3.10; p<0.001; 95%CI 2.0, 5.0) and at four-month follow-up (aOR=3.30; p<0.001; 95% CI 2.2, 5.0) (*the Adolescent Depression Knowledge Questionnaire*). • Girls were significantly more likely to be depression literate at six weeks post-intervention (aOR=1.50; p<0.001; 95%CI 1.30, 1.60) than boys. This effect was maintained at four-month follow-up.			
		Mental health stigma	No significant effect on mental health stigma at six weeks post-intervention or at four-month follow-up (*the Reported and Intended Behaviour Scale (RIBS) modified for use in adolescents*). • Girls were less likely to have high mental health stigma at six weeks post-intervention (aOR=0.50; p=0.001; 95%CI 0.30,0.70), which was maintained to four-month follow-up.			
		Help-seeking	No significant effect on mental health service use at six weeks post-intervention or at four-month follow-up (*the Child and Adolescent Services Assessment*).			

Universal promotion interventions using mental health literacy approach (cont.)					
Wahl et al. (2019) **National Alliance on Mental Illness - Ending the Silence (NAMI – ETS)**	**Description**				
	Target level: Universal NAMI-ETS offers a single session presentation that aims to increase student's mental health literacy. The presentation provides facts about youth mental illness, describes warning signs of mental health conditions, discusses what one should do in response to such warning signs, encourages acceptance of mental health conditions, and urges action to reduce stigma. Key messages include: 1) mental illness is a medical illness like any other physical illness, 2) there are specific observable signs of mental health conditions, and 3) if you notice these warning signs in yourself or a friend it is important to tell a trusted adult as soon as possible.	**Facilitator:** Trained programme provider **Format:** Classroom-based (not specified)	**Frequency and number of sessions:** One 50-minute presentation	**Booster:** No	**Quality assessment:** 3 *Intervention also evaluated by DeLuca et al. (2020)*

Study Design	Results	
QED **Country:** US **Total sample size:** 932 students across 10 schools **Attrition not reported** 54.5% female **Mean age:** 14.7 years **Control:** No intervention	**Mental health literacy**	• Significant effect on students' knowledge and attitudes towards mental health at post-intervention (d=1.30) and at six-week follow-up (d=0.78) (*the NAMI Questionnaire*).

Universal promotion interventions using 'Other' approaches

<table>
<tr><td rowspan="6">Stapleton et al. (2019)
Emotional Freedoms Technique (EFT)</td><td colspan="6">**Description**</td></tr>
<tr><td colspan="2">**Target level:** Universal
The emotional freedoms technique is a therapeutic technique designed to improve students' self-esteem and resilience, decrease their fear of failure and emotional difficulties. The programme consists of five sessions and covers using EFT to target limiting beliefs, academic fears and anxiety, limiting expectations and goal setting for the future.</td><td>**Facilitator:** Trained programme providers (a clinical psychologist and a psychotherapist)
Format: Not reported</td><td>**Duration and frequency:** Five weekly sessions of 75-minute duration during normal school hours</td><td>**Booster:** No</td><td>**Quality assessment:** 3</td></tr>
<tr><td>**Study Design**</td><td colspan="5">**Results**</td></tr>
<tr><td rowspan="3">**QED**
Country: Australia
Total sample size: 204 students from two high school cohorts
Attrition not reported
Mean age: 14.8 years
Control: Wait-list control</td><td>**Psychosocial wellbeing**</td><td colspan="4">No significant effect on resilience post-intervention. No comparison against effect in control group (*the Conners-Davidson Resilience Scale (CD-RISC)*).</td></tr>
<tr><td>**Subjective wellbeing**</td><td colspan="4">No significant effect on self-esteem post-intervention. No comparison against effect in control group (*the Rosenberg Self-Esteem Scale (RSES)*).</td></tr>
<tr><td>**Psychological wellbeing**</td><td colspan="4">No significant effect on emotional difficulties (*the Strengths and Difficulties Questionnaire for ages 11–17 (SDQ)*).
Significant effect within but not between groups on fear of failure. No comparison against effect in control group (*the Performance Failure Appraisal Index-Short Form (PFAI)*).
• Significant reduction within the intervention group ($\eta 2=0.09$, $p=0.020$) up to 12-month follow-up.</td></tr>
</table>

Universal promotion interventions using 'Other' approaches (cont.)						
Umaña-Taylor et al. (2018a, 2018b) **The Identity Project**	**Description**					
	Target level: Universal The Identity Project is designed to engage students in ethnic-racial identity exploration. The programme is based on the premise that allowing students to explore their own ethnic-racial identity, and understand how this part of self-identity forms one's sense of self, will provide a clearer sense of inner identity of who they are and who they can become. The programme follows weekly sessions with students exploring their ethnic-racial identity including unpacking identity, group differences, family history, symbols and traditions, and storyboarding identity journeys.		**Facilitator:** Researcher-led **Format:** School classroom (size not specified)	**Duration and frequency:** An eight-week curriculum with one session a week, each lasting 55 minutes, delivered as part of regular school lessons	**Booster:** No	**Quality assessment:** 1
	Study Design	**Results**				
	RCT **Country:** US **Total sample size:** 218 students across eight public high schools **22.1% attrition at FU** 50% female **Mean age:** 15.0 years **Control:** Attention control group: Careers lessons focused on exposing students to educational and career opportunities after high school.	**Psychosocial wellbeing**	Significant effect on Ethnic Racial Identity (ERI). • Minority ethnic students (Black or African American, Latino, Asian American, American Indian or Native American) had higher ERI exploration scores (β=-0.40, SE=0.06, p<0.001, d=0.95), and ERI resolution scores (β=-0.17, SE=0.07, p=0.016, d=0.35) than white majority students, showing the intervention had greater improvements among minority ethnic students (*Brief Ethnic Identity Scale, purpose designed questionnaire*). Significant effect on Global Identity Cohesion (β=1.41; 95%CI 0.16; 4.13) thorough increases in Ethnic Racial Identity Exploration and Resolution (*the Erikson Psychosocial Stage Inventory*). Significant effect on self-esteem (β=1.63; 95%CI 0.22; 4.61) through increases in Ethnic Racial Identity Exploration and Resolution (*the Rosenberg Self-Esteem Scale*).			
		Academic achievement	No significant effect on academic engagement (*the Engagement vs. Disaffection with Learning: Student Report Scale*). Significant effect on academic achievement through increases in Ethnic Racial Identity Exploration and Resolution (β=2.64; 95%CI 0.34; 8.11) (*Students' grades in Math, English, Science, and Social Studies rated on a frequency scale*).			
		Depression	Significant effect on depressive symptoms (β=−0.83; 95%CI −2.93; −0.06) through increases in Ethnic and Racial Identity Exploration and Resolution (*the Centre for Epidemiological Studies Depression Scale*).			
		Other: Group orientation	No significant effect on group orientation (*the Other Group Orientation Subscale of Multigroup Ethnic Identity Measure*).			

Targeted selective promotion interventions using an SEL approach

Dowling et al. (2019) **The MindOut Programme**					
Description					
Target level: Universal programme implemented and evaluated with selective sample – disadvantaged schools in Ireland. The MindOut Programme adopts an SEL approach and aims to promote social and emotional wellbeing. The programme employs interactive teaching strategies (such as collaborative learning) to engage students in a number of skill-building activities, such as identifying and managing emotions, coping with challenges, overcoming negative thinking, communication, empathy and relationship skills. There is also a whole-school element where school staff are provided with a menu of strategies for promoting social and emotional development.	**Facilitator:** Teachers in the Social Personal Health Education (SPHE) curriculum **Format:** Usual classroom during SPHE curricular lessons, whole-school resources and at-home activities	**Duration and frequency:** 13 weekly sessions	**Booster:** No	**Quality assessment:** 1	

Study Design	Results	
Cluster RCT **Country:** Ireland **Total sample size:** 497 students from 32 disadvantaged schools **35.8% attrition at FU** 51.1% female **Mean age:** 15.9 years **Control:** Usual Social Personal Health Education curriculum	**Psychosocial wellbeing**	Significant effect on emotional regulation post-intervention, but not at 12-month follow-up. Students in the high implementation group showed significant decreased in emotion suppression (p=0.035) compared to control group. No significant effect observed in the low implementation group (*the Emotional Regulation Questionnaire*). Significant effect on coping skills at post-intervention and 12-month follow-up. Students in the high implementation group showed significantly lower levels of avoidance coping post-intervention (p=0.006) and at 12-month follow-up (p=0.033). Significant effect on social support coping post-intervention (p=0.009). Students in the high implementation group showed significantly increased levels of social support coping compared to control (*Coping Strategy Indicator (CSI-15)*). No significant effect on self-efficacy (*Self-Efficacy Questionnaire (SEQC)*). No significant effect on emotional intelligence (*Trait Meta-Mood Scale (TMMS)*). No significant effect on asserting influence and conflict resolution (*Adolescent Interpersonal Competence Questionnaire (AICQ)*). No significant effect on decision making (*Making Decisions in Everyday Life Scale*). *NOTE: Additional sub-analyses available in full text.*
	Subjective wellbeing	No significant effect on self-esteem (*the Rosenberg Self-esteem Scale)*). No significant effect on mental wellbeing (*14-item Warwick Edinburgh Mental Wellbeing Scale (WEMWBS)*). *NOTE: Additional sub-analyses available in full text.*
	Psychological wellbeing	Significant effect on depression at post-intervention (p=0.030), but not at 12-month follow-up. The high implementation intervention group showed significantly lower levels of depression (p=0.025) (*Depression Anxiety Stress Scale (DASS-21)*). No significant effect on anxiety at post-intervention or 12-month follow-up. At post-intervention, significant reduction on anxiety found in female participants only (p=0.044), but not at 12-month follow-up (*Depression Anxiety Stress Scale (DASS-21)*). Significant effect on stress at post-intervention (p=0.017), but no effect at follow-up. In the high implementation intervention group, significant reduction in stress (p=0.012) compared to control. No significant effect observed in the low implementation group post-intervention or at 12-month follow-up (*Depression Anxiety Stress Scale (DASS-21)*). *NOTE: Additional sub-analyses available in full text.*
	Academic	No significant effect on school achievement motivation (*School Achievement Motivation Rating Scale (SAMRS)*). No significant effect on attitudes towards school at post-intervention or 12-month follow-up. In the high implementation intervention group compared to the low implementation group students experienced significantly more positive attitudes towards school (p=0.022) (*the Attitudes Towards School Scale*).

Targeted selective promotion interventions using a mindfulness approach

Duthely et al. (2017) **Gratitude Meditation**					
Description					
Target level: Universal programme implemented and evaluated with selective sample – schools in a low-income area in the US. Gratitude Meditation is designed to promote adolescent life satisfaction, school identity and gratitude. The intervention uses a heart-centred meditation technique, which focuses on visualisations of gratitude and positive emotions. The intervention works on the idea that practising this meditation cultivates positive emotions of peace and gratitude, which will increase life satisfaction and happiness. Students are guided through breathing and relaxation exercises, visualisations and concentration techniques, where they are encouraged to focus on objects (such as dots, flowers, candle flame) and invoke themes and feelings of peace, serenity and gratitude. The programme relies on a manualised handbook: *The Jewels of Happiness: Inspiration and Wisdom to Guide Your Life-Journey*.	**Facilitator:** Researcher-led (lead author) **Format:** Classroom-based (group size not reported)	**Duration and frequency:** Eleven sessions, lasting between 15 and 20 minutes	**Booster:** No	**Quality assessment:** 2	

Study Design	Results	
QED **Country:** US **Total sample size:** 75 students in a public middle school in a low-income area **19.1% attrition at FU** 58.2% female **Mean age:** Not reported **Control:** No intervention	**Subjective wellbeing**	Significant effect on life satisfaction (ρ=0.017, η2=0.104) (*the Huebner's Students' Life Satisfaction Scale (SLSS)*). Significant effect on gratitude (ρ<0.001, η2=0.243) (*the Gratitude Questionnaire-Six-Item Form (GQ-6)*).
	Academic	Significant effect on school satisfaction (ρ=0.001, η2=0.185) (*the School Satisfaction Subscale (SSS) of the Multidimensional Students' Life Satisfaction Scale (MSLSS)*).

Targeted selective promotion interventions using a mindfulness approach (cont.)

Felver et al. (2019)
Learning to BREATHE (L2B)

Description

Target level:	Facilitator:	Duration and frequency:	Booster:	Quality assessment:
Target level: Universal programme implemented and evaluated with a selective sample: adolescents at-risk of poor outcomes (72% of students were classified as socioeconomically disadvantaged and the school had a low graduation rate (61%)). Learning to Breathe (L2B) aims to promote student's wellbeing and learning outcomes by increasing students' emotional regulation, stress management, compassion and executive function through a mindfulness approach. Students are guided through six meditation sessions, which each cover a different topic: body awareness; understanding and working with feelings; increasing awareness of thoughts, feelings and bodily sensations; reducing harmful self-judgments; cultivating positive emotions and mindfulness training in daily life; and cultivating emotional balance and empowerment through meditation. Between guided sessions, students could listen to a brief five-minute audio recording of a mindfulness session guided by the lead author.	Researcher-led (study authors) **Format:** Group class sessions (not specified	Six sessions, each 48 minutes long, delivered over nine weeks	Students instructed to practise mindfulness exercises at home following the intervention; only four students reported continued practice outside of the intervention	2 *Intervention also evaluated by Lam & Seiden (2019) and Fung et al. (2019)*

Study Design	Results	
Cluster-RCT **Country:** US **Total sample size:** 29 students from a public high school **20.7% attrition at FU** 67% female **Mean age:** 16.4 years **Control:** Health education programming delivered by a health teacher	**Psychosocial wellbeing**	Significant effect on student resilience. Students in the control group had significantly lower scores post-intervention (p=0.013) (*the Social-Emotional Assets and Resilience Scales (SEARS-SF)*).
	Behaviour	No significant effect on behavioural difficulties (*the 28-item Behaviour Assessment System for Children*).
	Academic	No significant effect on student attendance at school (*the total number of absences from school pre- and post-intervention*). No significant effect on students' academic grade (*grades across all of their classes summed and averaged on a 100-point scale pre- and post-intervention*).

Targeted selective promotion interventions using a mindfulness approach (cont.)

Frank et al. (2017)

Transformative Life Skills (TLS)

Description				
Target level: Universal programme implemented and evaluated with a selective sample: high-poverty catchment area of an inner city in the US. Transformative Life Skills (TLS) is aimed at reducing students' stress and promoting social-emotional physical wellness. The intervention combines yoga and mindfulness practice to offer a combined mindfulness and physical activity approach. Lessons in the programme are divided into four units which focus on topics of: stress management, body and emotional awareness, self-regulation and building healthy relationships. Each unit includes 12 lessons that can be delivered in 15-, 30- or 60-minute segments. Each lesson is designed to teach specific skills connected to the overarching unit theme and follows a predictable instructional sequence. The lessons include guided yoga practice and meditation practice. Specifically, students engage in the Action-Breathing Centring Activities (referred to as the 'ABCs') which provided experience of engaging in yoga postures, focused breathing, and centring meditation.	**Facilitator:** Trained programme providers **Format:** Group-based practice delivered in the regular homeroom classroom (size not reported)	**Duration and frequency:** Three to four days per week during the first semester of the school year. Each session lasted approximately 30 minutes	**Booster:** No	**Quality assessment:** 2

Study Design	Results	
RCT **Country:** US **Total sample size:** 159 students at one middle school in a high-poverty catchment area of an inner city **6% attrition at FU** 46.5% female **Age:** Not reported (US Grade 6 and 9) **Control:** No intervention	**Psychosocial wellbeing**	No significant effect on somatisation (*the somatic complaints' subscale of the Child Behaviour Checklist (CBCL)*).
	Subjective wellbeing	No significant effect on general positive or negative affect (*the Positive and Negative Affect Scale for children (PANAS-C)*). • Significant effect on positive coping strategies (*the response to stress questionnaire (RSQ)*). • Significant effect on primary coping subscale (p=0.020, d=0.15). • Significant effect on emotion regulation subscale (p=0.050, d=0.12). • Significant effect on secondary coping subscale (p=0.010, d=0.14). • Significant effect on positive thinking subscale (p =0.050, d=0.13). • Significant effect on cognitive restructuring subscale (p=0.010, d=0.20). • No significant effect on problem-solving subscale. • No significant effect on emotional expression subscale. • No significant effect on acceptance subscale.
	Aggression	No significant effect on attitudes towards violence (*the Attitudes Toward Violence Scale*).
	Academic	Significant effect on school engagement (p=0.010, d=0.45) (*the School Engagement Scale*). Significant effect on school attendance (*measured using school academic and behavioural records (total number of accumulated unexcused absences, number of detentions assigned, number of suspensions, and quarterly student grades in English and mathematic*). Significant effect on unexcused absences (p=0.010, d=−0.86). Significant effect on number of detentions (p=0.050, d=−0.33). No significant effect on student suspensions. No significant effect on English and Math grades.

Targeted selective promotion interventions using a positive psychology approach

Roberts et al. (2019) **Personal Leadership Program (PLP)**

Description

Target level	Facilitator / Format	Duration and frequency	Booster	Quality assessment
Target level: The PLP programme is a targeted selective programme implemented with students who were identified as likely to benefit most from the programme (such as those at risk of school failure). The programme aims to promote wellbeing and uses CBT principles to get students to challenge their self-talk (internal dialogue) and communication with others in order to foster positive emotion and good relationships. Concepts of motivation and growth are introduced, as well as strategies for making positive decisions and finding the meaning of life.	**Facilitator:** Trained programme providers **Format:** Group setting (max 18 students per group); students also have a short, weekly one-on-one mentoring session with a trainer and homework activities	**Duration and frequency:** The programme is delivered over a full school day once a week for nine weeks	**Booster:** No	**Quality assessment:** 3

Study Design	Results	
QED **Country:** Australia **Total sample size:** 102 students in grade 10 at five government-funded high schools in Adelaide, South Australia **Attrition not reported** 62.8% female **Mean age:** 15.1 years **Control:** No intervention	**Psychosocial wellbeing**	No significant effect on relationship quality (*Parent and Classmate subscales of the Level Two Child and Adolescent Social Support Scale (CASSS)*).
	Subjective wellbeing	Significant effect on positive emotion post-intervention ($\eta_p^2=0.21$, $p<0.001$) (*Positive and Negative Affect Schedule (PANAS)*). Significant effect on student-rated engagement post-intervention ($\eta_p^2=0.09$, $p<0.010$) (*School Engagement Questionnaire (SEQ)*). Significant effect on meaning in life ($\eta_p^2=0.17$, $p<0.001$) (*the Purpose in Life subscale – 14-item version, from the Psychological Wellbeing Scale (PWBS)*). Significant effect on goal setting post-intervention ($\eta_p^2=0.30$, $p<0.001$) (*the 4-item Goal Planning Questionnaire (GPQ)*). Significant effect on self-esteem ($\eta_p^2=0.18$, $p<0.001$) (*Rosenberg Self-Esteem Scale (RSES)*). No significant effect on accomplishment (*Short Grit Scale (Grit-S)*).
	Academic	Significant effect on teacher-rated student engagement ($\eta_p^2=0.11$, $p<0.050$) (*Student Engagement Matrix (SEM)*).

Targeted indicated promotion interventions using a mindfulness approach

Fung et al. (2019)

Learning to BREATHE (L2B)

Description

Target level	Facilitator / Format	Duration and frequency	Booster	Quality assessment
Target level: Universal programme implemented and evaluated with a targeted indicated sample: students with elevated mood symptoms and students from predominantly minority ethnic backgrounds (Asian American, Latinx). Learning to Breathe (L2B) aims to promote student's wellbeing, social and emotional skills by increasing students' emotional regulation, stress management, compassion and executive function through a mindfulness approach. In the L2B curriculum students are guided through six sessions, which each cover a different topic following the acronym BREATHE: body awareness (Body), understanding and working with thoughts (Reflection), understanding and working with feelings (Emotion), integrating awareness of thoughts, feelings and bodily sensations (Attention), reducing harmful self-judgments (Tenderness), and integrating mindful awareness into daily life (Habit), with the final E representing the overall programme goal of Empowerment/gaining an inner Edge. As part of the curriculum students also receive home practice handouts at the end of each session.	**Facilitator:** Doctoral psychology students **Format:** Group-based with no more than 10 students per group	**Duration and frequency:** Twelve sessions each lasting 50 minutes	**Booster:** No	**Quality assessment:** 1 *Intervention also evaluated by Lam & Seiden (2019) and Felver et al. (2019)*

Study Design	Results	
RCT **Country:** US **Total sample size:** 145 students across three high schools **21.4% attrition at FU** 67.6% female **Mean age:** 14.0 years **Control:** Wait-list control	**Psychosocial wellbeing**	Significant effect on internalised and externalised emotional and behavioural problems (*the 112-item Youth Self-Report*). • Significant effect on internalising problems at post-intervention (p=0.015) and over time (p<0.001, d=0.51). • Significant effect on externalising problems over time (p<0.001, d=0.56). • Significant effect on attentional problems over time (p<0.010, d=0.39). • Students with higher internalising symptoms at baseline experienced significantly greater improvements at post-intervention and at follow-up for externalising symptoms (p<.001), and attentional problems (p<0.001). Significant effect on emotional regulation at post intervention (p=0.007) and at three-month follow-up (*the 10-item Emotion Regulation Questionnaire for Children and Adolescents*). • Significant effect on cognitive reappraisal subscale over time (p<0.050, d=0.31). • Significant effect on expressive suppression subscale over time (p<0.001, d=0.68). Significant effect on emotional approach coping (*the 8-item Emotional Approach Coping Scale*). • Significant effect on emotional processing subscale at post-intervention (p=0.002) and over time (p<0.001, d=0.58). • Significant effect on emotional expression subscale at post-intervention (p=0.012) and over time (p<0.001, d=0.61). Significant effect on avoidance at three-month follow-up (p<0.001) and over time (p<0.001, d=0.90). No significant effect at post-intervention (*the 8-item short form of the Avoidance and Fusion Questionnaire for Youth*). Significant effect on rumination at post-intervention (p<0.001), three-month follow-up (p<0.001) and over time (p<0.001, d=0.61) (*the 13-item rumination subscale of the Children's Response Styles Questionnaire*).
	Psychological wellbeing	Significant effect on perceived stress at post-intervention (p<0.001), three-month follow-up (p<0.001) and over time (p<0.001, d=0.88) (*the Perceived Stress Scale*). • Moderation analyses showed students with more severe stress at baseline showed greater improvements over time than students with less stress at baseline (p<0.001).

Targeted indicated promotion interventions using a positive youth development approach

Tokolahi et al. (2018)

Kia Piki te Hauora: Uplifting our Health and Wellbeing

Description

Description	Facilitator / Format	Duration and frequency	Booster	Quality assessment
Target level: Indicated The Kia Piki te Hauora: Uplifting our Health and Wellbeing is a targeted indicated programme for students presenting with early symptoms of anxiety, depression, low self-esteem and/or poor participation in typical occupations (selected based on the school personnel's judgement of the child). The programme aims to prevent anxiety and depression and promote self-esteem. Session topics include: Introduction to occupation; Sleep and rest occupations; Active occupations; Communication in occupations; Coping; Values and identity; Integrative Summary. Delivery methods include didactic presentation, peer exchange, direct experience and personal exploration.	**Facilitator:** Occupational therapist **Format:** Groups of 7–12 students	**Duration and frequency:** One hour per week over a period of eight weeks of a school term	**Booster:** No	**Quality assessment:** 1

Study Design	Results	
Cluster RCT **Country:** New Zealand **Total sample size:** 142 students from 14 schools (10–12 students per school) in Auckland **11.3% attrition at FU** Gender not reported **Age range:** 11–13 years **Control:** Waitlist control	**Subjective wellbeing**	No significant effect on child-rated self-esteem (*Rosenberg Self Esteem Scale (RSES) and Single Item Self Esteem Scale (SISES)*). No significant effect on parent-reported self-esteem (*Rosenberg Self Esteem Scale (RSES) and Single Item Self Esteem Scale (SISES)*). No significant effect on child-rated wellbeing (*Student Life Satisfaction Scale (SLSS)*).
	Psychological wellbeing	No significant effect on child-rated anxiety (*Multidimensional Anxiety Scale for Children – Short form (MASC-10)*). No significant effect on parent-rated anxiety (*Revised Child Anxiety and Depression Scale – Short version (RCADS)*). Significant effect on teacher-rated anxiety post-intervention (Estimated difference (ED)=3.2, p=0.001) (*School Anxiety Scale (SAS)*). • Subscale analyses showed significant reduction in teacher-rated child anxiety on the general anxiety subscale (ED=1.5, p=0.017) and on the school anxiety subscale (ED=1.6, p=0.011). No significant effect on child-rated depression (*Child Depression Inventory 2nd edition: Self Report [Short form] (CDI2)*). No significant effect on parent-rated depression (*Revised Child Anxiety and Depression Scale – Parent report, short version (RCADS)*).
	Academic	Significant effect on child-rated participation (Estimated difference=-1.30, p=0.009) (*Canadian Occupational Performance Measure (COPM)*). • Effect deemed not clinically significant based on defined thresholds. When considering crossover data, this significance disappears and was thus interpreted as having no significant impact on overall participation (Estimated difference=0.6, p=0.076). No significant effect on parent-rated participation (*Canadian Occupational Performance Measure (COPM)*).

To download the full report, visit: https://www.eif.org.uk/report/adolescent-mental-health-a-systematic-review-on-the-effectiveness-of-school-based-interventions

Appendix B.1: Prevention

Notes

- See page 120 for a detailed glossary and list of abbreviations used in these tables, and page 121 for full references for listed reviews and studies.
- Where these tables mention significant effects, this refers to the intervention group experiencing a significantly larger effect than the control group in the desirable direction.
- Significant effects can be improvements in positive outcomes (such as wellbeing or resilience) or reductions in symptoms (such as depression or anxiety). Where the intervention group experienced significantly worse outcomes than the control group, these are listed as 'adverse' effects.
- Effects (for meta-analyses: pooled effects) were deemed significant where p was less or equal than 0.05 – regardless of the significance level applied by individual studies.

Table of systematic reviews

Systematic reviews of mental health interventions aimed at preventing mental health difficulties

Reference	Analysis	Quality assessment rating	Inclusion criteria 1 Population/age range 2 Interventions 3 Study design 4 Outcomes assessed	Exclusion criteria	Time frame	Number of studies included in review	Results
Carnevale et al., 2013 Universal adolescent depression prevention programmes: a review	Narrative synthesis	Weak	1 Adolescents 2 Universal adolescent depression prevention programme studies that can be administered by school nurses 3 RCTs, QEDs 4 Depressive symptoms	• Out of school interventions; interventions with no pre/post measures, studies that did not report the psychometric properties of the outcome measures	2000–2010	11	No pooled effect size provided: • Studies reviewed identified small to moderate positive outcomes as rated on the depression instruments. • Only three of the programmes implemented demonstrated adoption and sustainability.

Systematic reviews of mental health interventions aimed at preventing mental health difficulties (cont.)							
Reference	**Analysis**	**Quality assessment rating**	**Inclusion criteria** 1 Population/age range 2 Interventions 3 Study design 4 Outcomes assessed	**Exclusion criteria**	**Time frame**	**Number of studies included in review**	**Results**
Feiss et al., 2019 A systematic review and meta-analysis of school-based stress, anxiety and depression prevention programmes for adolescents	Meta-analysis	Strong	1 11–18 years, US-only studies 2 Universal programmes aimed at reducing stress, depression/depressive symptoms, anxiety or other internalising mental health problems 3 RCTs, QEDs 4 Stress, anxiety, depression/depressive symptoms	• Non-peer-reviewed literature; non-empirical studies	1990–2018	42 studies: 38 studies with depression outcomes; 20 studies with anxiety outcomes; 4 studies with stress outcomes	Pooled effect sizes: • Reduced depressive symptoms: (t(116)=-3.120, p< 0.01, d(intervention)=-0.62, d(control)=-0.22 across 38 studies (6,741 participants) high heterogeneity among both intervention effects (I^2=96.91%) and control effects (I^2=95.07%). • Reduced anxiety symptoms: t(54)=-3.72, p<0.001, d(intervention)=-0.70, d(control)=-0.14, across 20 studies(2,166 adolescents); high heterogeneity among intervention effects (I^2=89.26%) and moderate to high heterogeneity among control effects (I^2=63.24%). • Stress: No significant effects, across 4 studies (420 adolescents), high heterogeneity. • Follow-up: No significant effects on depressive symptoms (across 17 studies) or anxiety symptoms (across six studies), no evidence in relation to stress (0 studies).
Gee et al., 2020 Practitioner review: effectiveness of indicated school-based interventions for adolescent depression and anxiety – a meta-analytic review	Meta-analysis	Strong	1 10–19-year-olds with elevated symptoms of depressive and/or anxiety symptoms 2 School-based manualised psychological interventions designed to decrease depressive and/or anxiety symptoms 3 RCTs 4 Anxiety or depression outcomes	• Studies with a sample below 10 years excluded	Up to April 2019	45	Standardised mean difference: Reduced depressive symptoms: (SMD=0.45) • Data from 2,895 young people, 1,535 of whom were randomised to receive one of the school-based interventions I^2=81%; removal of one outlier reduced heterogeneity (I^2=61%) and ES (SMD=0.34). • Intervention type: CBT [k=22], interpersonal therapy [k=4], and other psychological interventions (no sports or dietary components) [k=5]. • IPT-based interventions had the strongest effects (k=4; SMD=-0.69), followed by 'other', k=5; SMD=-0.60, and CBT-based interventions, k=22 (SMD=-0.26). Reduced anxiety: (SMD=0.61) • Data from 1,075 young people, 528 of whom were randomised to receive one of the school-based interventions. • I^2=84%; true effect size could vary from small to large. • Most studies come from HICs in North America and Europe. • Intervention type: CBT [k=10] and other psychological interventions (no sports or dietary components) [k=5].

Systematic reviews of mental health interventions aimed at preventing mental health difficulties (cont.)							
Reference	**Analysis**	**Quality assessment rating**	**Inclusion criteria** 1 Population/age range 2 Interventions 3 Study design 4 Outcomes assessed	**Exclusion criteria**	**Time frame**	**Number of studies included in review**	**Results**
O'Dea, Calear & Perry, 2015 Is e-health the answer to gaps in adolescent mental health service provision?	Narrative synthesis	Weak	1 12–18 years 2 Online or mobile application designed to prevent or treat anxiety or depression 3 RCTs 4 Depression and/or anxiety symptoms	• No exclusion criteria reported	Jan 2014–Jan 2015	6	No pooled effect size provided: • Limited evidence.
Scott, 2015 A meta-analysis of school-based interventions for adolescent depression	Meta-analysis	Strong	1 12–17 years 2 School-based interventions for preventing depression 3 RCTs, QEDs 4 Depression symptoms	• Non-English papers	1990–2014	57	Standardised mean difference: • Reduced depression: SMD=0.13, significant heterogeneity [Q]. • Selective and indicated prevention programmes showed significantly greater improvement than universal prevention programmes; the effect size of this difference was 0.73. • Marginal improvements of medium-term outcomes (after 7–12 months) across 18 studies (SMD=0.06); no significant effects across five studies after more than 12 months. • Small number of interventions (7 of 57) reported adverse effects. • Intervention type: CBT, interpersonal therapy, yoga; 52% universal, 32% selective/indicated, 15% treatment.
Shelemy, Harvey & Waite, 2020 Meta-analysis and systematic review of teacher-delivered mental health interventions for internalising disorders in adolescents	Meta-analysis	Strong	1 11–18 years 2 Teacher-delivered interventions 3 Any research design 4 Internalising disorders/DSM-5 disorder diagnoses	• Non-English papers, non-peer-reviewed literature	Up to Jan 2016	52	Pooled effect size at post-intervention: • Reduced depression ($g=-0.12$, $I^2=19\%$), across 29 studies. • Reduced anxiety: ($g=-0.13$, $I^2=11\%$), across 26 studies. • Reduced PTSD symptoms ($g=-0.66$, $I^2=0\%$), across four studies. • Several studies (5 of 7) reported larger effects for at-risk populations. Pooled effect size at follow-up: • Depression: No significant effect across 20 studies. • Anxiety ($g=-0.08$, $I^2=0\%$), across nine studies. • Intervention type: Universal, teacher delivered interventions (CBT, SEL, mindfulness, etc.). • No overall significant effect of selective or indicated interventions on depression or anxiety outcomes.

Systematic reviews of mental health interventions aimed at preventing mental health difficulties (cont.)							
Reference	**Analysis**	**Quality assessment rating**	**Inclusion criteria** 1 Population/age range 2 Interventions 3 Study design 4 Outcomes assessed	**Exclusion criteria**	**Time frame**	**Number of studies included in review**	**Results**
Ssegonja et al., 2019 Indicated preventive interventions for depression in children and adolescents: a meta-analysis and meta-regression	Meta-analysis	Moderate	1 12–19 years 2 Group-based CBT indicated preventive interventions with or without booster sessions 3 RCTs 4 Cases of a depressive disorder (dichotomous); depressive symptoms over time (continuous)	• Non-English papers	Sept 2014–Feb 2018	38	Pooled effect size at post-intervention: • Reduced the incidence of depressive disorder: RR=0.43, across eight comparisons (seven trials) and 1,461 participants. • Reduced symptom severity of depression: d=-0.22 across 43 comparisons (33 trials) and 7,525 participants, heterogeneity not reported. Pooled effect size at follow up: • Effects on incidence were significant at six months (seven trials, involving 1,948 participants), 12 months (six trials, involving 1,246 participants) and post 12 months (six trials, involving 1,311 participants); in trials with passive comparator, effects on incidence were significant at six-month and 12-month follow-up but neither at post-intervention nor at post-12 months (across four-six trials). • Effects on symptoms remained significant at six months (21 trials, involving 4,751 participants), 12 months (17 trials, involving 4,480 participants), and post-12 months (nine trials, involving 1,896 participants); in trials with passive comparator effects were significant at all times (eight to 26 trials).
Van Loon et al., 2020 Can schools reduce adolescent psychological stress? A multilevel meta-analysis of the effectiveness of school-based intervention programmes	Meta-analysis	Strong	1 10–18 years 2 School-based interventions that promote psychosocial functioning (e.g., stress reduction, mental health, wellbeing, or coping skills) 3 RCTs, QEDs 4 Psychological stress (self-report)	• Non-English papers	Up to June 2019	54	Pooled effect size at post-intervention: • Stress: d=0.543. Removal of 10 outliers: d=0.276, significant heterogeneity • Effects on school stress (five studies) were significant but not on social stress • The target group moderated the effect, demonstrating significant effects only in samples based on self-selection or screening, for instance on high stress or anxiety levels. Pooled effect size at follow-up: • Larger effects were found at follow up than at post-intervention • Intervention type: Mindfulness (k=19 studies), relaxation techniques (k=21), cognitive behavioural techniques (k=25); no intervention characteristics moderated the effects

Systematic reviews of mental health interventions aimed at preventing suicide and self-harm							
Reference	**Analysis**	**Quality assessment rating**	**Inclusion criteria** 1 Population/age range 2 Interventions 3 Study design 4 Outcomes assessed	**Exclusion criteria**	**Time frame**	**Number of studies included in review**	**Results**
Calear et al., 2015 A systematic review of psychosocial suicide prevention interventions for youth	Narrative synthesis	Moderate	1 12–25 years 2 Psychosocial interventions, (i.e. psycho-therapy [e.g., CBT, DBT, problem-solving therapy], psycho-education or community treatment) for the treatment or prevention of suicidal behaviour 3 RCTs 4 Suicidal behaviour (self-harm, ideation, attempt or completion)	• Non-English papers, non-peer-reviewed literature • Gatekeeper interventions (if they did not have adolescent outcomes)	Up to Dec 2014	28	No pooled effect size provided: • Motivational interviewing (targeted indicated support), in combination with 'support' and coping skills training, individual or group-based, one or 13 sessions: mixed evidence post-intervention and at follow-up. • Psychoeducation: Signs of Suicide (SOS), teacher, two sessions, group-based: post-intervention and at follow-up reduced suicide attempts, but not in suicide ideation. • Intensive psychotherapy for Depressed Adolescents with Suicidal Risk (IPT-A-IN), 12 sessions: reduced suicide ideation (one trial), no follow-up results reported.
Harlow, Bohanna & Clough, 2014 A systematic review of evaluated suicide prevention programs targeting indigenous youth	Narrative synthesis	Moderate	1 'Indigenous youth living in Australia, Canada, New Zealand, or the United States' 2 Suicide prevention interventions 3 Any quantitative or qualitative research design 4 Suicide or self-harm	• Publications that did not report indigenous data separately from non-indigenous data were excluded	Search date: Sept 2012; starting date not specified	11	No pooled effect size provided: • Zuni Life Skills Development Model: significant reductions in suicidal thoughts and behaviours, reduced feelings of hopelessness, increased problem solving, increased suicide intervention skills.

Systematic reviews of mental health interventions aimed at preventing suicide and self-harm (cont.)							
Reference	**Analysis**	**Quality assessment rating**	**Inclusion criteria** 1 Population/age range 2 Interventions 3 Study design 4 Outcomes assessed	**Exclusion criteria**	**Time frame**	**Number of studies included in review**	**Results**
Klimes-Dougan, Klingbeil & Meller, 2013 The impact of universal suicide-prevention programmes on the help-seeking attitudes and behaviours of youths	Narrative synthesis	Weak	1 13–18 years 2 Suicide-prevention programming, efforts to promote help-seeking 3 Any research design 4 Help-seeking attitudes or behaviours	• Non-peer-reviewed literature	Unclear	18	No pooled effect size provided: • Gatekeeper training: Yellow Ribbon; reduced not increased help-seeking; females had better outcomes; from the table it is unclear whether they experienced larger intervention effects or had better outcomes to start with.
Wei, Kutcher, & LeBlanc, 2015 Hot idea or hot air: a systematic review of evidence for two widely marketed youth suicide prevention programmes and recommendations for implementation	Narrative synthesis	Moderate	1 Age not reported 2 SOS & Yellow Ribbon interventions 3 Any research design 4 Any outcomes	• Non-English papers, non-peer-reviewed literature	2014	5	No pooled effect size provided: • The Yellow Ribbon programme was ranked as 'ineffective' using OJPR (clearinghouse framework) • Three SOS studies were ranked as 'inconclusive evidence' based on the OJPR (clearinghouse framework); one SOS study was ranked as having 'insufficient evidence' on OJPR (clearinghouse framework).

Appendix B.2: Prevention

Table of primary studies

Universal interventions using a cognitive behavioural therapy approach						
Barry et al. (2017) **Coaching Intervention to Build Confidence and Resilience and Reduce Depressive Symptoms**	**Description**					
	Target level: Universal This is a cognitive behavioural group coaching intervention which aims to build confidence and resilience and reduce depressive symptoms. The programme uses games and challenges to raise awareness of how thinking can influence behaviours and emotions, and to highlight that we can reframe our thinking styles.		**Facilitator:** Not reported **Format:** Group sessions with 13 in Intervention group, and 14 in Control group	**Duration and frequency:** Four sessions x 40 minutes each	**Booster:** No	**Quality assessment:** 3
	Study Design	**Results**				
	RCT **Country:** Ireland **Total sample size:** 27 male students from one Irish secondary school **14.8% attrition at FU** 0% female **Mean age:** 15.7 years **Control:** No intervention	**Depression**	No significant effect on depressive symptoms (*Center for Epidemiologic Studies Depression Scale for Children (CES-DC)*).			

Universal interventions using a cognitive behavioural therapy approach (cont.)

Garcia-Escelara et al. (2020)

Spanish Version of the Unified Protocol for the Treatment of Emotional Disorders in Adolescents (UP-A)

Description				
Target level: Universal The UP-A programme is a cognitive behavioural therapy programme designed to prevent anxiety and depression. Students complete eight modules that focus on building and keeping motivation, getting to know your emotions and behaviours, behavioural activation, sensational awareness, being flexible in your thinking, awareness of emotional experiences, situational emotion exposure and keeping it going/maintaining your gains.	**Facilitator:** Psychologists (Doctoral and Master's students in clinical psychology) **Format:** Group sessions (approximately 30 students) plus homework	**Duration and frequency:** Nine weekly sessions lasting 55 minutes	**Booster:** No	**Quality assessment:** 1

Study Design	Results	
Cluster RCT **Country:** Spain **Total sample size:** 151 students from one secondary school in Madrid **20% attrition at FU** 54.3% female **Mean age:** 15.1 years **Control:** Wait-list control	**Depression**	No significant effect on depression symptoms (*Depression Questionnaire for Children (CDN), modified version*). • For students with elevated baseline depression scores, depression scores significantly decrease (improved) post-intervention (d=0.96, p=0.013) and at three-month follow-up (d=0.88, p=0.026).
	Anxiety	No significant effect on anxiety symptoms (*Anxiety Scale for Children*).
	Psychosocial wellbeing	No significant effect on life satisfaction (*Satisfaction with Life Scale for Children (SWLS-C)*). No significant effect on quality of life (*Kidscreen-10 (KIDSCREEN Group)*). No significant effect on self-esteem (*Escala de autoestima (Self-Esteem Scale)*).
	Behaviour	No significant effect on frequency of disruptive behaviour (*General Indiscipline Scale (Escala de Indisciplina General, modified version*). No significant effect on peer problems (*Spanish version of Strengths and Difficulties Questionnaire (SDQ) – Peer problems subscale*).
	Academic	No significant effect on self-perceived school performance (*School Adjustment Brief Scale (Escala Breve de Ajuste Escolar; EBAE-10)*).
	Other: School adjustment	No significant effect on school adjustment (*School Adjustment Brief Scale (Escala Breve de Ajuste Escolar; EBAE-10)*).

Universal interventions using a cognitive behavioural therapy approach (cont.)

Garmy et al. (2019)
Depression in Swedish Adolescents (DISA)

Description				
Target level: Universal The DISA programme is a cognitive behavioural therapy programme which aims to prevent depression in young people. The programme is an adapted version of the indicated Adolescent Coping with Stress course. The programme uses cognitive behavioural techniques designed to change negative thoughts, communication training and training in problem-solving strategies as well as exercises to strengthen social skills and networks and to increase participation in health promotion activities.	**Facilitator:** School tutors (12 school social workers, 9 school nurses, 9 teachers, 2 counsellors, 3 school assistants) **Format:** Group sessions with an average of 12–13 students	**Duration and frequency:** Ten sessions over 10 weeks lasting 1.5 hours each	**Booster:** No	**Quality assessment:** 3

Study Design	Results	
QED **Country:** Sweden **Total sample size:** 1,129 students from 21 schools in six Swedish municipalities **20% attrition at FU** 56% female **Age range:** 13–15 years **Control:** No intervention	**Depression**	Significant effect on depression at three months (d=0.27, p<0.001) but no significant effect at 12-month follow-up (*Centre for Epidemiological Studies Depression Scale (CES-D)*).
	Subjective wellbeing	Significant effect on self-reported health at three months (d=0.29, p<0.001) but no significant effect at 12-month follow-up (*Euro Qol (EQ) visual analogue scale (VAS; EQ-5D)*).

Universal interventions using a cognitive behavioural therapy approach (cont.)					
Kozina (2019) **My FRIENDS**	**Description**				
	Target level: Universal The My FRIENDS programme is a cognitive behavioural therapy programme (adolescent version of FRIENDS (Barrett, 2005)) which aims to prevent anxiety in young people. The programme includes topics such as becoming acquainted with the group, learning about emotions and the relationship between one's thoughts and feelings, learning how to cope with worries, recognising emotions, relaxation, developing positive self-talk, challenging negative and unhelpful thoughts, developing problem-solving skills, planning how to cope with everyday stressors and reward oneself for success, building on success, and the importance of practice. A variant of this intervention is included on the EIF Guidebook.	**Facilitator:** Psychologist **Format:** Group sessions, homework, parent component	**Duration and frequency:** Ten weekly workshops of 45 minutes each, two booster sessions, two parent meetings	**Booster:** Yes: one and two months after programme completion	**Quality assessment:** 3

	Study Design	Results	
	QED **Country:** Slovenia **Total sample size:** 78 grade 8 students from two schools **Attrition:** Not reported 55% female **Age range:** 13–14 years **Control:** No intervention	**Anxiety**	No significant effect on anxiety (*AN-UD Anxiety Scale*).
		Psychosocial wellbeing	No significant effect on behavioural and emotional problems (*Slovenian version of the Strength and Difficulties Questionnaire (SDQ) – internalising (emotional problems and peer problems) subscales*).

Universal interventions using a cognitive behavioural therapy approach (cont.)						
Ohira et al. (2019) **The Journey of the Brave**	**Description**					
	Target level: Universal The Journey of the Brave programme is a cognitive behavioural therapy programme which aims to prevent anxiety-related problems by utilising techniques such as developing 'anxiety hierarchies', gradual exposure and cognitive restructuring.		**Facilitator:** Teachers **Format:** Individual work and homework	**Duration and frequency:** Seven sessions of 50 minutes each	**Booster:** No	**Quality assessment:** 2
	Study Design	**Results**				
	QED **Country:** Japan **Total sample size:** 472 students from three public junior high schools in a single prefecture **16.4% attrition at FU** 44.5% female **Age range:** 12–14 years **Control:** No intervention	**Anxiety**	No significant effect on anxiety symptoms (*Spence Child Anxiety Scale (SCAS)*).			
		Psychosocial wellbeing	No significant effect on emotion regulation (*Emotion Regulation Skills Questionnaire (ERSQ)*).			

Universal interventions using a cognitive behavioural therapy approach (cont.)					
Perry et al. (2017) **SPARX-R**	**Description**				
	Target level: Universal The SPARX-R programme is a cognitive behavioural therapy programme with a digital component. It aims to prevent depression using an online game providing cognitive behavioural skills: the users navigate through a fantasy world that has been overrun by GNATs (gloomy, negative, automatic thoughts) with the mission of restoring balance to the world. Topics covered include finding hope, being active, dealing with strong emotions, overcoming problems, recognising unhelpful thoughts, challenging unhelpful thoughts, and bringing it all together. Key skills taught by the programme are relaxation, activity scheduling and behavioural activation, emotion regulation, interpersonal skills, problem solving, cognitive restructuring and distress tolerance.	**Facilitator:** Virtual guide with teacher supervision **Format:** Individually completed during class period	**Duration and frequency:** Seven modules taking 20–30 minutes each, completed over the course of five to seven weeks	**Booster:** No	**Quality assessment:** 3

Study Design	Results	
Cluster RCT **Country:** Australia **Total sample size:** 540 students from 10 secondary schools **80.7% attrition at FU** 63.1% Female **Mean age:** 16.7 years **Control:** Other intervention (lifeSTYLE)	**Depression**	Significant effect on depression at post-intervention (d = 0.29, p <0.001) and six-month follow-up (d=0.21, p=0.010). No significant effect maintained to 18-month follow-up (*The Major Depressive Inventory (MDI)*). • For students who completed less than four of seven modules, there was no significant effect on depression at post-intervention or six-month follow-up. However, there was a significant effect on depression at 18-month follow-up (p=0.010).
	Anxiety	No significant effect on anxiety (*Spence Anxiety Scale (SCAS)*).
	Suicidality	No significant effect on suicidality (*3 items from the Youth Risk Behaviour Survey*).
	Mental health literacy	No significant effect on stigma towards depression (*Depression Stigma Scale (DSS)*).
	Academic	No significant effect on academic achievement (*Exam results from Australian Tertiary Admissions Rank*).

Universal interventions using a cognitive behavioural therapy approach (cont.)					
Schleider et al. (2019) **Growing Minds – Single Session Interventions (GM-SSIs)**	**Description**				
	Target level: Universal (female only) Growing Minds is a computerised single session growth mindset intervention which aims to prevent depression, anxiety and behaviour-conduct problems. Content focuses on introducing mindsets and provides information and self-change strategies linked to intelligence mindsets, self-regulation mindsets and personality mindsets.	**Facilitator:** Computerised intervention **Format:** Group-based classroom setting, self-administered on computers	**Duration and frequency:** One session of 45 minutes	**Booster:** No	**Quality assessment:** 1

Study Design	Results	
QED **Country:** US **Total sample size:** 222 students from four rural high schools **5% attrition at FU** 100% female **Mean age:** 15.2 years **Control:** Active control (HEART intervention)	**Depression**	Significant effect on depression at three-months post-intervention (d=0.23, p=0.039) (*Short Mood and Feelings Questionnaire (SMFQ)*). Significant reduction in likelihood (odds) of reporting elevated depression symptoms (>11) at three months post-intervention (d=0.29, p=0.033) (*Short Mood and Feelings Questionnaire (SMFQ)*).
	Anxiety	No significant effect on anxiety symptoms (*Avoidance subscale from the Social Phobia Inventory*).
	Behaviour	No significant effect on conduct problem behaviours (*Rochester Youth Development Study*).
	Other: Growth mindsets of intelligence and personality	Significant increase in growth mindset personality (R^2=0.13, p<0.001) and growth mindset of intelligence (R^2=0.04, p<0.001) post-intervention. (*Brief 3-item mindset questionnaire, purpose designed*).

Universal interventions using a cognitive behavioural therapy approach (cont.)

Teesson et al. (2019) **Climate Schools Combined Mental Health and Substance Use**

Description				
Target level: Universal The Climate Schools Combined Mental Health and Substance Use programme is a cognitive behavioural therapy programme which aims to prevent and reduce mental health problems, improve mental health knowledge, and improve knowledge of substance use. Students on the Combined Programme completed one year of the Climate Schools – Substance Use programme (comprising an online cartoon and teacher-delivered component focused on educating students about substance misuse and preventing the use of alcohol and cannabis) as well as one year of the Climate Schools – Mental Health programme (based on cognitive behavioural principles, also using online cartoons and a teacher-delivered component focused on educating students about mental health and preventing the development or worsening of anxiety and depression).	**Facilitator:** Teachers **Format:** Classroom-based activities	**Duration and frequency:** Delivered during mandatory Health Education classes; substance use programme one year; mental health programme one year; total delivery over two years	**Booster:** No	**Quality assessment:** 1

Study Design	Results	
Cluster RCT **Country:** Australia **Total sample size:** 6,386 students from 71 secondary schools across three Australian states (New South Wales, Western Australia and Queensland) **33% attrition at FU** 54.8% female **Mean age:** 13.5 years **Control:** Active control: usual health education classes, including lessons on alcohol, drugs and mental health. *NOTE: The trial also compared the effects of the combined intervention to the mental health programme only, and the substance use programme only in sub-analyses.*	**Depression**	No significant effect on depressive symptoms at any timepoint (*Patient Health Questionnaire-8 (PHQ-8)*). No significant effect on likelihood of possible depression diagnosis (*PHQ-8 score ≥10*).
	Anxiety	Significant effect on anxiety symptoms at 12-month follow-up (d=−0·11, p=0.010) and 30-month follow-up (d=-0.12, p=0.029). Students in the combined intervention group had significantly reduced anxiety symptoms compared to active control. No significant effect at 24-month follow-up (*Generalised Anxiety Disorder Assessment 7-item version (GAD-7)*). No significant effect on the likelihood of possible anxiety diagnosis (*GAD-7 score ≥10*).
	Mental health literacy	Significant effect on knowledge of mental health at 24-month follow-up (d=0.17, p<0.001). No significant effect at 12-month or 30-month follow-up (*13-item multiple-choice scale, purpose designed*).
	Other: Knowledge of substance use	Significant effect on knowledge of alcohol at 12-month (d=0.57, 95%CI 0.47, 0.66, p<0.001), 24-month (d=0.40, p<0.001) and 30-month follow-up (d=0.26, p<0.001). Students in the combined intervention significantly increased their knowledge over time compared to active control (*16-item scale adapted from the Knowledge-of-alcohol Index)*). Significant effect on knowledge of cannabis at 12-month (d=0.59, p<0.001), 24-month (d=0.33, p<0.001) and 30-month follow-up (d=0.17, p=0.002). Students in the combined intervention significantly increased their knowledge over time compared to active control (*16-item scale used in previous Climate Schools Trials, purpose designed*).
	Other: Alcohol use	Significant effect on the likelihood of having an alcoholic drink at 12-month (OR=0.52, p=0.042), 24-month (OR=0.36, p=0.003), and 30-month follow-up (OR=0.25, p<0.001). Students in the combined intervention were significantly less likely to consume a standard alcoholic drink within the last six months (*questionnaire items derived from previous Climate Schools trials, purpose designed*). Significant effect on the likelihood of heavy episodic drinking at 12-month (OR=0.26, p=0.036), 24-months (OR=0.18, p=0.012) and 30-month follow-up (OR=0.15, p=0.006). Students in the combined intervention were significantly less likely to drink five or more standard alcoholic drinks on one occasion within the last six months (*questionnaire items derived from previous Climate Schools trials, purpose designed*).
	NOTE: Main effects reported compare effects of the combined intervention to active control. Additional analyses comparing the combined intervention to mental health programme and substance use programme independently are available.	

Universal interventions using a mindfulness approach

<table>
<tr><td rowspan="8">Burckhardt et al. (2017)
Acceptance and Commitment Therapy</td><td colspan="6">**Description**</td></tr>
<tr><td colspan="2">**Target level:** Universal
This programme uses a combination of acceptance and commitment therapy and mindfulness techniques and is designed for year 10 high school students. It is a group-based programme that aims to prevent depression and anxiety and enhance wellbeing by utilising ACT components of values, committed action, contact with the present moment, acceptance of emotions and thought diffusion.</td><td>**Facilitator:** Researcher-led (lead author, clinical psychologist)
Format: Group sessions of approximately 15 students</td><td>**Duration and frequency:** In total, students received 4.6 hours of the intervention in 25-minute sessions</td><td>**Booster:** No</td><td>**Quality assessment:** 3</td></tr>
<tr><td>**Study Design**</td><td colspan="5">**Results**</td></tr>
<tr><td rowspan="4">**QED**
Country: Australia
Total sample size: 48 students from one private school
41.7% attrition at FU
42% female
Mean age: 15.6 years
Control: Usual care ('Pastoral Care')</td><td>**Depression**</td><td colspan="4">No significant effect on depression symptoms (*Depression, Anxiety and Stress Scale – Short Form (DASS-21) – Depression subscale*).</td></tr>
<tr><td>**Anxiety**</td><td colspan="4">No significant effect on anxiety symptoms (*Depression, Anxiety and Stress Scale – Short Form (DASS-21) – Anxiety Subscale*).</td></tr>
<tr><td>**Stress**</td><td colspan="4">No significant effect on stress (*Depression, Anxiety and Stress Scale – Short Form (DASS-21) – Stress subscale*).</td></tr>
<tr><td>**Wellbeing**</td><td colspan="4">No significant effect on wellbeing (*Flourishing Scale*).</td></tr>
</table>

Universal interventions using a psychotherapy approach

Burckhardt et al. (2018)
Dialectical Behavioural Therapy

Description				
Target level: Universal The DBT programme is a universal group programme conducted in one Anglican all-girls private high school in Australia. It aims to prevent mental health problems by having students complete modules on emotion regulation, mindfulness, distress tolerance and interpersonal relationships.	**Facilitator:** Clinical psychologist **Format:** Group sessions (size not reported) and homework	**Duration and frequency:** Six workshops of 50 minutes each	**Booster:** No	**Quality assessment:** 3

Study Design	Results	
RCT **Country:** Australia **Total sample size:** 96 students from one Anglican all-girls private high school **7.3% attrition at FU** 100% female **Mean age:** 15.6 years **Control:** Usual classes learning about future careers	**Depression**	No significant effect on depressive symptoms (*Centre for Epidemiologic Studies – Depression Scale 8-item version (CES-D8)*).
	Anxiety	No significant effect on anxiety symptoms (*PROMIS-Anxiety Short Form Scale*).
	Aggression	No significant effect on anger (*PROMIS-Anger Short Form Scale*).
	Psychosocial wellbeing	No significant effect on emotion regulation (*Difficulties in Emotion Regulation Scale (DERS)*).

Targeted selective interventions using a cognitive behavioural therapy approach

Brown et al. (2019)

The DISCOVER 'How to Handle Stress' Workshop Programme

Description				
Target level: Targeted selective The Discover programme is a targeted selective cognitive behavioural therapy programme intervention for pupils between the age of 16 and 19 who are from at-risk backgrounds (ethnic minorities, socioeconomic deprivation). It aims to reduce stress, depression and anxiety by focusing on methods for coping with common personal and academic stress (such as anxiety and worry), dealing with coursework, dealing with family expectations and exam anxiety	**Facilitator:** Two clinical psychologists and one assistant psychologist **Format:** Group sessions of up to 15 students plus homework	**Duration and frequency:** One-day workshop, 20/30-minute follow-up call	**Booster:** Yes: offered two further follow-up calls within 12 weeks	**Quality assessment:** 2

Study Design	Results	
Cluster RCT **Country:** UK **Total sample size:** 155 students from 10 secondary schools in London, UK **8.4% attrition at FU** 81.3% female **Mean age:** 17.3 years NOTE: 7% Asian or British Asian, 44.5% Black or Black British, 0.6% Chinese, 5.2% Mixed background, 10.3% Other, 9.5% other British, 0.6% prefer not to say, 21.9% White or White British **Control:** Wait-list control	**Depression**	Significant effect on depression at three months post-intervention (d=0.27, p=0.021). Significantly fewer depressive symptoms over time (*Mood and Feelings Questionnaire (MFQ)*).
	Anxiety	Significant effect on anxiety at three months post-intervention (d=0.25, p=0.018) (*Revised Child Anxiety and Depression Scale (RCADS)*).
	Subjective wellbeing	Significant effect on quality of life at three months post-intervention (d=0.36, p=0.009) (*the Paediatric Quality of Life Enjoyment and Satisfaction Form (PQ-LES-Q)*).
	Psychological wellbeing	Significant effect on emotional symptoms at three months post-intervention (d=-0.28, p=0.008) (*Revised Child Anxiety and Depression Scale (RCADS)*).
	Psychosocial wellbeing	Significant effect on mental wellbeing at three months post-intervention (d=0.46, p=0.001) (*The Warwick-Edinburgh Mental Well-Being Scale (WEMWBS)*).

Targeted selective interventions using a cognitive behavioural therapy approach (cont.)						
Terry et al. (2020) **Footprints**	**Description**					
	Target level: Targeted selective Footprints is a targeted selective cognitive behavioural therapy programme for students with poor academic performance and/or disruptive behaviour. It aims to promote wellbeing and prevent behavioural and emotional problems by utilising motivational interviewing (MI) and common modular cognitive-behavioural approaches, including psychoeducation, goals setting, behavioural activation, cognitive restructuring, problem solving, social skills training, relaxation training and enhancement of protective factors. In the current study, Footprints was implemented as part of a whole-school approach to supporting young people's mental health and behaviour (PBIS).		**Facilitator:** Doctoral psychology students (advanced child and family therapy practice) **Format:** Group sessions (5-8 students) and individual sessions plus homework	**Duration and frequency:** Two 40-minute one-to-one MI sessions and six group-based sessions	**Booster:** No	**Quality assessment:** 3
	Study Design	**Results**				
	QED **Country:** US **Total sample size:** 43 students from a south-eastern middle school **Attrition not reported** 39.5% female **Age range:** 6th–8th grade (ages 11–13 years) **Control:** Wait-list control	**Psychosocial wellbeing**	Significant effect on self-efficacy for behavioural regulation post-intervention (d=0.86, p<0.001) (*Children's Perceived Self-Efficacy (CPSE)*).				
		Academic	Significant effect on academic grades post-intervention (d=0.53, p=0.050) (*official academic transcripts, converted to a 100-point scale*). Significant effect on academic motivation post-intervention (d=1.24, p<0.001) (*Perceived School Experience Scale (PSES)*).				
		Psychological wellbeing	Significant effect on behavioural and emotional symptoms post-intervention (d=0.41, p=0.04) (*Pediatric Symptom Checklist (PSC)*).				

Targeted indicated interventions using a cognitive behavioural therapy approach

Briere et al., 2019

Blues Programme

Description				
Target level: Indicated The Blues Programme is a targeted indicated cognitive behavioural therapy programme for pupils between the age of 13 and 19 who are experiencing depressive symptoms. It aims to support adolescents to identify negative thoughts, change their thinking patterns, increase their involvement in pleasant activities, and enhance their coping flexibility. The Blues Programme is included on the EIF Guidebook.	**Facilitator:** Five psycho-educators (counsellors) and one psychologist **Format:** Group sessions of 5–9 students, plus homework	**Duration and frequency:** Six sessions over six weeks	**Booster:** No	**Quality assessment:** 1

Study Design	Results	
RCT **Country:** Canada **Total sample size:** 74 students from three schools in Montreal, Canada **4% attrition at FU** 66% female **Mean age:** 15.5 years **Control:** No intervention	**Depression**	Significant effect on likelihood on developing major depressive disorder (MDD) at six-month follow-up (OR=6.0, 95%CI 1.10, 33.0, p<0.050). Students in the control group were six times less likely to develop MDD by six months (*the Structured-Clinical Interview for DSM-IV Disorders*). Significant effect on depressive symptoms post-intervention (d=-0.040, p=0.048) but not at six-month follow-up (*Center for Epidemiologic Studies Depression Scale (CES-D)*). Significant effect on depressive symptoms post-intervention (d=-0.51, p=0.010) but not at six-month follow-up (*the Structured-Clinical Interview for DSM-IV Disorders*).
	Anxiety	No significant effect on anxiety symptoms (*social phobia and generalised anxiety subscales of the Spence Children Anxiety Scale (SCAS)*).
	Psychosocial wellbeing	No significant effect on social adjustment (*Évaluation sociale de soi chez les jeunes adultes (Social self-evaluation in young adults)*). Significant effect on frequency of pleasant activities post-intervention (d=0.49, p<0.010). Intervention group experienced increased frequency of pleasant activities. Effect not significant at six-month follow-up (*subset of items from the Pleasant Events Schedule (PES)*). Significant effect on interactions with parents post-intervention (d=0.34, p=0.020). Intervention group report better interactions with parents and decreasing conflict with parents, rather than increasing positive interactions. Effect not significant at six-month follow-up (Mesures de l'Adaptation Sociale et Personnelle des Adolescents Quebecois (*Measure of the Social and Personal Adjustment of Quebec Adolescents*)).
	Psychological wellbeing	No significant effect on negative thoughts (*Automatic Thoughts Questionnaire (ATQ)*).

Targeted indicated interventions using a cognitive behavioural therapy approach (cont.)					
Blossom et al. (2019) & Makover et al. (2019) **High School Transition Programme (HSTP)**	**Description**				
	Target level: Indicated The High School Transition Programme is a targeted indicated cognitive behavioural therapy programme for students with elevated depression and low conduct problem scores. It aims to reduce the development of depressive disorders in at-risk youth as they transition from middle to high school in the US. The programme supports the acquisition of coping-skill competencies, social support resources, engagement in positive social activities, and parental engagement during the transition period.	**Facilitator:** Mental-health Counsellors **Format:** Group sessions (6–8 students each) and parent component	**Duration and frequency:** Twelve sessions, 1 hour each, over six weeks	**Booster:** Yes: 4 one-to-one booster sessions following transition to high school	**Quality assessment:** 1

Study Design	Results	
RCT **Country:** US **Total sample size:** 497 students from six urban middle schools in the north-west **3.4% attrition at FU** 61.5% female **Age:** Middle school students (age 11–13 years) **Control:** No intervention	**Depression**	Significant effect on depressive symptoms at 1, 3, 9, 12, and 18 months post-screening. Depressive symptoms decreased in the whole sample by an average of 0.42 points (β=-0.42, p<0.001), where students in the intervention group had faster rates of decrease (d=0.23, p=0.020) (*Short Mood and Feelings Questionnaire (SMFQ)*). • Depressive symptoms in the intervention group decreased through improvements in school attachment, which in turn improved self-esteem.
	Anxiety	Significant effect on anxiety at 1, 3, 9, 12, and 18 months post-screening. Anxiety symptoms decreased in the whole sample by an average of 0.11 points (β=-0.11, p<0.001), where students in the intervention group had faster rates of decrease (d=0.25, p=0.010) (*4-item anxiety sub-scale from the High School Questionnaire (HSQ)*).

Targeted indicated interventions using a cognitive behavioural therapy approach (cont.)					
Brown et al. (2019) **The DISCOVER 'How to Handle Stress' Workshop Programme**	**Description**				
	Target level: Indicated The Discover programme is a targeted indicated cognitive behavioural therapy programme intervention for pupils between the age of 16 and 19 who are from at-risk backgrounds (minority ethnic young people, socioeconomic deprivation). It aims to reduce stress, depression and anxiety by focusing on methods for coping with common personal and academic stress (such as anxiety and worry), dealing with coursework, dealing with family expectations and exam anxiety.	**Facilitator:** Two clinical psychologists and one assistant psychologist **Format:** Group sessions of up to 15 students plus homework	**Duration and frequency:** One-day workshop, 20/30-minute follow-up call	**Booster:** Yes: offered two further follow-up calls within 12 weeks	**Quality assessment:** 2

Study Design	Results	
Cluster RCT **Country:** UK **Total sample size:** 155 students from 10 secondary schools in London **8.4% attrition at FU** 81.3% Female **Mean age:** 17.3 years NOTE: 21.9% white British, 9.5% other British, 7% Asian or British Asian, 44.5% Black or Black British, 5.2% Mixed background, 0.6% Chinese, 10.3% other, 0.6% prefer not to say **Control:** Waitlist control	**Depression**	Significant effects on depression at three months post-intervention (d=0.27, p=0.021). Significantly fewer depressive symptoms over time (*Mood and Feelings Questionnaire (MFQ)*).
	Anxiety	Significant effects on anxiety at three months post-intervention (d=0.25, p=0.018) (*Revised Child Anxiety and Depression Scale (RCADS)*).
	Subjective wellbeing	Significant effects on quality of life at three months post-intervention (d=0.36, p=0.009) (*the Paediatric Quality of Life Enjoyment and Satisfaction Form (PQ-LES-Q)*).
	Psychological wellbeing	Significant effects on emotional symptoms at three months post-intervention (d=-0.28, p=0.008) (*Revised Child Anxiety and Depression Scale (RCADS)*).
	Psychosocial wellbeing	Significant effects on mental wellbeing at three months post-intervention (d=0.46, p=0.001) (*the Warwick-Edinburgh Mental Well-Being Scale (WEMWBS)*).

Targeted indicated interventions using a cognitive behavioural therapy approach (cont.)

<table>
<tr><td rowspan="6">Haugland et al. (2017, 2020)
Vaag (Dare) (brief CBT) and Cool Kids</td><td colspan="5">**Description**</td></tr>
<tr><td colspan="2">**Target level:** Indicated
The Vaag and Cool Kids programmes are both targeted indicated cognitive behavioural therapy programmes for adolescents with anxiety symptoms. The Vaag intervention includes psychoeducation, cognitive restructuring, in-session exposure, and behavioural experiments and training plan components. The Cool Kids intervention also includes sessions and activities aimed at understanding exposure hierarchies, skills training (such as assertiveness training), problem solving, dealing with bullying, and future plans and celebration components. An important difference between the programmes is the amount of therapist contact between sessions four and five where students perform exposure tasks in their own time: Vaag includes two telephone calls with students individually whereas Cool Kids practise on their own without reflection and guidance.</td><td>**Facilitator:** Two group leaders per group, mainly school personnel (nurses) or mental health workers who all received training
Format: Group sessions with 5–8 students each; a parent component; plus homework</td><td>**Duration and frequency:**
Vaag: Five sessions lasting 45 to 90 minutes (total 5.5 hours); two 10-minute calls/text between sessions four and five (five-week gap)
CK: Ten 90-minute sessions (total 15 hours); two parent-only sessions lasting 90 minutes each</td><td>**Booster:** No

Quality assessment: 1</td></tr>
<tr><td>**Study Design**</td><td colspan="4">**Results**</td></tr>
<tr><td rowspan="2">**RCT**
Country: Norway
Total sample size: 363 students from 18 junior high schools
16.6% defined as non-completers (attrition)
84% female
Mean age: 14.0 years
Control: Wait-list control</td><td>**Depression**</td><td colspan="3">Significant effect on parent-reported depressive symptoms post-intervention (d=0.30, p=0.006). Parent ratings of youth depressive symptoms decreased significantly more in the CBT groups (Vaag and CK groups combined) than the control group. No significant effect at one-year follow-up (*Short Mood and Feeling Questionnaire (SMFQ)*).</td></tr>
<tr><td>**Anxiety**</td><td colspan="3">Significant effect on self-report anxiety symptoms (d=0.34, p=0.001), and parent-reported anxiety symptoms (d=0.53, p<0.001) post-intervention. The CBT group (Vaag and CK groups combined), showed significant reductions in anxiety. Vaag was not inferior to CK. No significant effect of intervention at one-year follow-up (*Spence Children's Anxiety Scale-child and parent version (SCAS-A/P)*).
Significant effect on parent reports of youth impairment from anxiety (d=0.51, p<0.001) post-intervention. Parent reports of youth impairment from anxiety significantly improved in the CBT group (Vaag and CK combined) compared to the control group. Vaag was not inferior to CK. No significant effect at one-year follow-up (*Children Anxiety Life Interference Scale – Parent (CALIS-P)*).
Significant effect on group leaders' rating of severity of adolescent anxiety symptoms (d=1.03, p<0.001) post-intervention. Clinical global severity decreased significantly more in the CBT group (Vaag and CK combined) compared to the control group. No significant effect at one-year follow-up (*Clinical Global Impression Scale - Severity (CGI-S)*).</td></tr>
</table>

Targeted indicated interventions using a cognitive behavioural therapy approach (cont.)						
Putwain et al. (2018) **Strategies to Tackle Exam Pressure and Stress (STEPS)**	**Description**					
	Target level: Indicated The Strategies to Tackle Exam Pressure and Stress (STEPS) programme is a targeted indicated cognitive behavioural therapy programme for pupils with elevated test anxiety symptoms. STEPS aims to reduce anxiety by focusing on identifying test anxiety signs and triggers, identifying negative thought patterns, and prompting more positive ways of thinking about exams, relaxation techniques, study and test-taking skills, understanding internal and external forms of motivation, goal setting, and reflecting on what elements of the programme worked the most successfully.		**Facilitator:** Assistant psychologists **Format:** Group sessions with a maximum of six students	**Duration and frequency:** Six sessions of 40 minutes each, delivered over six weeks (one session per week)	**Booster:** No	**Quality assessment:** 3 *Intervention also evaluated by Putwain et al. (2020)*
	Study Design	**Results**				
	RCT **Country:** England **Total sample size:** 56 students from two secondary schools located in urban areas of England **17.9% attrition at FU** 66.1% female **Mean age:** 14.7 years **Control:** Wait-list control	**Anxiety**	Significant effect on test anxiety subscale of worry ($p<0.001$) post-intervention. The intervention group showed a moderate decline ($d=0.76$, $p<0.001$). The decline over time was associated with a reduction in uncertain control ($R^2=0.079$) (*20-item Revised Test Anxiety Scale – Worry Subscale*). Significant effect on test anxiety subscale of tension ($p<0.001$) post-intervention. The intervention group showed a moderate decline ($d=1.14$, $p<0.001$) compared to negligible decline in the control group ($d=0.08$, $p=0.005$). The decline in the intervention group was associated with a reduction in uncertain control ($R^2=0.064$) (*20-item Revised Test Anxiety Scale – Tension Subscale*). Significant effect on test anxiety subscale of uncertain control ($p=0.040$) post-intervention. The intervention group showed a moderate decline ($d=0.64$, $p=0.003$) compared to no effect in the control group (*20-item Revised Test Anxiety Scale – Uncertain Control Subscale*). No significant effect on test anxiety subscale of bodily symptoms. (*20-item Revised Test Anxiety Scale – Bodily Symptoms Subscale*). No significant effect on test anxiety subscale of irrelevant thoughts. (*20-item Revised Test Anxiety Scale – Irrelevant Thoughts Subscale*).			

Targeted indicated interventions using a cognitive behavioural therapy approach (cont.)						
Putwain et al. (2020) **Strategies to Tackle Exam Pressure and Stress (STEPS)**	**Description**					
	Target level: Indicated The Strategies to Tackle Exam Pressure and Stress (STEPS) programme is a targeted indicated cognitive behavioural therapy programme for pupils with elevated test anxiety symptoms. STEPS It aims to reduce anxiety and promote wellbeing by focusing on identifying test anxious signs and triggers, identifying negative thought patterns and prompting more positive ways of thinking about exams, relaxation techniques, study and test-taking skills, understanding internal and external forms of motivation and goal setting, and reflecting on what elements of the programme worked the most successfully.		**Facilitator:** Assistant psychologists **Format:** Group sessions with a maximum of six students and homework	**Duration and frequency:** Six sessions lasting 45 minutes each, over six weeks (one session per week)	**Booster:** No	**Quality assessment:** 3 *Intervention also evaluated by Putwain et al. (2020)*
	Study Design	**Results**				
	RCT **Country:** England **Total sample size:** 161 students from eight secondary schools **9.3% attrition at FU** 62.7% female **Mean age:** 14.1 years **Control:** Wait-list control	**Anxiety**	Significant effect on test anxiety post-intervention (p=0.001). The intervention group showed a larger significant decrease in test anxiety (d=0.86, p<0.001) than the control group (d=0.62, p<0.001) (*20-item Revised Test Anxiety Scale*). Significant effect on generalised anxiety subscale of clinical anxiety (p=0.003) post-intervention. The intervention group showed a small significant decrease in generalised anxiety (d=0.43, p<0.001), compared to the control group who showed no effect (d=0.11, p=0.350) (*Revised Children's Anxiety and Depression Scale (6-item generalised anxiety and 9-item panic subscales)*). Significant effect on panic subscale of clinical anxiety (p<0.001) post-intervention. The intervention group showed a small significant decrease in generalised anxiety (d=0.54, p<0.001), compared to the control group who showed no effect (d=0.19, p=0.140) (*Revised Children's Anxiety and Depression Scale (6-item generalised anxiety and 9-item panic subscales)*). Reductions in generalised anxiety and panic were significantly associated with concurrent reduction in test anxiety.			
		Wellbeing	No significant effect on school-related wellbeing (*School related Wellbeing Scale (SWBS)*).			

Targeted indicated interventions using a cognitive behavioural therapy approach (cont.)					
Weeks et al. (2017) **CBT Group-Based Intervention**	**Description**				
	Target level: Indicated This targeted indicated cognitive behavioural therapy programme is designed for pupils with elevated anxiety symptoms. The programme is informed by *Cool Connections with Cognitive Behaviour Therapy* (Seiler, 2008) and *Anxiety: Cognitive Behaviour Therapy with Children and Young People* (Stallard, 2009).	**Facilitator:** Researcher-led, with a teaching assistant cofacilitating in one school **Format:** Group sessions (size not reported)	**Duration and frequency:** Six-week group-based intervention with weekly group sessions	**Booster:** No	**Quality assessment:** 3

Study Design	Results	
QED **Country:** UK **Total sample size:** 19 students from secondary schools in one local authority **Attrition not reported** 100% female **Age range:** 11–14 years **Control:** Wait-list control	**Anxiety**	No significant effect on anxiety symptoms. One student reported a large increase in anxiety from pre- to post-intervention (*Spence Children's Anxiety Scale (SCAS)*). No significant effect on teacher rated anxiety (*School Anxiety Scale – Teacher Report (SAS-TR)*).
	Psychological wellbeing	No significant effect on internalising and externalising problems (*Children's Automatic Thoughts Scale (CATS)*).
	Psychosocial wellbeing	No significant effect on prosocial behaviour (*Strengths and Difficulties Questionnaire (SDQ)*).

Targeted indicated interventions using a psychotherapy approach

Harrison et al. (2020) **Counselling for Psychological Distress**	**Description**				
	Target level: Indicated This counselling intervention is designed for students with elevated psychological distress. It aims to reduce distress by using counselling processes (including non-directivity and developing a warm and non-judgemental relationship with participants), active listening, and an emphasis on communication of genuineness, empathy and positive regard.	**Facilitator:** Three counsellors (Master's level) **Format:** Counselling sessions (format not reported)	**Duration and frequency:** Six sessions of 45 minutes each, delivered over approximately three months	**Booster:** No	**Quality assessment:** 2

Study Design	Results	
RCT **Country:** Hong Kong **Total sample size:** 33 students from two secondary schools **33% attrition at FU** 78.8% female **Mean age:** 16.2 years **Control:** No intervention	**Psychosocial wellbeing**	No significant effect on emotional distress post-intervention or at three-month follow-up (*Young Person's Clinical Outcomes in Routine Evaluation measure (YP-CORE)*).
	Psychosocial wellbeing	No significant differences on emotional and behavioural symptoms post-intervention or at three-month follow-up. (*Strengths and Difficulty Questionnaire (SDQ)*).

Targeted indicated interventions using a psychotherapy approach (cont.)

<table>
<tr><td rowspan="8">Pearce et al. (2017)
School-based Humanistic Counselling (SBHC)</td><td colspan="5">**Description**</td></tr>
<tr><td colspan="2">**Target level:** Indicated
This counselling programme is designed for students with moderate to high levels of emotional distress. It aims to reduce distress by giving students the opportunity to talk through their problems which helps students to reflect on their emotions and behaviours.</td><td>**Facilitator:** Qualified counsellors
Format: Group sessions (size not reported)</td><td>**Duration and frequency:** Up to 12 weekly sessions lasting 45 minutes each</td><td>**Booster:** No</td><td>**Quality assessment:** 2</td></tr>
<tr><td>**Study Design**</td><td colspan="5">**Results**</td></tr>
<tr><td rowspan="3">**RCT**
Country: UK
Total sample size: 64 students from three urban secondary schools
29.7% attrition at FU
85.9% female
Mean age: 14.2 years
Control: No intervention</td><td>**Psychological wellbeing**</td><td colspan="4">Significant effect on psychological distress post-intervention (p=0.028). Intervention group showed a significant reduction in psychological distress. No significant effect at six-month or nine-month follow-up (*Young Person's CORE (YP-CORE)*).</td></tr>
<tr><td>**Psychosocial wellbeing**</td><td colspan="4">Significant effect on self-esteem post-intervention (p=0.030). Intervention group, compared to the control group, showed a significant reduction in self-esteem. No significant effect at six-month or nine-month follow-up (*Rosenberg Self-Esteem Scale (RSES)*).
Significant effect on total emotional and behavioural symptoms over time (p<0.001). Significant improvements in intervention group post-intervention (standardised mean difference 1.33), at six-month follow-up (standardised mean difference 1.59) and nine-month follow-up (standardised mean difference 0.81). No significant effect for subscales of conduct problems, hyperactivity, peer problems, prosocial and goal attainment (*Strengths and Difficulties Questionnaire (SDQ)*).</td></tr>
<tr><td>**Other: Goals**</td><td colspan="4">No significant effect on personal goals (*Goal-based outcomes (GBO)*).</td></tr>
</table>

Targeted indicated interventions using a psychotherapy approach (cont.)						
Saelid et al. (2017) **Rational Emotive Behaviour Therapy (REBT)**	**Description**					
	Target level: Indicated REBT is a psychotherapy programme for students with elevated but subclinical anxiety and depression scores. It aims to prevent depression and anxiety by identifying a problem or life adversity and working with a therapist to replace irrational beliefs with effective new philosophies.		**Facilitator:** Researcher-led **Format:** One-to-one session with therapist	**Duration and frequency:** Three sessions of 45 minutes each with approximately two months between each session	**Booster:** No	**Quality assessment:** 2
	Study Design	**Results**				
	RCT **Country:** Norway **Total sample size:** 62 students from one high school **9.7% attrition at FU** Gender not reported **Age range:** 16–19 years **Control:** Active control: individual ATP sessions where students are given the opportunity to ventilate and talk about their problems, but received no advice or directions for solving their problems. Inactive Control: No intervention.	**Depression**	Significant effect on anxiety and depression symptoms at six months post-intervention. The REBT intervention had significantly reduced anxiety and depression scores compared to inactive control (d=0.70, p<0.050). No significant effect of active control. No significant difference in depression between the active control (ATP) and REBT group 6 months post-intervention (*Hospital Anxiety and Depression Scale (HADS)*).				
		Anxiety	Significant effect on anxiety and depression symptoms at six months post-intervention. The REBT intervention had significantly reduced anxiety and depression scores compared to inactive control (d=0.70, p<0.050). No significant effect of active control. No significant difference in depression between the active control (ATP) and REBT group 6 months post-intervention (*Hospital Anxiety and Depression Scale (HADS)*).				

Targeted indicated interventions using a psychotherapy approach (cont.)						
Young et al. (2019) **Interpersonal Psychotherapy–Adolescent Skills Training (IPT-AST)**	**Description**					
	Target level: Indicated The Interpersonal Psychotherapy-Adolescent Skills Training is a targeted indicated programme for students with elevated depression symptoms. It aims to reduce depressive symptoms and improve overall functioning by teaching students about depressive symptoms, interpersonal problems, the link between relationships and emotions, and communication strategies. Pupils also undertake intensive work on their interpersonal goals.		**Facilitator:** Clinical psychology graduate students and clinical psychologists **Format:** 18 groups and individual sessions (may include parents)	**Duration and frequency:** Two individual pre-group sessions, eight group sessions, and one individual mid-group session	**Booster:** Yes: four individual booster sessions delivered in the six months following the group sessions	**Quality assessment:** 1
	Study Design	**Results**				
	RCT **Country:** US **Total sample size:** 186 students from eligible middle and high schools **12.9% attrition at FU** 60.3% female **Mean age:** 14.1 years **Control:** Group counselling	**Depression**	No significant effect on depressive symptoms. Depressive symptoms significantly decreased for both groups at 24-month follow-up but there was no significant difference between the intervention and active control groups (*Center for Epidemiologic Studies–Depression Scale (CES-D)*). No significant effect on likelihood of depression diagnosis (*Schedule for Affective Disorders and Schizophrenia for School-Age Children (K-SADS-PL)*).			
		Subjective wellbeing	No significant effect on overall functioning. Overall functioning significantly increased for both groups at 24-month follow-up but there was no significant difference between the intervention and active control groups (*Children's Global Assessment Scale (CGAS)*).			

Targeted indicated interventions using a psychotherapy approach (cont.)

Torcasso & Hilt (2017)
TeenScreen

Description

Description	Facilitator	Duration and frequency	Booster	Quality assessment
Target level: Universal screening TeenScreen is multi-stage suicide screening programme implemented over three years. The first stage in the programme involves all students completing a universal screening questionnaire, which identifies students at risk of poor mental health and suicide. All students move on to the subsequent stage of the programme and attend either a debriefing with an option of seeing a clinician (if they screen negative for being at risk) or a clinical interview (if they screen positive for being at risk). During clinical interviews, the clinician determines if the student needs to be referred to services, and parents are notified within 24 hours of screening. After the referral to parents, a referral package is sent with a list of mental healthcare providers recommended in the community, a release of information form, and a letter outlining next steps.	**Facilitator:** A screening team including programme coordinators, screeners, debriefers, clinicians and case managers who are often community mental health practitioners – teachers are not allowed to participate in the screening process to maintain student confidentiality **Format:** Individual questionnaire completion and individual referrals based on risk and needs assessment	**Duration and frequency:** One 10–20-minute screening questionnaire, followed by one clinical or debrief interview	**Booster:** No	**Quality assessment:** 3

Study Design	Results	
QED **Country:** US **Total sample size:** 193 students from one public high school **Attrition:** N/A % female not reported **Age range:** 9th Grade Students (age 14–15 years) **Control:** No intervention	**Psychological wellbeing**	Significant increase in the proportion of students identified as in need of mental health support and referred to mental health services through the screening programme (OR=11.77, p<0.001) (*The Diagnostic Predictive Scales (DPS)*).
	Suicidality	Significant effect for predicting the number of students who considered suicide and who attempted suicide two or more times. The proportion of students who considered suicide reduced significantly in intervention schools (Effect=-1.59, p=0.015) and the number of students who reported attempting suicide two or more times (Effect=-0.49, p=0.030) reduced significantly in the intervention schools (*The Youth Risk Behavior Survey (YRBS) developed by the Centers for Disease Control and Prevention's Youth Risk Behavior Surveillance System (YRBSS)*).

To download the full report, visit: https://www.eif.org.uk/report/adolescent-mental-health-a-systematic-review-on-the-effectiveness-of-school-based-interventions

Appendix C.1: Behaviour

Notes

- See page 120 for a detailed glossary and list of abbreviations used in these tables, and page 121 for full references for listed reviews and studies.
- Where these tables mention significant effects, this refers to the intervention group experiencing a significantly larger effect than the control group in the desirable direction.
- Significant effects can be improvements in positive outcomes (such as wellbeing or resilience) or reductions in symptoms (such as depression or anxiety). Where the intervention group experienced significantly worse outcomes than the control group, these are listed as 'adverse' effects.
- Effects (for meta-analyses: pooled effects) were deemed significant where p was less or equal than 0.05 – regardless of the significance level applied by individual studies.

Table of systematic reviews

Systematic reviews of aggression and violence prevention interventions

Reference	Analysis	Quality assessment rating	Inclusion criteria 1 Population/age range 2 Interventions 3 Study design 4 Outcomes assessed	Exclusion criteria	Time frame	Number of studies included in review	Results
Alford & Derzon, 2012 Meta-analysis and systematic review of the effectiveness of school-based programmes to reduce multiple violent and antisocial behavioural outcomes	Meta-analysis	Weak	1 Age not reported, US-only studies 2 School-based interventions to reduce violence and antisocial behaviour 3 RCTs, QEDs 4 Physical aggression, antisocial/ aggressive/ delinquent behaviour	• Differential attrition greater than 20% difference between the treatment and control groups; non-manualised interventions	Not reported	24	Standardised mean effects: • Physical aggression SMD=0.261. • Antisocial behaviour SMD=0.155. • Aggressive/disruptive behaviour SMD=0.127. • Delinquent behaviour SMD=0.080. • Unclear which and how many studies included in meta-analysis. Unclear whether positive effect sizes signify reductions or increases in the behaviours. • Heterogeneity not assessed.

Systematic reviews of aggression and violence prevention interventions (cont.)							
Reference	**Analysis**	**Quality assessment rating**	**Inclusion criteria** 1 Population/age range 2 Interventions 3 Study design 4 Outcomes assessed	**Exclusion criteria**	**Time frame**	**Number of studies included in review**	**Results**
Castillo-Eito et al., 2020 How can adolescent aggression be reduced? A multi-level meta-analysis	Meta-analysis	Strong	1 10–18 years 2 Psychosocial interventions to reduce aggressive behaviour 3 RCTs 4 Actual or threatened physical aggression against peers	• RCTs with clinical populations (diagnoses other than conduct disorder, e.g. ADHD); Non-English/Spanish papers	Up to Dec 2019	112	Overall mean effect size: • Aggressive behaviour: d=0.28, across 95 studies (283 effect sizes from 115 intervention groups) significant heterogeneity; excluding outliers: d=0.21, still significant heterogeneity ($\chi2<0.001$). • Targeted interventions (52 studies, 132 effect sizes, 64 intervention groups) had a larger effect size (d=0.39) than universal interventions (d=0.14; 45 studies, 151 effect sizes, 52 intervention groups). • Universal interventions that included behavioural practice (d=0.16) or problem solving (d=0.20) were more effective than interventions that did not include them. • Interventions delivered by a teacher or member of staff were less effective than interventions delivered by external professionals. • Duration of the intervention was a significant moderator; shorter interventions were more effective.
Cox et al., 2016 Violence prevention and intervention programmes for adolescents in Australia: a systematic review	Meta-analysis	Moderate	1 12–18-year-old Australian youth only 2 Universal interventions designed to prevent or reduce violent behaviour 3 RCTs, QEDs 4 Violent behaviour	• Clinical populations; pharmaceutical interventions; juvenile justice settings; 'violent' sanctions; Non-English papers	Up to Dec 2013	19	Pooled effect sizes (Universal programmes): • Antisocial and violence behaviour (adolescent rated): d=0.108, across 2 studies. • Nonsignificant pooled effects: Bullying (across 2 studies), Alcohol or other drug-related violence (across 4 studies), parent-rated antisocial and violence behaviour (across 2 studies). • Heterogeneity not assessed. • Intervention type: Universal: multi-level interventions, school-wide policies, psychoeducation, SEL-based interventions. No pooled effect size provided for targeted programmes: • Targeted selective: Music therapy significantly reduced externalising behaviours among refugee adolescents. • Targeted indicated: Aggression management training programme – inconclusive evidence; Multimodal antibullying intervention – reduced bullying, effect maintained at three-month follow-up.

Systematic reviews of aggression and violence prevention interventions (cont.)							
Reference	**Analysis**	**Quality assessment rating**	**Inclusion criteria** 1 Population/age range 2 Interventions 3 Study design 4 Outcomes assessed	**Exclusion criteria**	**Time frame**	**Number of studies included in review**	**Results**
Gavine, Donnelly & Williams, 2016 Effectiveness of universal school-based programmes for prevention of violence in adolescents	Narrative synthesis	Moderate	1 11–18 years 2 School-based interventions designed to reduce non-fatal violent injury, homicide, weapons possession, aggressive behaviour or pro-violent attitudes 3 RCTs, QEDs 4 Assaults/ (perpetration or victimisation), homicide, weapon possession, incarceration due to violence	• Non-English papers; non-peer-reviewed literature; primary school settings; other behavioural outcomes; indicated interventions; treatment interventions	2002–March 2014	21	No pooled effect size provided: • **Violent behaviour:** 4 out of seven interventions had positive effects; **Physical aggression:** 4/6 interventions had positive effects, one had adverse effects; **Non-Physical aggression:** 4/6 interventions had positive effects; **Victimisation:** 3/4 interventions had positive effects; **Violence in schools:** 3/3 interventions had positive effects; **Attitudes:** 6/9 interventions had positive effects, one had adverse effects. • No long-term effects. • Intervention type: Programmes designed to teach prosocial skills (such as anger management, empathy, problem-solving, communication and decision-making skills) and programmes designed to promote school-wide norms for non-violence.

Systematic reviews of bullying prevention interventions

Reference	Analysis	Quality assessment rating	Inclusion criteria 1 Population/age range 2 Interventions 3 Study design 4 Outcomes assessed	Exclusion criteria	Time frame	Number of studies included in review	Results
Ng, Chua, & Shorey, 2020 The effectiveness of educational interventions on traditional bullying and cyberbullying among adolescents: a systematic review and meta-analysis	Meta-analysis	Strong	1 10–18 years 2 Face-to-face or online educational interventions with a set curriculum focused on bullying prevention 3 RCTs 4 Traditional (or cyber-) bullying victimisation and perpetration frequencies	• Studies that involved children younger than 10; adolescent minority group samples; uncontrolled studies or active control treatment other than usual or evidence-based practice	Up to June 2019	17	Standardised mean differences: • Bullying victimisation frequency (dichotomous): not significant across 2 studies, (continuous): very small, across 10 studies (I^2=71%). Excluding one outlier: SMD=-0.18; (I^2= 29%), across 9 studies/4,043 participants. • Follow-up: SMD=-0.11 (I^2=0%) across 3 studies/994 participants. • Bullying perpetration frequency (dichotomous): not significant across 2 studies, (continuous): SMD=-0.30 (I^2=75%), across 9 studies/4,043 participants. • Follow-up: SMD=-0.22 (I^2=0%) across 3 studies/994 participants. • Cyberbullying victimisation (continuous): SMD=-0.13 (I^2= 73%), across 5 studies/6,419 participants; no outliers were identified. • Follow-up: SMD=-0.08 (I^2=0%), across 2 studies/2,987 participants. • Cyberbullying perpetration (continuous) SMD=-0.16 (I^2=80%), across 5 studies/6,366 participants; no outliers were identified . • Follow-up: not significant across 2 studies/2,932 participants. • Cyberbullying victimisation, perpetration: interventions delivered by external facilitators (content expert) had a medium significant effect, while interventions delivered by school staff had no significant effect.
Reed et al., 2016 Cyberbullying: a literature review of its relationship to adolescent depression and current intervention strategies	Narrative synthesis	Weak	1 12–18 years, with symptoms of depression as a consequence of cyberbullying victimisation 2 Interventions for the effect of bullying 3 Any study design 4 Cyberbullying/ depression symptoms	• Traditional bullying, participant age under 12 or over 18	Not reported	Not reported	No pooled effect size provided: • Limited research currently exists about effective intervention strategies to address cyberbullying.

Systematic reviews of sexual violence prevention interventions

Reference	Analysis	Quality assessment rating	Inclusion criteria 1 Population/age range 2 Interventions 3 Study design 4 Outcomes assessed	Exclusion criteria	Time frame	Number of studies included in review	Results
De Koker et al., 2014 A systematic review of interventions for preventing adolescent intimate partner violence	Narrative synthesis	Moderate	1 10–19 years 2 Universal intervention(s) for preventing perpetration and victimisation of any type of intimate partner violence (IPV) among adolescents 3 RCTs, QEDs 4 IPV (actual or threatened physical, sexual, psycho-logical violence or sexual harassments)	• Specialised populations, e.g. drug users, adolescents in juvenile institutions	Up to Feb 2013	9	No pooled effect size provided: • Universal interventions targeting perpetration and victimisation of IPV among adolescents can be effective, including in the long term.
De La Rue et al., 2017 A meta-analysis of school-based interventions aimed to prevent or reduce violence in teen dating relationships	Meta-analysis	Strong	1 11–18 2 School-based teen dating violence prevention and intervention programmes 3 RCT, QED 4 Knowledge (about teen dating violence), attitudes (about teen dating violence behaviour), and frequency of perpetration or victimisation (Verbal aggression, relational aggression [controlling, jealousy], physical aggression/violence or sexual aggression/ violence, or coercion) in adolescent intimate partner violence relationships. Also: bystander support or intervention	• Outcomes had to be primary outcomes in the study, English papers only	Up to July 2013	23	Pooled effect sizes: • Teen dating violence knowledge: g=0.22, across 13 studies (15 effect sizes). • Follow-up: g=0.36, across 8 studies (10 effect sizes). • Teen dating violence attitudes: g=0.14, across 10 studies (23 effect sizes). • Follow-up: g=0.11, across 6 studies (15 effect sizes). • Rape myths acceptance: g=0.47, across 4 studies (4 effect sizes). • Follow-up: 1 study, 1 ES, no pooled ES. • Dating violence perpetration: no significant effect across 5 studies (6 effect sizes). • Follow-up: g=-0.11, across 4 studies (8 effect sizes). • Dating violence victimisation: g=-0.21, across 5 studies (8 effect sizes). • Follow-up: no significant effect across 3 studies. • Conflict tactics scale: g=0.18, across 8 studies (10 effect sizes). • Follow-up: no significant effect across 4 studies. • Heterogeneity not assessed: Random Effects Modelling.

Systematic reviews of sexual violence prevention interventions (cont.)							
Reference	**Analysis**	**Quality assessment rating**	**Inclusion criteria** 1 Population/age range 2 Interventions 3 Study design 4 Outcomes assessed	**Exclusion criteria**	**Time frame**	**Number of studies included in review**	**Results**
Leen et al., 2013 Prevalence, dynamic risk factors and the efficacy of primary interventions for adolescent dating violence: an international review	Narrative synthesis	Weak	1 12–18 2 NR 3 Any 4 Adolescent dating violence (physical, sexual, or psychological/ emotional abuse, including threats, towards a dating partner)	• Non-peer-reviewed literature, non-English/ German/ Dutch/ French/ Swedish papers	2000–2011	9	No pooled effect size provided: • 'Tentative analysis suggests that programs focused on behavioural change may elicit sustainable effects more readily' (p. 159).
Lundgren & Amin, 2015 Addressing intimate partner violence and sexual violence among adolescents: emerging evidence of effectiveness	Narrative synthesis	Moderate	1 10–19, but few found, 15–25 also included: 2 Violence prevention intervention (inc. addressing risk factors) 3 RCTs, QEDs 4 Intimate partner violence: behaviour within an intimate relationship that causes physical, sexual or psychological harm, incl. physical aggression, sexual coercion, psychological abuse and controlling behaviour or sexual violence	• Focus on LMIC but includes HIC setting	1990–search date (not given)	61	No pooled effect size provided: • More research on school-based interventions measuring violence as an outcome is needed.
McElwain et al., 2017 Youth relationship education: a meta-analysis	Meta-analysis	Weak	1 Not reported 2 Youth relationship education 3 RCTs, QEDs 4 1) conflict management skills; 2) faulty relationship beliefs; and 3) healthy relationship attitudes	• Systematic reviews, qualitative research	NR	15	• Standardised mean difference (random effects). • Conflict management, g=0.158, across 11 studies (20 effect sizes) (significant heterogeneity [Q]). • Faulty relationship beliefs, g=0.287, across 9 studies (16 effect sizes) (significant heterogeneity [Q]). • Healthy relationship attitudes: nonsignificant across 18 effect sizes, significant heterogeneity [Q]).

Appendix C.2: Behaviour

Table of primary studies

Universal interventions for aggression/violence prevention

Banyard et al. (2019)
The Reducing Sexism and Violence Program – Middle School Program (RSVP-MSP)

Description

Description	Facilitator / Format	Duration and frequency	Booster	Quality assessment
Target level: Universal The RSVP-MSP programme aims to prevent violence in boys by exploring the normalisation, pervasiveness and harmful nature of rigid gender role assumptions. Session topics include empathy, healthy relationships, and information about gender-based violence, including bystander intervention training.	**Facilitator:** Trained programme provider **Format:** Group sessions	**Duration and frequency:** Four 1-hour sessions	**Booster:** No	**Quality assessment:** 3

Study Design	Results	
QED **Country:** US **Total sample size:** 340 students from four schools **4% attrition at FU** 0% female **Mean age:** 12.5 years **Control:** No intervention	**Aggression/violence**	Significant effect on support for male violence ($p<0.05$). (*9 items from Gender Equitable Attitudes Scale*).
	Wellbeing	No significant effect on empathy (*6 items drawn from the compassion scale*). No significant effect on emotional awareness (*2 items from Gratz and Roemer (2004)*). No significant effect on emotion regulation (*4 items from Gratz and Roemer (2004)*).
	Other: Helping intentions	No significant effect on Helping intentions (*4 items were adapted from intent to help scales developed by Banyard, Edwards and Rizzo (2014)*).
	Other: Injunctive norms	No significant effect on injunctive norms (*8 items adapted from Rothman, Edwards, Rizzo, Kearns and Banyard (under review)*).
	Other: Gender norms	No significant effect on gender norms (*measurement adapted from a number of previously validated scales*).
	Other: Masculine stress	No significant effect on masculinity stress measurement (*5 items from the Gender Role Discrepancy & Discrepancy Stress Scale*).
	Other: Support for gender equality	No significant effect on support for gender equality in relationships (*6 items from Gender Equitable Attitudes Scale*).
	Other: Support for male power	No significant effect on support for male power (*9 items from Gender Equitable Attitudes Scale*).
	Adverse effects	Students in the intervention group experienced increased emotional dysregulation scores ($p=0.010$).

Universal interventions for aggression/violence prevention (cont.)

Bonnell et al. (2018, 2019) **Learning Together**	**Description**				
	Target level: Universal The Learning Together programme is a whole-school intervention aimed at reducing aggression and bullying victimisation. Staff are trained in restorative practices, school policies and systems to address bullying and aggression. Bullying and aggressive behaviours are addressed in an action group, and students receive a SEL skills curriculum (for pupils aged 12–15 years), including modules on establishing respectful relationships, managing emotions, understanding/building and maintaining/repairing relationships, and exploring others needs and avoiding conflict.	**Facilitator:** Classroom teachers **Format:** Normal classrooms/ groups like 'conferencing' to deal with incidents, action groups	**Duration and frequency:** SEL curriculum, 5–10 hours per year, action group six times per school year. Implemented continuously for three years	**Booster:** No	**Quality assessment:** 1

Study Design	**Results**	
Cluster RCT **Country:** England **Total sample size:** 6,667 students from 40 state secondary schools in south-east England **85% attrition in control; 81.2% attrition in intervention at FU** 51.8% female **Mean age:** 12.0 years **Control:** No intervention	**Aggression/violence**	No significant effect on aggression perpetration at 24 months post intervention. The intervention was more effective in those with greater baseline aggression (*Edinburgh Study of Youth Transitions and Crime (ESYTC) School Misbehaviour Subscale*). Significant effect on perpetration of aggression in or outside of school at 36 months (MD=-0.031, p=0.016), but not at 24 months (*modified 4-item version of the ESYTC measure of antisocial behaviours*). Significant effect on student-reported observations of other students perpetrating aggression at school at 36 months (MD=0.10, p=0.049), but not at 24 months (*purpose-designed measure*).
	Bullying	Significant effect on bullying victimisation at 36-month follow-up (p=0.0441, adj. ES=-0.08). No significant effect at 24-month post-intervention. The intervention was more effective in those with greater baseline aggression (*Gatehouse Bullying Scale*). No significant effect on bullying perpetration. The intervention had a greater effect in boys than girls and in students with higher baseline bullying experience (*Modified Aggression Scale, Bullying Subscale*). Significant effect on cyberbullying victimisation. The intervention group had lower rates at 24 months (p=0.035, OR=0.77), but not at 36 months (*adapted measure of cyberbullying*). Significant effect on cyberbullying perpetration at 36 months (p=0.005, OR=0.65). No significant effect on cyberbullying perpetration at 24 months (*adapted measure of cyberbullying*).
	Wellbeing	Significant effect on quality of life at 36-month follow-up higher (p=0.0001, adj. ES=0.14). The intervention had a greater effect in boys than girls, in students with higher baseline bullying experience, and in those with greater baseline aggression (*The Paediatric Quality of Life Inventory*). Significant effect on wellbeing at 36-month follow-up (p=0.0487, adj. ES=0.07). The intervention had a greater effect in boys than girls, in students with higher baseline bullying experience, and in those with greater baseline aggression (*The Short Warwick-Edinburgh Mental Well-Being Scale*). Significant effect on psychological problems at 36-month follow-up (p=0·0002, adj. ES=-0.14). The intervention had a greater effect in boys than girls, in students with higher baseline bullying experience, and in those with greater baseline aggression (*The Strengths and Difficulties Questionnaire*).
	Other: Use of NHS services	No significant effect on use of NHS services (*self-report use of services*).

Results continued on next page…

Results continued from previous page…

Universal interventions for aggression/violence prevention (cont.)			
Bonnell et al. (2018, 2019) **Learning Together**	**Study Design**	**Results**	
	Cluster RCT **Country:** England **Total sample size:** 6,667 students from 40 state secondary schools in south-east England **85% attrition in control; 81.2% attrition in intervention at FU** 51.8% female **Mean age:** 12.0 years **Control:** No intervention	**Other: Contact with police**	Students in the intervention group had significantly lower odds of having been in contact with the police in the past 12 months (p=0·0269), compared to the control group. The intervention had a greater effect in boys than girls (*self-report of being stopped, reprimanded, or picked up by the police in the past 12 months*).
		Other: E-cigarette use	Significant effect on e-cigarette use at 36 months (p=0.002, OR=0.59). No significant effect on e-cigarette use at 24 months (*single item purpose-designed measure*).
		Other: Perceived school safety	Significant effect on perceived school safety. Students in the intervention group were more likely to report a lack of perceived school safety at 24 months, compared to controls (p=0.006, OR=1.38) (*single item purpose-designed measure*).
		Other: Participation in school disciplinary procedures	Significant effect on participation in school disciplinary procedures. Students in the intervention group reported lower participation in school disciplinary procedures at 24 months (MD=-0.160, p=0.043) and at 36 months (MD=-0.320, p<0.001), compared to controls (*6-item ESYTC measure of school discipline*).
		Other: Truancy	Significant effect on truancy at 36 months (p=0.001, OR=0.64), but not at 24 months (*single item purposed-designed measure*).
		Adverse effects	Serious adverse events in control (n=7) and intervention (n=8) groups. These included suicide, stabbing, potential self-harm, possible non-consensual sex and disability or long-term illness.

Universal interventions for aggression/violence prevention (cont.)						
Carrascosa et al. (2019) **The DARSI Programme (Developing Healthy and Egalitarian Relationships in Adolescents)**	**Description**					
	Target level: Universal The DARSI programme aims to prevent peer aggressive behaviours by raising adolescents' awareness of the consequences of violence, their critical thinking on sexist attitudes and myths of romantic love, and their personal and social resources. Activities include role-playing, case studies and guided discussions.		**Facilitator:** Research staff **Format:** Usual classrooms	**Duration and frequency:** Twelve 1-hour sessions over four months	**Booster:** No	**Quality assessment:** 3
	Study Design	**Results**				
	QED **Country:** Spain **Total sample size:** 191 students from two secondary schools **Attrition not reported** 53.9% female **Mean age:** 14.1 years **Control:** No intervention control groups	**Aggression/violence**	Significant effect on overt aggression ($p<0.001$, $\eta 2=0.111$) (*the School Aggression Scale*). Significant effect on relational aggression ($p<0.001$, $\eta 2=0.103$) (*the School Aggression Scale*). Significant effect on cyberaggression ($p<0.001$, $\eta 2=0.093$) (*the Scale of Cyber-aggressions Among Peers*).			
		Other: Hostile sexism	Significant effect on hostile sexism ($p<0.001$, $\eta 2=0.157$) (*the Spanish version of the Ambivalent Sexism Inventory for Adolescents*).			
		Other: Benevolent sexism	Significant effect on benevolent sexism ($p<0.001$, $\eta 2=0.228$) (*the Spanish version of the Ambivalent Sexism Inventory for Adolescents*).			
		Other: Romantic myths	Significant effect on romantic myths ($p<0.001$, $\eta 2=0.113$) (*measurement adapted from the Romantic Love Myth Scale*).			

Universal interventions for aggression/violence prevention (cont.)					
Castillo-Gualda et al. (2017) **SEL Training Intervention**	**Description**				
	Target level: Universal The SEL training intervention aims to reduce aggressive behaviour through a three-year intervention which aims to enhance: 1) Accurate perception, appraisal and expression of emotions, (2) Awareness of feelings and ability to generate emotions to facilitate thought, (3) Understanding of emotions including the ability to label them with a rich emotional vocabulary, (4) Regulation of emotions in order to promote emotional and intellectual growth.	**Facilitator:** Psychologists **Format:** Classroom sessions	**Duration and frequency:** Twelve 1-hour classes between January and May of each of the three years	**Booster:** No	**Quality assessment:** 1

Study Design	**Results**	
Cluster RCT **Country:** Spain **Total sample size:** 526 participants from nine middle and high schools **5.7% attrition at FU** 51.1% female **Mean age:** 12.1 years **Control:** No intervention	**Aggression/violence**	Significant reduction in verbal aggression (p<0.01) through the reduction in negative affect, anger and hostile feelings in the intervention group, compared to the control group (*subscale from the Spanish version of the Aggression Questionnaire*). Significant reduction in physical aggression (p<0.01) (*subscale from the Spanish version of the Aggression Questionnaire*) through the reduction in negative affect, anger and hostile feelings in the intervention group, compared to the control group.
	Note: Additional pathway analyses available in full article.	

Universal interventions for aggression/violence prevention (cont.)						
Suh (2019) **Therapeutic Drumming Group/ Education-Based Drumming Group**	**Description**					
	Target level: Universal Both the therapeutic and education drumming programmes aim to prevent aggression and violence. In the therapeutic drumming group, students engage in dyadic and synchronised drum playing while the education-based drumming group were taught how to play the percussion instruments, how to play certain rhythms and how to match music in the textbook.		**Facilitator:** Therapeutic drumming: music teacher with a music therapist as a consultant Education drumming: music teacher **Format:** Classes of approximately 30 students	**Duration and frequency:** Ten 45-minute weekly sessions	**Booster:** No	**Quality assessment:** 3
	Study Design	**Results**				
	QED **Country:** Korea **Total sample size:** 231 students from seven classes in one middle school **Attrition not reported** 50.2% female **Mean age:** 14.3 years **Control:** Other intervention (general prevention)	**Aggression/violence**	Significant reductions in total aggression scores ($p<0.05$, $n2=0.039$). The therapeutic drumming group had significant reductions in total aggression scores compared to the education-based drumming group (*the Korean version of the Buss-Perry Aggression Questionnaire*). Significant effect on physical aggression subscale ($p<0.05$, $n2=0.027$). The therapeutic drumming group had significant reductions in total aggression scores compared to the education-based drumming group. No significant effect on verbal aggression subscale. No significant effect on anger subscale. Significant reductions in hostility scores ($p<0.05$, $n2=0.027$). The therapeutic drumming group had significant reductions in total aggression scores compared to the education-based drumming group.			

Universal interventions for bullying prevention

Acosta et al. (2019) **Restorative Practices Intervention**	Description			
	Target level: Universal The Restorative Practices intervention aims to prevent bullying behaviour and improve peer relationships. It involves training all school staff on how to enact 11 'Essential Elements' including for example: affective statements, restorative questions, small impromptu conferences, proactive circles, responsive circles, fair process and reintegrative management of shame. The intervention seeks to enhance students' relationships with adults, coach students in the use of the essential elements and apply these skills to everyday situations.	**Facilitator:** All school staff **Format:** Group sessions	**Duration and frequency:** Intervention implemented for two years	**Booster:** No	**Quality assessment:** 2

Study Design	Results	
Cluster RCT **Country:** US **Total sample size:** 2,834 students from 13 middle schools **29.3% attrition at FU** 49% female **Age range:** 11–12 years **Control:** No intervention	**Bullying**	No significant effect on bullying victimisation (verbal, physical nor cyberbullying) (*each measured with three items from the Communities That Care Survey*).
	Other: School climate	No significant effect on school climate (positive peer interaction nor student input into decision-making) (*4 select scales from the Inventory of School Climate*). No significant effect on social skills (*the Social Skills Improvement System-Rating Scale*). No significant effect on student reports of restorative practices (*17 questions about their experience of restorative practices at school*).
	Other: School connectedness	No significant effect on school connectedness (*with a five-item scale from the National Adolescent Health Study*).
	Other: Peer attachment	No significant effect on peer attachment (*a three-item scale developed by Acosta (2003)*).
	Other: Social skills	No significant effect on social skills (*the Social Skills Improvement System-Rating Scale*).
	Other: Restorative practices	No significant effect on student reports of restorative practices (*17 questions about their experience of restorative practices at school*).

Universal interventions for bullying prevention (cont.)						
Benitez-Sillero et al. (2020) **PREBULLPE (programme to prevent bullying in adolescents in physical education classes)**	**Description**					
	Target level: Universal The PREBULLPE programme is designed to prevent bullying using Physical Education classes. Six sessions are inserted into the curriculum of Physical Education. Content includes: knowledge of bullying, the roles of victim and aggressor, knowledge and expression of basic emotions, importance of the social group, collaborative work, self-esteem, empathy, self-control, resilience and discrimination. This content was taught through physical activity games and challenges.		**Facilitator:** Research team **Format:** PE class sessions	**Duration and frequency:** Six 1-hour sessions	**Booster:** No	**Quality assessment:** 3
	Study Design	**Results**				
	QED **Country:** Spain **Total sample size:** 764 students from two high schools **Attrition not reported** 49.3% female **Mean age:** 14.8 years **Control:** No intervention (regular PE class)	**Bullying**	Significant effect on bullying victimisation (F=16,951, p=0.000) (*the Spanish version of the European Bullying Intervention Project Questionnaire*). Significant effect on bullying aggression (F=5,215; p=0.023) (*the Spanish version of the European Bullying Intervention Project Questionnaire*). Significant effect on cyberbullying victimisation (F=6,34; p=0.013) (*the Spanish version of the European Cyberbullying Intervention Project Questionnaire*). No significant effect on cyberbullying aggression (*the Spanish version of the European Cyberbullying Intervention Project Questionnaire*).			

Universal interventions for bullying prevention (cont.)

Calvete et al. (2019a, 2019b)

Incremental Theory of Personality Interventions (ITPI)

Description

Description	Facilitator / Format	Duration and frequency	Booster	Quality assessment
Target level: Universal The Incremental Theory of Personality Intervention aims to prevent internalising and externalising problems by teaching students an element of the theory of personality, namely the belief that people can change. The programme consists of three main parts. First, students are asked to read and summarise a scientific paper providing evidence that individuals have the potential to change. Second, participants read several testimonies from people who read the article and endorsed its conclusions. Third, they describe a time they felt isolated, rejected or disappointed by another person at school. They then imagine the same event has happened to another person at school and describe what they could say or do to help the other student understand that people can change and that the things that happen to people can change.	**Facilitator:** Psychologists **Format:** Classroom session	**Duration and frequency:** One 1-hour session, divided into three parts	**Booster:** No	**Quality assessment:** 1

Study Design	Results	
RCT **Country:** Spain **Total sample size:** 867 students from 10 high schools **18.9 % attrition at FU** 48% female **Mean age:** 14.6 years **Control:** Active control	**Bullying**	No significant effect on bullying perpetration at six or 12-month follow-up (*The Spanish or Catalan version of The Revised Peer Experiences Questionnaire*). • Significant moderating effect of age (p=0.027) where younger participants in the intervention decreased in scores while those in the active control group increased. No significant effect on bullying victimisation at six- or 12-month follow-up (*the Spanish or Catalan version of the Revised Peer Experiences Questionnaire*). No significant effect on cyberbullying victimisation at six- or 12-month follow-up (*the Spanish or Catalan version of Cyberbullying Questionnaire*). No significant effect on cyberbullying perpetration at six- or 12-month follow-up (*the Spanish or Catalan version of Cyberbullying Questionnaire*). • Significant moderating effect of age (p=0.022) where younger participants in the intervention decreased in scores while those in the active control group increased.
	Wellbeing	No significant effect on depressive symptoms at six- or 12-month follow-up (*the Spanish or Catalan version of the Centre for Epidemiologic Studies Depression Scale*). • In 8th grade, adolescents in the intervention group displayed a greater decrease in depressive symptoms (p=0.028). The effect size comparing mean change scores was 0.63, from baseline to six months, and 0.68, from baseline to 12 months. In grade 9 the decrease in depressive symptoms was significantly greater in the active control group. The effect size comparing mean change scores was -0.54, from baseline to six months, and -0.58 from baseline to 12 months.
	Other: Maladaptive schemas	Significant effect on maladaptive schemas (p=0.004) (*the Spanish or Catalan version of the Young Schema Questionnaire-3*). • In 8th grade, adolescents in the intervention group displayed a greater decrease in maladaptive schemas (p=0.007). The effect size comparing mean change scores was 1.26 from baseline to six months, and 1.19 from baseline to the 12-month follow-up. In grade 9 the intervention group increased in scores. The effect size comparing mean change scores was −2.95 from baseline to six months, and −2.63 from baseline to the 12-month follow-up.

Universal interventions for bullying prevention (cont.)

Cross et al. (2018) **The Friendly Schools Project (FSP)**	**Description**				
	Target level: Universal The Friendly Schools Project adopts a whole-school approach to reducing the prevalence of frequent bullying as students transition from primary to secondary school. The intervention is comprised of three components targeting students, parents and the whole school. Students are provided with information and taught strategies to help manage the transition from primary school through classroom curricula and education magazines. The parent component comprises two booklets sent to parents before the child transitions to secondary school and up to 30 newsletters over two years providing parents with tips to help build students' skills. The whole-school component includes a review of bullying-related policies and procedures and their implementation, and use of positive behaviour management strategies.	**Facilitator:** Researchers, school staff and implementation team **Format:** Classroom sessions, homework, parent component	**Duration and frequency:** Students received 85 hours of activities in year one and 3.5 hours in year two	**Booster:** No	**Quality assessment:** 2

Study Design	**Results**	
Cluster RCT **Country:** Australia **Total sample size:** 3,769 students from 20 Catholic secondary schools **27.3% attrition at FU** 50% female **Mean age:** 13.0 years **Control:** No intervention	**Bullying**	Significant effect on bullying victimisation at 12-month mid-intervention (p=0.009, effect size=0.113). No significant effect at post-intervention (*a seven-item categorical index adapted from Rigby and Slee (1998) and Olweus (1996)*). Significant effect on bullying perpetration at 12-month mid-intervention (p=0.015, effect size=0.197). No significant effect at post-intervention (*a seven-item categorical index adapted from Rigby and Slee (1998) and Olweus (1996)*).
	Wellbeing	Significant effect on Loneliness at 12-month mid-intervention (p=0.007, effect size=0.137). No significant effect at post-intervention (*seven items adapted from a 15-item loneliness at school scale*). Significant effect on Depression at 12-month mid-intervention (p=0.017, effect size=0.154). No significant effect at post-intervention (*the Depression Anxiety Stress Scale*). Significant effect on Anxiety at 12-month mid-intervention (p=0.005, effect size=0.201). No significant effect at post-intervention (*the Depression Anxiety Stress Scale*). Significant effect on Stress at 12-month mid-intervention (p=0.036, effect size=0.113). No significant effect at post-intervention (*the Depression Anxiety Stress Scale*).
	Other: Safety at school	Significant effect on Safety at school at 12-month mid-intervention (p=0.028). No significant effect at post-intervention (*a single item adapted from the Peer Relations Questionnaire*).

Universal interventions for bullying prevention (cont.)							
Greco et al. (2019) **Karate-based Intervention**	**Description**						
	Target level: Universal The Karate-based intervention aims to prevent bullying by promoting resilience and self-efficacy. Each session includes (i) psychoeducation activities (focusing on respect, goal setting, self-concept, self-esteem, courage, resilience, bullying and peer pressure, self-care and caring for others, values, optimism and hope), (ii) warm-up activities, (iii) stretching activities and (iv) karate practice.			**Facilitator:** Two karate instructors **Format:** Group sessions	**Duration and frequency:** One 90-minute session per week for twelve weeks	**Booster:** No	**Quality assessment:** 1
	Study Design	**Results**					
	RCT **Country:** Italy **Total sample size:** 100 students from three high schools **2% attrition at FU** 50% female **Mean age:** 14.6 years **Control:** Wait-list control	**Wellbeing**	Significant effect on resilience (p<0.001, d=1.16) (*the Child and Youth Resilience Measure*). • Significant effect on individual capacities and resource subscale (d=0.88, p<0.001). • Significant effect on relationship with primary caregiver subscale (d=0.58, p<0.001). • Significant effect on contextual factors subscale (d=0.63, p<0.001). Significant effect on self-efficacy (d=0.64, p<0.001) (*the Self-Efficacy Questionnaire for Children (SEQ-C)*). • Significant effect on academic self-efficacy subscale (d=0.35, p=0.011). • Significant effect on social self-efficacy subscale (d=0.42, p<0.001). • Significant effect on emotional self-efficacy subscale (d=0.47, p<0.001).				

Universal interventions for bullying prevention (cont.)

Ingram et al. (2019)

Stand Up: Virtual Reality to Activate Bystanders Against Bullying

Description

Description	Facilitator / Group size	Duration and frequency	Booster	Quality assessment
Target level: Universal The Stand Up programme is a computerised (virtual reality) bullying prevention programme. Participants experience, in virtual reality, three bullying-relevant scenarios: consecutively focusing on being an active bystander and standing up for victims; the consequences of common ineffective responses to bullying; and how to make a difference with small and realistic actions. Participants also complete discussions on perspective taking and also create a short video aimed to spread an anti-bullying message.	**Facilitator:** Researcher-led **Group size:** Virtual reality sessions	**Duration and frequency:** One 1-hour a week for six weeks	**Booster:** No	**Quality assessment:** 2

Study Design	Results	
QED **Country:** US **Total sample size:** 173 students from two middle schools **14% attrition at FU** 55% female **Mean age:** 12.5 years **Control:** No intervention (Enforcement of existing anti-bullying policies during the measurement period)	**Aggression/violence**	No significant effect on relational aggression (*the Relational Aggression Perpetration Scale*).
	Bullying	No significant effect on bullying perpetration (*the nine-item Illinois Bully Scale*). No significant effect on cyberbullying perpetration (*a four-item scale purpose designed*).
	Wellbeing	Significant effect on empathy (β=0.58, p<0.010) (*the 5-item Empathy Subscale of the Teen Conflict Scale*). • Empathy was associated with significant decreases in bullying perpetration post-intervention (β=-0.19, p<0.010). • The mediation effect of the virtual reality treatment on reductions in traditional bullying perpetration behaviours via empathy was also significant (β=−0.53, p=0.040). • The significant increase in empathy was, in turn, also associated with significant increases in willingness to intervene (β=0.37, p<0.001) and school belonging (β=0.24, p<0.010). • The mediation effect of the treatment on individual willingness to intervene via empathy was also significant (β=0.11, p=0.010).
	Other: Bystander behaviour	No significant effect on bystander intervention (*a five-item scale, The University of Illinois Willingness to Intervene in Bullying Episodes*).
	Other: School belonging	No significant effect on school belonging (*4 of the 20 items from the Psychological Sense of School Members Scale*).

Midgett et al. (2017)

The STAC Program

Description				
Target level: Universal The STAC Program is a brief, bystander bullying prevention intervention that aims to increase knowledge about bullying. Students are taught strategies they can utilise to defend victims when they witness bullying. Students are taught STAC strategies including stealing the show, turning it over, accompanying others and coaching compassion.	**Facilitator:** School counsellors **Format:** Group/small group sessions	**Duration and frequency:** One 90-minute session, Two 20-minute follow-up sessions	**Booster:** No	**Quality assessment:** 3

Study Design	Results	
RCT **Country:** US **Total sample size:** 57 students from one junior high school **7% attrition at FU** 53.7% female **Mean age:** 13.6 years **Control:** Waitlist control	**Bullying**	Significant difference between the intervention and control group in the ability to identify bullying at 30-day post-intervention (p<0.050, medium effect size) (*students responded Yes or No to: 'Have you seen bullying at school in the past month?'*).
	Bystander behaviour	No significant effect on knowledge and confidence to act as a defender at 30-day post-intervention (*the Student-Advocates Pre- and Post-Scale*).
	Wellbeing	No significant effect on Anxiety at 30-day post-intervention (*the Anxiety Scale of the Behaviour Assessment System for Children, Third Edition, Self-Report form for Adolescents*). No significant effect on Depression at 30-day post-intervention (*the Depression Scale of the BASC-3 SRP-A*).
	Other: Use of STAC strategies	No significant effect on use of STAC strategies at 30-day post-intervention (*each item of the STAC (stealing the show, turning it over, accompanying others, coaching compassion) measured using a single item with a five-point Likert scale ranging from never/almost never to always/almost always*).

Universal interventions for bullying prevention (cont.)					
Van-Ryzin et al. (2018) **Johnson's Cooperative Learning Approach**	**Description**				
	Target level: Universal The Johnson's Cooperative Learning Approach aims to build positive peer relations and prevent bullying. The programme focuses on cooperative learning where peers help each other learn in small groups under conditions of positive independence. Also emphasised is individual accountability, explicit coaching in collaborative skills, a high degree of face-to-face interaction and guided processing of group performance. Teachers can apply the principles of positive independence to design their own group-based activities using existing criteria.	**Facilitator:** School staff **Format:** Delivered in small groups (size not reported) and homework activities	**Duration and frequency:** Not reported	**Booster:** No	**Quality assessment:** 1

Study Design	Results	
Cluster RCT **Country:** US **Total sample size:** 1,460 students from 15 rural middle schools **9.3% attrition at FU** 48.2% female **Mean age:** 7th grade students (aged 12–13 years) **Control:** Waitlist control	**Psychosocial wellbeing**	Significant effect on relatedness for all students, rather than just marginalised students (students least engaged in school) post-intervention (d=0.43, p<0.050) (*the Relatedness Scale*). • Girls reported significant lower levels of relatedness independent of intervention (β=-0.13, SE=0.04, p <0.001, ES=0.01).
	Psychological wellbeing	Significant effect on perceived stress for marginalised students (students least engaged in school) only (d>0.99, p<0.010). No significant effect for non-marginalised students (*the Perceived Stress Scale*). • Girls report significantly higher levels of perceived stress independent of intervention (β=0.18, SE=0.04, p<0.001, ES=0.01) Significant effect on emotional problems for all students, rather than just marginalised students (students least engaged in school) post-intervention (d=0.55, p<0.050) (*the Strengths and Difficulties Questionnaire*). Girls reported significantly higher levels of emotional problems, independent of intervention (β=0.20, SE=0.03, p <0.001, ES=0.04).
	Bullying perpetration	Significant effect on bullying perpetration for marginalised students (students least engaged in school) only post-intervention (d=0.37, p<0.050). No significant effect for non-marginalised students (*the University of Illinois Bully Scale*).
	Bullying victimisation	Significant effect on bullying victimisation for marginalised students (students least engaged in school) only post-intervention (d=0.69, p<0.050). No significant effect for non-marginalised students (*the University of Illinois Bully Scale*). • Girls reported significantly higher levels of victimisation, independent of intervention (β=0.12, SE=0.06, p<0.050).

Universal interventions for bullying prevention (cont.)

Wojcik et al. (2019)

ABBL Anti-Bullying Transition Programme

Description				
Target level: Universal The ABBL programme aims to reduce bullying behaviour by seeking to change students' perception of how their classmates respond to bullying as bystanders, raising empathy and understanding for the victims, and developing bystander's efficacy to counteract bullying in safety. The three major programme sections are mutual acquaintance ('getting to know you' for students within the class), integration, and team building within the class and empathic perception of excluded individuals.	**Facilitator:** Teachers **Format:** Pair and group work, homework	**Duration and frequency:** One lesson per week for the first eleven weeks of school	**Booster:** No	**Quality assessment:** 3

Study Design	Results	
QED **Country:** Poland **Total sample size:** 96 students from six middle schools **4% attrition at FU** 46.9% female **Mean age:** 13.7 years **Control:** Usual care (standard inductor programme)	**Bullying**	Significant effect on bullying perpetration at three months post-intervention ($p<0.001$; $\eta2=0.244$) (*a purpose-designed Bullying Questionnaire*) Significant effect on self-reported bullying behaviour at three months post-intervention ($p=0.005$, $\eta2=0.087$) (*a purpose-designed Bullying Questionnaire*) Significant lower reporting of cases of bullying in the intervention group, compared to the control group, for physical aggression ($p<0.001$), verbal aggression ($p<0.001$), relational aggression ($p<0.001$) and sexual aggression ($p=0.001$) at three months post-intervention. No significant difference for online aggression (*a purpose-designed Bullying Questionnaire*). Significant lower reporting of participants who admitted to bullying someone at least once in the intervention group, compared to the control group, for physical aggression ($p<0.011$) and verbal aggression ($p=0.005$) at three months post-intervention. No significant difference for relational aggression, sexual aggression, or online aggression (*a purpose-designed Bullying Questionnaire*).

Universal interventions for sexual violence prevention

Munoz-Fernandez et al. (2019) **Date-e Adolescence Programme**	**Description**				
	Target level: Universal The Date-e Adolescence Programme is a multi-component programme designed to reduce dating aggression, victimisation and bullying behaviour. It comprises (i) five SEL sessions using classroom and web-based activities, (ii) two peer-led sessions which aim to raise awareness and promote coping strategies when aggression occurs and raise awareness about the role of peer groups and bystanders in the face of dating violence, (iii) one school session where the main content of the programme is reviewed.	**Facilitator:** Researcher **Format:** Classroom and web-based activities, peer-led training, school session	**Duration and frequency (each session):** Seven 1-hour sessions	**Booster:** No	**Quality assessment:** 2 *Intervention also evaluated by Sanchez-Jimenez et al. (2018)*

Study Design	**Results**	
RCT **Country:** Spain **Total sample size:** 1,423 students from seven high schools **69.92% attrition at FU** 48.21% female **Mean age:** 12.0 years **Control:** Wait-list control	**Sexual violence**	Moderate and severe physical dating violence (*an adapted version of the Physical Violence Scale, from the Conflict Tactics Scale*): • No significant effect on moderate dating aggression or victimisation at post-intervention or six-month follow-up. • Significant decrease in interventions growth trajectory on severe physical aggression (d=0.25) at six-month follow-up. • Significant decrease in interventions growth trajectory on severe physical dating victimisation (d=0.21) at six-month follow-up. Sexual dating violence (*an adapted version of the sexual dating measure*): • Significant decrease in interventions growth trajectory on sexual dating aggression (d=0.38) at six-month follow-up. • Significant decrease in interventions growth trajectory on sexual dating victimisation (d=0.24) at six-month follow-up.
	Bullying	Bullying (*was measured with the Spanish version of the European Bullying Intervention Project Questionnaire*): • No significant effect on bullying aggression at post-intervention or six-month follow-up. • Significant decrease in interventions growth trajectory on bullying victimisation (d=0.98) at six-month follow-up.

Universal interventions for sexual violence prevention (cont.)

Sanchez-Jimenez et al. (2018)
Date-e Adolescence Programme

Description				
Target level: Universal The Date-e Adolescence Programme is a multi-component programme designed to reduce dating aggression, victimisation and bullying behaviour. It comprises (i) five SEL sessions using classroom and web-based activities, (ii) two peer-led sessions which aim to raise awareness and promote coping strategies when aggression occurs and raise awareness about the role of peer groups and bystanders in the face of dating violence, (iii) one school session where the main content of the programme is reviewed.	**Facilitator:** Researcher **Format:** Classroom and web-based activities, peer-led training, school session	**Duration and frequency (each session):** Seven 1-hour sessions	**Booster:** No	**Quality assessment:** 3 *Intervention also evaluated by Munoz-Fernandez et al. (2019)*

Study Design	Results	
Cluster RCT **Country:** Spain **Total sample size:** 1,764 students from 7 high schools **23.6% attrition at FU** 47.7% female **Mean age:** 14.7 years **Control:** Wait-list control	**Aggression/violence**	No significant effect on physical violence, on neither the aggression nor victimisation subscales (*the Conflict Tactics Scale*). No significant effect on anger regulation.
	Sexual violence	No significant effect on psychological violence (*the Psychological Dating Abuse Scale*). No significant effect on online violence, on neither the aggression nor victimisation subscales (*the Cyber Dating Abuse Scale*).
	Wellbeing	Significant effect on self-esteem (p=0.001, d=-0.15) (*the Rosenberg Self-Esteem Scale*). • No significant effect on the self-confidence subscale.
	Other: Myths about romantic love	Significant effect on myths about romantic love – myths about jealousy (p<0.001, d=-0.56), 'Better half' (p<0.001, d=-0.83), omnipotence (p<0.001, d=-0.84) and passion (p<0.001, d=-0.94) (*the Myths of Romantic Love Scale*).
	Other: Couple relationship quality	No significant effect on couple relationship quality (*the Network of Relationships Inventory: Behavioural Systems Version*).

Targeted selective interventions for aggression/violence prevention

Study	Description				
Densley et al. (2017) **Growing Against Gangs and Violence (GAGV)**	**Target level:** Selective Growing Against Gangs and Violence is a targeted selective gang prevention programme. It was implemented in London for schools located within local authority areas prioritised under HM Government's (2011) Ending Gang and Youth Violence programme (such as higher knife crime, sexual violence and violence). The programme aims to challenge moral disengagement and to cultivate resilience and critical engagement with more prosocial and fewer antisocial groups. It uses conversation-style sessions, supplemented with slides, where facilitators focus on a curriculum that covers the legal, medical, social and emotional consequences of knife and gun crime, drug crime, cyber bullying and peer-on-peer sexual violence.	**Facilitator:** Most often teachers, youth workers or police officers **Format:** Class sessions, approximately 25 students per class	**Duration and frequency:** Six lessons over a five-week period	**Booster:** No	**Quality assessment:** 3

Study Design	Results	
RCT **Country:** England **Total sample size:** 391 students from four schools in four London boroughs **35.8% attrition at FU** 36.3% female **Age range:** 12–13 years **Control:** No intervention	**Aggression/violence**	No significant effect on violent offending at post-intervention or 12-month follow-up (*a subset of three items from the Delinquency Inventory*).
	Conduct	No significant effect on delinquency at post-intervention or 12-month follow-up (*a 14-item Self-reported Delinquency Inventory*).
	Other: Gang membership	No significant effect on gang membership at post-intervention or 12-month follow-up (*a single item 'Are you now in a gang?'*).
	Other: Attitudes to gangs	No significant effect on attitudes to gangs at post-intervention or 12-month follow-up (*measured with 3 items*).
	Other: Refusal skills	No significant effect on refusal skills at post-intervention or 12-month follow-up (*measured with 5 items*).
	Other: Conflict resolution skills	No significant effect on conflict resolution skills at post-intervention or 12-month follow-up (*measured with 5 items*).
	Other: Resistance to peer pressure	No significant effect on resistance to peer pressure at post-intervention or 12-month follow-up (*measured with 7 items*).
	Other: School commitment	No significant effect on school commitment at post-intervention or 12-month follow-up (*measured with 7 items*).

Targeted selective interventions for aggression/violence prevention (cont.)					
DeGue et al. (2020) Niolon et al. (2019) Vivolo-Kantor et al. (2019) **Dating Matters (DM)**	**Description**				
	Target level: Selective Dating Matters is a whole-school targeted selective programme for schools in neighbourhoods with elevated crime and economic disadvantage that aims to prevent teenage dating violence. It includes classroom-delivered programmes for 6th to 8th graders, community-based programmes for parents, a youth communication programme, training for educators and community-level activities. Students in 6th and 7th grade received Dating Matters youth programmes. Eighth graders received Safe Dates, an evidence-based prevention programme. All curricula use social-emotional learning and skills-based approaches to focus on healthy relationships and help youth learn and practise healthy relationship skills.	**Facilitator:** School staff, teachers, volunteers, health department staff, research staff, social services staff **Format:** Group sessions, homework, parent component	**Duration and frequency:** The 6th grade curriculum includes six classroom sessions, the 7th grade curriculum includes seven classroom sessions, and the 8th grade curriculum includes 10 classroom sessions, a poster contest and a play.	**Booster:** No	**Quality assessment:** 1

Study Design	Results	
Cluster RCT **Country:** US **Total sample size:** 3,301 participants from 46 schools in high-risk urban communities **Attrition:** Substantial but percentage unclear 48% female **Mean age:** 12.0 years **Control:** Other intervention (Standards of Care (SC))	**Aggression/violence**	Significant effect on sexual violence perpetration. The Dating Matters intervention was associated with significant reductions in sexual violence perpetration (average score 6% lower) and victimisation (average score 3% lower) in most, but not all, sex/cohort groups by the end of 8th grade, relative to the standard of care group (*a variant of a single item from the AAUW Sexual Harassment Survey*). Significant effect on sexual harassment perpetration. The Dating Matters intervention was associated with significant reductions in sexual harassment perpetration (average score 4% lower) and victimisation (average score 8% lower) in most, but not all, sex/cohort groups by the end of 8th grade, relative to the standard of care group (*five items from the AAUW Sexual Harassment Survey and two items from the Growing Up in the Media Survey*). Significant effect on physical violence perpetration. Students in the intervention group reported 11% less physical violence perpetration, compared to students in the standard of care group (*2 items asking about past (4/6 months) acts, or being a victim of, physical violence*).
	Bullying	Significant effect on bullying perpetration. Students in the intervention group reported 11% less bullying perpetration, compared to students in the standard of care group (selected items from the Illinois Bully Scale). Significant effect on cyberbullying perpetration. Female students in the intervention group reported 9% less cyberbullying victimisation and 10% less cyberbullying perpetration, compared to the standard of care group (*4 items from the AAUW Sexual Harassment Survey*).
	Sexual violence	Significant effect on teen dating violence perpetration. • Students in the intervention group reported 84.3% lower teen dating violence perpetration, on average across time points and cohorts, compared to standard of care students (*the Conflict in Adolescent Dating Relationships Inventory*). • Students in the intervention group reported 9.78% lower teen dating violence victimisation, on average across time points and cohorts, compared to standard of care students (*the Conflict in Adolescent Dating Relationships Inventory*).
	Wellbeing	No significant effect on positive relationship (*4 items adopted from the Supporting Healthy Marriage study*).
	Other: Conflict resolution strategies	Significant effect on conflict resolution strategies. Students in the intervention group had 52.2% lower use of negative conflict resolution strategies, on average across time points and cohorts, compared to standard care students (*the Conflict Resolution Style Inventory*).
	Note: Additional analyses per cohort and across sex groups available in full text.	

Targeted selective interventions for sexual violence prevention

Study	Description				
Peskin et al. (2019) **Me & You: Building Healthy Relationships (Me & You)**	**Target level:** Selective The Me & You programme is a targeted selective programme for minority ethnic adolescents that aims to promote healthy relationships and prevent domestic violence. The programme includes 13 lessons which include classroom activities, computer activities, and a combination of classroom and computer lessons. Computer activities include animations, peer video role-modelling of skilled behaviours, quizzes and virtual role play.	**Facilitator:** Teachers and research staff **Group size:** Classroom and individual activities **Format:** Group sessions, homework and parent component	**Duration (each session):** 25 minutes **Number of sessions:** 13 lessons	**Booster:** No	**Quality assessment:** 1

Study Design	Results	
Cluster RCT **Country:** US **Total sample size:** 921 students from 10 schools **23.0% attrition at FU** 52.5% female **Mean age:** 12.2 years **Control:** Usual care (regular health education)	**Sexual violence**	Significant effect on dating violence perpetration. Odds of dating violence perpetration in the last 12 months were lower among intervention, compared to usual care control students (AOR=0.46) (*the Conflict in Adolescent Dating and Relationship Inventory*). • Odds of physical dating violence perpetration (AOR=0.35) were lower among intervention compared to control students. • Odds of psychological dating violence perpetration (AOR=0.62) were lower among intervention compared to control students. • Odds of threatening dating violence perpetration (AOR=0.33) were lower among intervention compared to control students. • Odds of victimisation (AOR=0.36) were lower among intervention compared to control students. • Odds of sexual dating violence victimisation (AOR=0.32) were lower among intervention compared to control students. No significant effect on dating violence victimisation (*the Conflict in Adolescent Dating and Relationship Inventory*).
	Note: Additional analysis available in full text.	

Targeted selective interventions for sexual violence prevention (cont.)						
Sargent et al. (2017) **TakeCARE**	**Description**					
	Target level: Selective The TakeCARE programme aims to prevent sexual violence. In this study, it was implemented with students from an economically disadvantaged school (84.3% qualified for free or reduced lunch). The programme uses a video to present students with a series of vignettes that involve sexual violence, including a risky (potentially violent) situation, a violent situation, and one depicting support after a risky situation. Through voiceover narration, the video presents information on identifying abusive dating relationships, the definition of and issues around consent to sexual activity and providing support to someone who discloses that non-consensual or distressing consensual sex has already occurred. In each vignette, actors respond as helpful bystanders to prevent negative consequences, de-escalate the situation and support a friend after a risky situation has occurred. Further bystander responses are provided by the voiceover.		**Facilitator:** Video in social studies class. School counsellors assisted with intervention evaluation **Format:** Classroom sessions	**Duration and frequency:** Single viewing of the educational video	**Booster:** No	**Quality assessment:** 2
	Study Design	**Results**				
	QED **Country:** US **Total sample size:** 1,295 students from one economically disadvantaged urban public high school **29% attrition at FU** 52.2% female **Mean age:** 15.2 years **Control:** Wait-list control	**Bystander behaviour**	Significant effect on engaging in helpful bystander behaviour at three months post-intervention (d=0.14, p=0.032) (*the Friends Protecting Friends Bystander Behaviour Scale*). • Hispanic students reported engaging in more helpful bystander behaviour than non-Hispanic students (d=0.17, p<0.012).			

Targeted selective interventions for conduct problem prevention

Goyer et al. (2019a) **Values Affirmation/ Social Belonging/ Growth Mindset Interventions**	**Description**				
	Target level: Selective This set of interventions are targeted selective interventions for students from lower socioeconomic status backgrounds and those who had been negatively stereotyped due to ethnicity. They are designed to facilitate identity safety – including a sense of belonging, inclusion and growth. The social belonging intervention encourages students to reflect on their own sense of belonging. The growth mindset intervention conveys that intelligence is not fixed but can grow with hard work, good strategies and help from others. The values affirmation intervention seeks to bolster students sense of personal adequacy to help them cope with identity threat. This study combined all three interventions to determine its impact on discipline citations.	**Facilitator:** Teachers distributed and collected materials **Format:** Classroom sessions	**Duration (each session):** Six 15–25-minute sessions delivered during the academic year	**Booster:** No	**Quality assessment:** 3

Study Design	**Results**	
RCT **Country:** US **Total sample size:** 669 students from two middle schools **13% attrition at FU** 48% female **Age range:** 12–14 years **Control:** No intervention	**Conduct behaviour**	Significant effect on annual discipline citations. The combined intervention group reduced average discipline citations over the last two years by 57% (IRR=0.43, p=0.010), compared to the control group. The growth mindset only condition also produced a significant (70%) reduction (IRR=0.30, p<0.001).

Targeted selective interventions for conduct problem prevention (cont.)					
Goyer et al. (2019b) **Social Belonging**	**Description**				
	Target level: Selective The Social Belonging intervention encourages students to reflect on their own sense of belonging. The intervention features stories and conclusions drawn from interviews and surveys conducted with 7th grade students from the same school but previous school year about their experience transitioning to this school. The intervention conveys that it is normal to worry about belonging and relationships with teachers upon entering middle school, but these concerns lessen with time.	**Facilitator:** Teachers distributed and collected materials **Format:** Classroom sessions	**Duration and frequency:** Two 25-minute sessions in the first quarter of 6th grade, in late September and a month later	**Booster:** No	**Quality assessment:** 3

Study Design	Results	
RCT **Country:** US **Total sample size:** 137 students from one middle school **29% attrition at FU** 53% female **Age range:** 6th–12th grade (ages 11–18 years) **Control:** No intervention	**Conduct**	Significant effect on annual discipline citations (IRR=0.35, p=0.020). Black boys in the intervention group received 65% fewer discipline citations per year over the seven-year assessment period, compared to the control group (*measured from school records*).
	Wellbeing	No significant effect on belonging uncertainty over time (*2-item purpose-designed questionnaire*). No significant effect on social belonging over time (*a 10-item purpose-designed questionnaire*). • There was a significant difference between the control and intervention group for black boys over the course of middle school (d=0.85, p=0.018) illustrated by the control condition black boys decline in levels of social belonging (d=-0.90, p=0.001) while the intervention group remained stable (d=-0.04, p=0.086).
	Other: Stereotype threat	No significant effect on stereotype threat (*6 items adapted from Cohen and Garcia (2005)*).

Targeted selective interventions for conduct problem prevention (cont.)

Obsuth et al. (2017)

London Education and Inclusion Project (LEIP)

Description				
Target level: Selective The LEIP programme aims to improve students' behaviour by developing their communication and broader social skills. The programme was implemented in London in schools that had an eligibility rate for free school meals greater than or equal to 28%. Targeted support is provided to students in the form of group and one-to-one sessions. Sessions focused on interpersonal social skills such as effective anger management skills, assertive communication skills, or learning to appreciate the availability of different response alternatives in a variety of situations.	**Facilitator:** External professionals **Format:** Group and one-to-one sessions, parent component	**Duration and frequency:** Twelve 1-hour one-to-one and twelve 1-hour group sessions delivered over twelve weeks	**Booster:** No	**Quality assessment:** 1

Study Design	Results	
Cluster RCT **Country:** England **Total sample size:** 738 students from Inner and outer London with free school meal eligibility greater than or equal to 28% **32% attrition at FU** 29% female **Mean age:** 14 years **Control:** No intervention control	**Conduct**	**Adverse effect** on self-reported school exclusions at one-month post-intervention (p=0.038, OR=1.470). Students in the intervention group were significantly more likely to self-report being temporarily excluded from school than those in the control group (*measured through student reports, teacher reports, official records (the National Pupil Database (NPD) of the DfE*). No significant effect on antisocial behaviour at one-month post-intervention (*the adolescent version of the Misbehaviour in School (MISQ) measure*). No significant effect on bullying perpetration at one-month post-intervention (*3 questions adapted from a standardised measure of bullying*). No significant effect on delinquency at one-month post-intervention (*an 11-item measure adapted from the z-proso project*). No significant effect on arrests at one-month post-intervention (*official records requested from the Metropolitan Police*). No significant effect on other disciplinary measures at one-month post-intervention (*student and teacher completion of a 14-item measure tapping the frequency and variety of school disciplinary measures comprising the most frequently used school disciplinary measures reported by the DfE (2012)*).
	Wellbeing	No significant effect on interpersonal communication at one-month post-intervention (*a 24-item tool developed by ICAN*). No significant effect on student- or teacher-rated prosocial skills at one-month post-intervention (*Student reported – eight questions, three of which were adapted from the Social Behaviour Questionnaire and five were adapted from the Interpersonal Reactivity Index; teacher reported – four questions originally adapted from the Social Behaviour Questionnaire for the z-proso project*).
	Other: Academic aptitude	No significant effect on academic aptitude at one-month post-intervention (*a computer-administered measure developed by the Centre for Evaluation and Monitoring (CEM) at Durham University. Year 9 students were administered the MidYIS test and students in year 10 were administered the YELLIS test*).

Targeted indicated interventions for aggression/violence prevention

Morgan-Lopez et al. (2020)

School Based Mental Health (SBMH) Program

Description

Target level / Description	Facilitator / Format	Duration and frequency	Booster	Quality assessment
Target level: Indicated & Universal The SBMH programme is a targeted indicated intervention for youth with specific mental health issues (at risk of violence perpetration) but also has a universal component as it investigates the subsequent impact on the whole school. It adopts a whole-school, psychotherapy approach and aims to reduce aggressive behaviour and victimisation. This study investigates standard SBMH (beyond traditional delivery to include community mental health providers in schools), expanded SBMH (funding to access SBMH, admin support, increased school psychologist allotment), and enhanced SBMH (extends standard SBMH to also include two evidence-based therapies, DBT and SPARCS, that directly attend to student mental health problems).	**Facilitator:** SBMH: school counsellors, social workers, school psychologists, therapists. Expanded SBMH: also had service facilitator and increased school psychologist allotment. Enhanced SBMH: also had DBT team; private mental health providers, their supervisors and school psychologists, and SPARCS team; school counsellors and social workers. **Format:** Group and individual sessions	**Duration and frequency:** Not reported	**Booster:** No	**Quality assessment:** 2

Study Design

RCT & QED

Country: US

Total sample size: 4,025 students from 36 schools that service middle school aged youth in a semi-urban district in south-eastern US

35.4% attrition at FU

Gender not reported

Age range: 11–14 years

Control: Other intervention (standard SBMH vs expanded SBMH vs enhanced SBMH vs non SBMH)

Results QED

Outcome	Result
Aggression/violence	No significant effect on aggressive behaviour over time at the whole-school level (the Self-reported Aggression Scale).
Bullying	Significant effect on bullying victimisation at the whole-school level (the Self-reported Victimisation Scale). SBMH expanded schools, compared to non-SBHM schools, showed a significant decrease in change over time (p=0.02, d=-0.27).

Results RCT

Outcome	Result
Aggression/violence	No significant effect on aggressive behaviour over time at the whole-school level (the Self-reported Aggression Scale).
Bullying	Significant effect on bullying victimisation at the whole-school level (the Self-reported Victimisation Scale). SBMH expanded schools, compared to SBHM standard schools, showed a significant decrease in change over time (p=0.03, d=−0.41).

Targeted indicated interventions for aggression/violence prevention (cont.)						
Smokowski et al. (2018) **Youth Court in Schools Project**	**Description**					
	Target level: Indicated & Universal The youth court in schools project is a targeted indicated programme for adolescents most at risk of engaging in aggressive or bullying behaviour but also has a universal component as the whole school can be involved in the programme. The programme aims to prevent violence, aggression and bullying by simulating a court environment in the school. Students make up the prosecution, defence council, bailiff and jurors and the judge role is filled by a teacher or school administrator. Court sanctions often include, for example community service or a letter of apology. In some cases, court sanctions replace original school punishments and once completed, can be expunged from the students record so they do not become a future job/college application barrier.		**Facilitator:** Teachers/school administration as judges and each school chose one class to act as court **Format:** Whole class participation	**Duration and frequency:** Youth courts implemented over one year	**Booster:** No	**Quality assessment:** 2
	Study Design	**Results**				
	Cluster RCT **Country:** US **Total sample size:** 4,000 students from 8 high schools and 16 middle schools across school districts in 2 counties of North Carolina **Attrition not reported** 49.5% female **Mean age:** 12.1 years **Control:** No intervention	**Aggression/violence**	No significant effect on violent behaviour at six-month post-intervention within the intervention group (*13 items assessing violent behaviour*).			
		Bullying	Significant effect on bullying victimisation pre to six months post-intervention within the intervention group (p<0.01) but not between groups (*1 item from the Youth Risk Behaviour Survey*).			
		Wellbeing	Significant effect on anxiety pre to six months post-intervention within the intervention group (p=0.030, d=0.061), but not between groups (*3 items from the Youth Self-Report*). No significant effect on self-esteem within the intervention group but self-esteem decreased significantly in control schools (p=0.001, d=0.084) pre to six months post-intervention. No difference between groups was examined (*a five-item adapted version of the Rosenberg Self-Esteem Scale*). Significant effect on friend rejection pre to six months post-intervention within the intervention group (p=0.005, d=0.081) but not between groups (*the 3-item Friend Rejection Scale*).			
		Other: School danger	No significant effect on school danger in the intervention group but school danger significantly increased in the control schools (p=0.027, d=-0.070) pre to six months post-intervention. No difference between groups was examined (*the 11-item School Danger Scale*).			

Targeted indicated interventions for sexual violence prevention

Reidy et al. (2017) **Expect Respect Support Group (ERSG)**					
Description					
Target level: Indicated The ERSG is a targeted indicated programme for students who have previously been exposed to violence in the home, school or community. It adopts a whole-school approach to reducing teenage dating violence by focusing on developing healthy relationship skills and modifying maladaptive norms about dating behaviour. Programme units include developing group skills, choosing equality and respect, recognising abusive relationships, learning skills for healthy relationships, and getting the message out.		**Facilitator:** Group facilitators (received supervision and were paid) **Format:** Group sessions conducted separately for boys and girls	**Duration and frequency:** Up to 25 weekly structured group support sessions	**Booster:** No	**Quality assessment:** 3

Study Design	Results	
QED **Country:** US **Total sample size:** 1,923 students from 36 schools in Texas **46% attrition at FU** 57.8% female **Mean age:** 14.3 years **Control:** Usual care	**Aggression/violence**	Significant effect on reactive (boys: p=0.06, β=-0.24; girls: p<0.001, β=-0.53) and proactive aggression (boys: p<0.001, β=-0.55; girls: p<0.001, β=-0.36) across time (*the Reactive-Proactive Aggression Questionnaire*). • In a dosage analysis (number of sessions attended), for boys, there were incremental reductions in reactive and proactive aggression as indicated by a significant negative slope. • For girls, the intervention dosage was associated with significant decreases in reactive and proactive aggression.
	Sexual-violence	No significant effect on teenage dating violence, perpetration or victimisation, across time (*questions adapted from the Conflict in Adolescent Dating Relationships Inventory and Safe Dates TDV scales*). • In a dosage analysis (number of sessions attended), for boys, there were incremental reductions in psychological and sexual perpetration, and psychological, physical and sexual victimisation as indicated by a significant negative slope. • For girls, there was a marginal effect of intervention dosage suggesting a potential decline in physical perpetration and a converse effect suggesting that attending more sessions was associated with an increase in victimisation.

Targeted indicated interventions for conduct problem prevention

Martinez et al. (2018)
Muse

Description				
Target level: Indicated The Muse programme is a targeted indicated programme for students with elevated discipline referrals. It aims to reduce classroom offending behaviour through mindfulness and relaxation. Students receive guidance from the Muse app on how to concentrate on their breathing and students try to stay restful and calm. If their brain activity, measured through EEG, remained calm they were rewarded with the sound of birds but if their mind was active, they heard wind and ocean sounds. The muse app tracked and displayed their score after each session.	**Facilitator:** Researchers introduced guided mindfulness in session one but the remaining sessions were self-guided using the Muse app **Format:** Individual sessions; two students' participant simultaneously	**Duration and frequency:** Three minutes using Muse (15 minutes to leave, complete and return to class); 20 sessions, once per week	**Booster:** No	**Quality assessment:** 2

Study Design	Results	
QED **Country:** US **Total sample size:** 20 students from one middle school **10% attrition at FU** 55% female **Age range:** 12-14 years **Control:** No intervention control	**Conduct**	Significant effect on behavioural office referrals (p=0.006, d=1.25) (*measured using office referral records at the school*).

Targeted indicated interventions for conduct problem prevention (cont.)

McQuillin et al. (2020) Mentoring Program

Description				
Target level: Indicated This mentoring programme is a targeted indicated intervention for students with elevated behavioural infractions. It aims to reduce classroom offending behaviour by matching students with mentors (college undergraduates) who are trained in motivational interviewing. Mentors follow a manual to work with mentees and guide them towards school-related goals.	**Facilitator:** Female undergraduate students **Format:** One-on-one sessions	**Duration and frequency:** Ten 45-minute sessions over an 18-week semester	**Booster:** No	**Quality assessment:** 3

Study Design	Results	
RCT **Country:** US **Total sample size:** 68 students form one public middle school in south-eastern US **Attrition not reported** 31% female **Age range:** 11–14 years **Control:** No intervention control	**Conduct**	Significant effect on student-reported school problems (p<0.01, d=-0.58) (*the Behavioural Assessment System for Children (BASC)*). Significant effect on student-reported emotional symptoms (p=0.049, d=-0.34) (*the Behavioural Assessment System for Children (BASC)*). No significant effect on life satisfaction (*the Student's Life Satisfaction Scale*). No significant effect on hyperactivity (*the Behavioural Assessment System for Children (BASC)*). Significant effect on behaviour-related office referrals (p=0.02) (*school record data*).
	Other: Grades in core subjects	Significant effect on maths grades (p=0.04, d=0.42) (*school record data*). No significant effect on Science, History or English Language Arts grades.

To download the full report, visit: https://www.eif.org.uk/report/adolescent-mental-health-a-systematic-review-on-the-effectiveness-of-school-based-interventions

Abbreviations & glossary

95%CI	The 95% Confidence Interval consists of an upper and lower limit within which the true effect is expected to fall 95% of the time. For example, '95%CI 1.05, 4.20' is interpreted as a 95% chance that the true effect size falls between 1.05 and 4.20.
Cohen's F^2	Cohen's F^2 is a standardised measure of effect size that quantifies how large or small the difference between two groups is. Calculated in multiple regression models and repeated-measures data where both the independent and dependent variables are continuous.
d	Cohen's d is a standardised measure that quantifies how large or small the difference between two group averages is in a continuous variable.
ED	Estimated difference is a non-standardised estimate of intervention effects.
ES	Effect Size is a standardised measure that quantifies how large or small the effect of an intervention is. Larger numbers reflect a stronger relationship between the intervention and the outcome(s) it results in.
adjES	Adjusted Effect Size: the measure has been adjusted to account for the impact of other variables considered in the analysis to allow for generalisation to the population.
F	F statistic from Analysis of Variance (ANOVA) and multiple regression models describes the ratio of the variation between sample averages and the variation within sample averages, which quantifies whether a set of averages (means) are equal or not. Larger values reflect greater differences between the samples.
FU	Follow-up refers to an additional evaluation of intervention effects based on data collection considerable time after the intervention period ended.
Hedges' g	Hedges' g is a standardised measure of effect size that quantifies how large or small the difference between two group averages is in a continuous variable across different levels of a categorical variable. NB: Hedges' g is comparable to Cohen's d, but considers sample size when calculating the effect size, so is used in smaller samples (approx. <20) and when sample sizes are unequal.
I^2	I^2 is a measure of heterogeneity in meta-analyses. Where primary study results are very dissimilar, heterogeneity will be high.
IRR	Incident Rate Ratio is an effect size of coefficients in binomial regression models. It quantifies the relative likelihood of an event in a group that is exposed, compared to likelihood of an event in a group that is not exposed, while accounting for time of exposure.
MD	Mean Difference is the absolute difference between the means observed in intervention and control group.
n	Total number gives a count in absolute numbers.
OR	Odds Ratio quantifies the likelihood that an event will occur under two different conditions. Values greater than 1 indicate increased likelihood (eg 2.0 represents twice as likely) and values lower than 1 indicate decreased likelihood.
aOR	Adjusted Odds Ratio means the OR measure has been adjusted to account for the impact of other variables considered in the analysis.
p	The p-value describes the probability that the observed effect or a more extreme effect is a 'chance finding': there is no true intervention effect. In these tables, effects were deemed 'significant' where $p \leq 0.05$. The smaller the p-value is for each finding, the higher the likelihood is that there is a true effect.
Pooled Effect Size	The pooled effect is the weighted average of the study level effect sizes. There are various meta-analytical methods that use different principles to calculate weights.
Q	Cochran's Q is a measure of heterogeneity in meta-analyses. Where study results are very dissimilar, heterogeneity will be high.
QA	Quality Assessment rating refers to the methodological quality of the study. The quality rating results from double-appraising included studies and reaching consensus where there was initial disagreement. For primary studies, a rating of 1 means the study was of high methodological quality, 2 means the methodology was rated moderate, and 3 means the methodology was weak.
QED	Quasi-experimental designs, such as non-randomised controlled trials, instrumental variable designs, or regression discontinuity designs. These research designs aim to enable causal inference (estimating intervention effects) by comparing outcomes of a group of participants who received an intervention with a control group. Depending on which statistical method is used to estimate the difference in group means, QEDs can achieve results that are more robust (eg regression discontinuity design) or much less robust (eg non-randomised controlled study).
R^2	R^2 from regression models captures the proportion of variance in a dependent variable explained by the independent variable(s) included in the model.
RCT	A randomised controlled trial is a research design that involves randomisation of participants to an intervention or control arm. RCTs allow causal inference by comparing outcomes of a group of participants who received an intervention with a control group. Due to the randomisation process, the control group is assumed to provide a robust counterfactual to the intervention group. Where selection bias or attrition could undermine this comparison, this is reflected in a low quality assessment rating.
SE	Standard Error is a quantified estimate of inaccuracy in the effect that is a result of random variation within the data. Smaller values reflect increased accuracy in the effect size.
SMD	Standardised Mean Difference is a measure of effect size at the meta-analytical level.
t	t from t-test analysis quantifies the difference between the average scores of two groups while accounting for variation.
β	Beta co-efficient values express the degree of change in the outcome variable for every one-unit of change in the predictor variable.
η^2	Eta squared (or partial-eta squared) is a standardised measure that quantifies the proportion of variance explained by an individual variable, while accounting for variance explained by other variables in the model. Values range from 0 to 1, with larger values indicating that a higher proportion of variance is accounted for.

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