



Children and Mental Health

Preventive Approaches to
Anxiety and Depression



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1. Introduction

1.1. Aim of this research note

Mental health problems have been increasingly recognised as one of the most significant health concerns for children and adolescents in developed countries.ⁱ The World Health Organization estimates that about 25% of the world's population experiences a mental health problem at some point in their life.ⁱⁱ In about half of the cases, development of symptoms starts before a child's 14th birthday.ⁱⁱⁱ It is therefore important to develop evidence-based interventions that can help address mental health issues in children. These interventions could then help generate new evidence themselves.

The objective of this research note is to summarise the findings presented by existing systematic reviews and meta-analyses of interventions aimed at preventing the development of anxiety and/or depression in children.^{iv} Systematic reviews collate existing evidence on an issue in a structured way by using clear criteria to identify and assess available documentation.^v This research note focuses on anxiety and depression specifically, as these are the most common mental health issues in children.^{vi} We summarise conclusions from 12 reviews that were identified through a targeted search, and which cover a large number of interventions (as shown in Table 1). The Annex presents a detailed description of the search methodology and the criteria that have been used to decide whether a source should be included or excluded in the review.

1.2. Policy context: children's mental health in the 2013 EC Recommendation

This research note was produced as part of the *European Platform for Investing in Children (EPIC)*.^{vii} Established in 2013, EPIC monitors key and innovative developments in child and family policy across the European Union (EU), and hosts resources to support Member States in the implementation of the 2013 European Commission Recommendation 'Investing in children: breaking the cycle of disadvantage.'^{viii} The Recommendation's overarching objective is 'combating child poverty and social exclusion and promoting child well-being.'^{ix} It consists of three main pillars:

- 1) access to adequate resources;
- 2) access to affordable quality services; and
- 3) children's rights to participate.

As part of pillar 2, one objective is to improve the responsiveness of health systems to address the needs of disadvantaged children.^x

This section stipulates that Member States are encouraged to *‘[e]nsure that all children can make full use of their universal right to health care, including through disease prevention and health promotion as well as access to quality health services.’*^{xi}

On the issue of mental health specifically, the Recommendation reads that Member States should *‘devote special attention to children with disabilities or mental health problems, undocumented or non-registered children, pregnant teenagers and children from families with a history of substance abuse.’*^{xii}

This research note aims to support this aspect of the 2013 Recommendation. The next section will provide a brief overview of how we have set about achieving this objective (more detailed information on the methods used is presented in the Annex).

1.3. Methodology

This research note reviews evidence identified through a targeted search. We created a search protocol (see Annex) with a relevant search string, selected databases and inclusion and exclusion criteria. Prior to executing the search, we carried out testing of the possible search terms and databases to ensure that the most relevant options were used. The final search was carried out by searching the following databases: Google Scholar, Nice Evidence Search and Cochrane Library. The initial search yielded 175 results. After removing duplicates, 158 titles and abstracts were screened to see whether the sources met the inclusion and exclusion criteria. Only six sources met the criteria. The search was supported by a hand-search that identified another six sources that met the criteria. Accordingly, a total of 12 sources were included in this review.

1.4. Structure of this research note

Section 2 provides some background on mental health issues in children, including its prevalence and impacts, to help set the scene for the issue at hand. Section 3 discusses the findings from the review, beginning with an overview of the included evidence. After that, the discussion of the evidence is split into four key areas:

- 1) what has been shown to work according to the available evidence;
- 2) what we are still unsure about;
- 3) Aspects that are still unknown and need further investigation; and
- 4) some important things to keep in mind, both in terms of the available evidence, and in practice.

Section 4 offers a summary of what has been covered in this research note. The aim is to help inform policymakers and other stakeholders about the merits and limitations of preventive interventions aimed at improving anxiety and depression outcomes in children.

2. Mental health issues in children: prevalence and impacts

2.1. Mental health issues in children are a leading public health concern

Mental health issues have been increasingly recognised as the most significant health concern for children and adolescents in developed countries.^{xiii} The WHO estimates that about 25% of the world's population experiences mental disorders during at least one point in their lives.^{xiv} In about half of the cases, development of symptoms starts before a child's 14th birthday.^{xv} A meta-analysis of the worldwide prevalence of mental disorders amongst children – based on the findings of 41 studies and a pooled global sample of 87,742 young people – reported the following estimated prevalences: 6.5% for any anxiety disorder; 2.6% any depressive disorder; and 3.4% attention-deficit hyperactivity disorder.^{xvi} In Europe, a study of 7,682 children aged 6–11 across seven European countries (Italy, Germany, the Netherlands, Lithuania, Bulgaria, Romania and Turkey) found that 12.8% of children in these countries have a mental health disorder, with 3.8% of children with probable emotional disorder, 8.4% with probable conduct disorder, and 2.0% with probable hyperactivity disorder.^{xvii} In a study of the self-reported mental health of 6,245 children aged 6–12 across eight European countries (Italy, France, Germany, the Netherlands, Lithuania, Bulgaria, Romania and Turkey), 22.0% of children reported having at least one mental disorder, ranging from 16.4% in the Netherlands to 27.9% in Bulgaria.^{xviii} The study also showed a prevalence of 18.4% for internalising disorders across the countries (1 in 5 children) and 7.8% for externalising disorders (1 in 12). Amongst 10–19 year olds in the WHO European region, suicide is the leading cause of death for children in low- and middle-income countries, and the second-leading cause in high-income countries. Depression and anxiety disorders are also two of the top five causes of overall disease burden for children and adolescents in Europe.^{xix} The following section will provide more information about the common types of mental health disorders in children.

2.2. Common types of mental health disorders in children

There are many different kinds of mental health disorders, each of which might present themselves differently in different people.^{xx} Examples of known disorders include anxiety disorder, depression, bipolar disorders, schizophrenia and behavioural disorders.^{xxi} Within these, experts commonly distinguish between 'internalising' and 'externalising' disorders.^{xxii} Internalising disorders commonly refer to a person's emotional state,^{xxiii} and symptoms of these disorders are directed inwards. Common examples include anxiety and depression. Externalising conditions usually refer to behaviours. Children display the symptoms of their mental health disorder outwardly, for example through aggression and violence. Conduct disorders are a prominent example of an externalising mental health condition.^{xxiv} Both internalising and externalising

disorders can have severe impacts, and there can also be overlap between them.^{xxxv} It is also not unusual for a child who experiences externalising problems when they are younger to develop internalising problems as they grow older.^{xxxvi}

Some evidence suggests that girls are more likely to suffer from internalising disorders than boys.^{xxxvii} Girls are twice as likely to suffer from depression than boys,^{xxxviii} with the first differences in symptoms appearing around the age of 12.^{xxxix} The reasons for this are not well understood and the fact itself is subject to debate. It has been suggested that severity and experiences of depression for boys and girls are similar,^{xxx} however, there could be gender differences in how the symptoms present themselves.^{xxxii} One of the most common types of mental health issues in children are anxiety disorders.^{xxxiii} ‘Anxiety’ commonly refers to feelings of apprehension that do not seem to have any obvious cause, but are consistent and severe enough to interfere with daily life or typical childhood experiences.^{xxxiiii} According to Liu et al. (2011), the median age at which symptoms of anxiety start developing, depending on the concrete diagnosis, is 7.5 years of age.^{xxxiv}

2.3. Impacts of mental health issues can be severe

Suicide is one of the leading causes of death amongst 10–19 year olds in the WHO European Region.^{xxxv} Mental health issues, including depression, constitute one of the leading causes of suicide among adolescents.^{xxxvi} But regardless of their specific diagnosis, young people with serious mental illness are particularly vulnerable to social exclusion.^{xxxvii} Social exclusion refers to barriers faced by individuals in accessing certain forms of capital (such as social, economic and cultural) that would otherwise be necessary for a safe and healthy life.^{xxxviii} It could also be thought of as the experience of loneliness or isolation, and the inability to experience the sense of belonging or acceptance associated with participating in valued social roles in society.^{xxxix} Children who grow up socially excluded experience life-long consequences, from poor physical and mental health to higher risks of experiencing continued poverty and social exclusion.^{xl} People with mental health issues can also experience physical morbidities, such as obesity, which in turn could further their exclusion from social life.^{xli}

For children and adults alike, social exclusion can be both a cause and consequence of poor mental health, and can have cyclical effects.^{xlii} For children, poor mental health has been shown to increase social exclusion,^{xliiii} while social exclusion has also been shown to result in the poor mental health status of children and young people. At the same time, those who experience social exclusion – such as through poverty, physical disability and difficulty in accessing employment – are at greater risk of mental distress and mental ill-health.^{xliiv} A systematic review found that there is a relationship between socio-economic inequality and mental health problems in childhood.^{xlii} According to a report based on data obtained from a UK multi-purpose longitudinal study, ‘children from low-income families are four times more likely to experience mental health problems than children from higher-income families.’^{xlii}

2.4. Mental health issues are both preventable and treatable, but there are barriers

There is evidence that mental health issues are both preventable and treatable, but accessing treatment still seems difficult for many. Research has identified several common barriers to accessing treatment.^{xlii}

Examples include the availability of services (e.g. long waiting lists) or other structural hurdles (e.g. transportation problems). Other examples relate more to perceptions about mental health problems (e.g. the failure of the parents, teachers or health care professionals in a child's life to recognise their behaviour as symptoms of a mental health issue), or about mental health services (e.g. stigma related to accessing mental health services, lack of trust in mental health care providers, etc).^{xlviii} Because of such barriers, only an estimated quarter of children receive the help they need.^{xlix} Difficulties in accessing treatment also mean that there can be a long delay between a child's first experience of symptoms to when they gain access to support.¹ A report by the Centre for Mental Health in the UK has estimated that this delay can be 10 years long.^{li}

Because of the prevalence of mental health issues in children, the potential impacts on their well-being and the consequences for other areas of life, the importance of preventive approaches is becoming increasingly apparent.^{lii}

3. Interventions aimed at preventing anxiety and depression in children: what can be said based on the reviewed evidence?

3.1. Overview of the evidence reviewed

The following sections summarise the findings of the 12 systematic reviews that we examined during this review. It must be noted that the summary is based on the findings of the 12 systematic reviews alone, and not on evidence from the wider literature.

The reviews covered a large number of interventions that varied considerably in terms of study design, intervention type, location, country of implementation, reporting and quality, etc. Some were far more prescriptive than others. For example, Caldwell et al. (2019) reviewed 137 interventions, whereas Tutsch (2019) reviewed just four. There were some commonalities across most of the reviews. Interventions involving components of Cognitive Behavioural Therapies (CBT) were very common. Most, but not all, interventions were delivered in a Randomised Control Trial (RCT)-type format, with an intervention group and control group. Furthermore, while the studies were not limited to anxiety and depression alone, these were by far the most common outcomes assessed. Other internalising problems – such as stress – were also looked at, but not to the same frequency and detail. Interventions were mostly implemented in a school-based setting, with a teacher or mental health practitioner as the deliverer.

Table 1 below provides an overview of the types of interventions covered by the systematic reviews.

Table 1 List of systematic reviews included in this analysis

Study	Description of interventions covered	Intervention type	Number of interventions covered	Mental health outcome	Location of implementation
Ahlen et al. (2015)	Wide range of intervention types	Universal	30	Anxiety & Depression	Wide-ranging
Bastounis et al. (2016)	The Penn Resiliency Programme	Universal	9	Anxiety & Depression	School-based
Caldwell et al. (2019)	Wide range of intervention types	Universal & Targeted	137	Anxiety & Depression	School-based
Clarke et al. (2015)	Wide-ranging, and delivered online	Universal & Targeted	15	Anxiety & Depression	School- or university-based
Feiss et al. (2019)	Wide range of intervention types	Universal & Targeted	42	Anxiety & Depression	School-based
Hetrick et al. (2015)	Psychological or educational based	Universal & Targeted	43	Depression	School-based or online
Hetrick et al. (2016)	Cognitive Behavioural Therapy (CBT), Third-Wave CBT and Interpersonal Therapy (IPT) interventions	Universal & Targeted	83	Depression	Both school- and non-school based
Johnstone et al. (2018)	Psychological based	Universal	14	Anxiety & Depression	School-based
Tutsch et al. (2019)	Wide-ranging	Universal	4	Anxiety	School-based
Waldron et al. (2018)	Based on cognitive-behavioural principles	Universal	8	Anxiety	School-based
Werner-Seidler et al. (2017)	Psychological/psycho-educational based	Universal & Targeted	81	Anxiety & Depression	School-based
Yap et al. (2016)	Largely focused on parenting skills, parent-child relationship and parental mental health	Universal & Targeted	51	Anxiety & Depression	Wide-ranging

3.2. What the reviewed evidence shows

This section summarises the conclusions of the 12 systematic reviews listed in Table 1. On balance, the evidence suggests that anxiety- and depression-prevention interventions can be effective, although effect sizes tend to be small. Of the 12 systematic reviews covered by this research note, 10 concluded that, overall,

these interventions showed promise.^{liii} However, there are several questions that remain unanswered. In the subsequent sections, we outline:

- 1) what has been found to work in the area of preventive interventions for children around anxiety or depression;
- 2) which areas still cause speculation; and
- 3) which areas need further investigation, and therefore remain unknown.

This information is summarised in Table 2. The section ends by mentioning caveats that the reader should keep in mind when considering the presented information.^{liv}

Table 2 Summary of evidence

What we know	What we are not sure about	What we do not know
Targeted interventions can have larger effects than universal interventions, likely due to the nature of the 'at-risk' populations.	Whether it makes a difference by whom – or by what kind of professional – the intervention is delivered (e.g. a mental health practitioner or a schoolteacher).	The effectiveness of programmes for at-risk and vulnerable groups of children.
Interventions of longer duration can be more effective.	The cost-effectiveness and scalability of interventions.	Differences in effectiveness based on gender.
	The relative effectiveness of well-known and popular programmes (e.g. Penn Resiliency programme and FRIENDS).	The effectiveness of digital-based interventions compared to in-person interventions.
	The age at which preventive interventions are most effective.	How long intervention effects last.
	Whether targeting anxiety or depression makes a significant difference to outcomes.	
	What aspects of CBT approaches are most effective, and how these compare to non-CBT approaches.	

3.2.1. Things that have been found to work

Targeted interventions over universal ones

Feiss et al. (2019), Hetrick et al. (2016) and Werner-Seidler et al. (2017) find evidence that targeted interventions appear to be more effective than universal ones. However, as caveated by Johnstone et al. (2018), effect sizes from universal prevention programmes are likely to be smaller because they measure outcomes from whole populations of children, the majority of whom are not at high risk of developing anxiety or depression. Therefore, only a small portion of participants would be expected to receive a preventive effect, with the majority not being impacted by the intervention. However, at-risk populations

are harder to identify and target with an intervention, which can make any interventions more challenging and costly to implement in practice.

Longer programmes might be more effective

There is evidence that programmes of longer duration (for example a higher number of delivery sessions) were more effective than those of shorter duration, as reported by Feiss et al. (2019), Hetrick et al. (2015), Johnstone et al. (2018) and Waldron et al. (2018). However, limited explanation was offered as to why this might be the case.

3.2.2. Things that are tentative

Who should deliver the intervention?

There was mixed evidence surrounding the type of personnel delivering the intervention. Ahlen et al. (2015), Hetrick et al. (2015) and Werner-Seidler et al. (2017) found that interventions delivered by mental health experts were more effective than those delivered by non-experts such as teachers. However, Bastounis et al. (2016), Hetrick et al. (2016), Johnstone et al. (2018) and Waldron et al. (2018) found no difference in efficacy according to deliverer type.

Can the interventions be scaled in a cost-effective manner?

There is a lack of evidence on the scalability and cost-effectiveness of interventions. Finding out this information is important for informing whether widespread implementation is even feasible. According to Yap et al. (2016), school-based interventions can be cost-effective – because the children are already gathered together in a classroom – as can using a teacher to deliver the programme, compared to a mental health professional. Similarly, Hetrick et al. (2015) and Werner-Seidler et al. (2017) note that digitally delivered interventions reduce the need for a costly in-person implementer. However, more research is needed to understand what is cost-effective to implement.

Do the popular programmes work?

A large number of interventions were covered by the reviews, including some well-known and widely implemented programmes, such as the Penn Resilience Programme (PRP) and the FRIENDS initiative (which is widely implemented in schools across New Zealand^{lv}). However, results on the effectiveness of these specific interventions were mixed. Hetrick et al. (2015) concluded that the PRP was effective, whilst Bastounis et al. (2016) concluded it was not. Johnstone et al. (2018) and Waldron et al. (2018) found the FRIENDS initiative to be an effective programme. However, Ahlen et al. (2015) separately analysed the results of interventions using the FRIENDS initiative by comparing them to the results of all other mental health interventions, and found no significant differences or evidence that the FRIENDS programme was any more efficacious than other interventions.

Which age groups are most likely to benefit?

Werner-Seidler et al. (2017) and Yap et al. (2015) found evidence that interventions were more effective if they were delivered to younger children, as opposed to adolescents. However, Ahlen et al. (2015) and Bastounis (2016) found no difference by age, and most of the reviews did not closely analyse age as a modifier.

Is there a difference according to whether a programme targets anxiety or depression?

Reviews found contrasting results about whether anxiety- or depression-prevention programmes were more effective. Yap et al. (2016) found anxiety interventions to be more effective, whereas Caldwell et al. (2019) found more effects for depression. Johnstone et al. (2018) found evidence that the primary target of the programme (i.e. those that primarily targeted depression, anxiety, or both) did not have a notable difference between anxiety or depressive outcomes at any point.

Interventions based on cognitive behavioural therapy (CBT) approaches are very common, but which approach works best?

Psychological-based interventions built on the principles of CBT were by far the most common type of intervention.^{lvi} More research needs to be done to understand: i) what the specific components of CBT are that make them so effective (Hetrick et al. (2015)); and ii) the effectiveness of non-CBT interventions, such as educational or physical-activity based interventions (Waldron et al. (2018)).

3.2.3. Things that are still unknown due to a lack of research

Little evidence around vulnerable children

There is a lack of analysis on certain sub-groups of the population, such as ethnic minorities and other vulnerable groups. Some individual interventions did focus on these groups, but when pooled as part of wider reviews, sufficient analyses of the effects on these groups were not performed.^{lvii} It is important that these groups are given more attention in the future, particularly as there is evidence that children in these groups are at higher risk of poor mental health outcomes.^{lviii} Better reporting will allow larger meta-analyses to study the outcomes of certain sub-groups.

Differences by gender

Closely related to the shortage of analysis on certain sub-groups, there is a lack of evidence on the difference in outcomes based on gender. Several reviews reported the gender composition of the interventions, but offered no sub-group analysis to see if interventions were more effective for one gender compared to another. Ahlen et al. (2015) did conduct this analysis, but found that the percentage of girls in a study sample had no effect on outcomes. More research is needed into the modifying effect of gender on outcomes. Furthermore, there was no evidence amongst the reviewed literature regarding transgender and non-binary people – this poses an important research gap as evidence shows that these groups are particularly vulnerable to mental health issues^{lix} and might not be visible in many research studies due to the restrictive way in which data is collected and reported^{lx}, which could be an area of improvement for future research.

Digital versus face-to-face delivery

There is a lack of research comparing the effectiveness of remotely delivered interventions (for example via an app or web-based platform) compared to face-to-face and in-person delivery. Clarke et al. (2015) did review online interventions and found them to be effective, but did not review in-person interventions, meaning the review does not directly compare the different delivery modes. Hetrick et al. (2016) found no difference in treatment effect based on mode of delivery (delivered online or in-person). However, they caveat this finding by noting that the number of online trials included in their review is very small, and such

trials are particularly susceptible to adherence and engagement issues. Hetrick et al. (2015) argue that more research is needed to understand the effectiveness of web-based interventions.

Evidence of the sustainability of effects is lacking

Despite evidence that interventions could demonstrate effects in the short term, these effects are found to diminish over time. Longer term follow-ups of over a year were either not done, or studies found smaller effects that were no longer statistically significant.^{lxi} Yap et al. (2015) did find persistent long-term effects – however, this study looked at interventions that primarily targeted parents, rather than the children themselves. The parenting interventions covered were wide-ranging but focused on parenting techniques and characteristics that can help mitigate negative mental-health outcomes in their children. The interventions targeted aspects such as parenting skills, the parent-child relationship and the mental health of the parent.

3.2.4. Things to keep in mind regarding the covered evidence

Considerable variability in study outcomes and design makes drawing conclusions about effectiveness difficult

There was considerable variability amongst study outcomes and designs. Most reviews found interventions to be heterogenous in many aspects, including their design, target audience, implementation, data capture and effect sizes^{lxii}. According to Clarke et al. (2015), this makes it difficult to draw definitive conclusions as to which strategies and methods work and which do not. In future, implementers and evaluators should take account of these findings when designing, delivering and reporting intervention-outcome data. This will enable more analysis and comparability, which will allow for more robust conclusions to be made about the effectiveness of certain intervention types.

Most of the evidence stems from Western Europe, North America and Australia

The trials covered in the reviews were mostly implemented in high-income countries, with Western Europe, North America and Australia particularly well-represented.^{lxiii} Therefore, the findings are not necessarily transferrable to other countries in other regions. It would be interesting to have more evidence from a wider range of countries, to evaluate whether preventive interventions have the same impact in developing countries. It should be noted that our search process was centred around finding systematic reviews written in English, which could explain the bias towards interventions delivered in these countries.

The type of control group used matters when conducting an evaluation

The type of control group used in the interventions heavily influenced the significance of the results. Caldwell et al. (2019) argued that many of the significant effects found in other meta-analyses resulted from conflating control conditions, because an active control group was not used. An active control group means that the control group is engaged in some kind of activity or receives some kind of treatment during the intervention period, as opposed to merely being a placebo or non-treatment group. In other words, studies might find effects to be higher than the true effect size, due to experimental effects such as the placebo effect (when subjects behave differently due to being part of a study, even when no actual intervention is being delivered).^{lxiv} Some authors reported that effect sizes became smaller or were no longer statistically significant when active controls were used, compared to non-active controls, demonstrating that active controls might

reduce the prevalence of ‘false-positive’ interventions.^{lxv} In future, more studies should use active control groups as a comparator to the intervention groups.

Some concerns around the quality of existing evaluations

A large proportion of the individual studies covered by the 12 reviews were of poor quality and suffered from a high degree of bias.^{lxvi} For example, Werner-Seidler et al. (2017) examined 81 studies and concluded that 80 of them were biased to at least some degree. This is a limitation of both the results of the individual intervention evaluations, and the findings of the systematic reviews. Studies need to adhere to higher quality study-design principles to ensure bias is minimised. Furthermore, better reporting of methods and data is needed. Some of the systematic reviews were limited by the analysis conducted because of the lack of information detailed in many studies; including a lack of information on outcome data, attrition, facets of the study design (for example, blinding of participants and assessors (not knowing who is in a control and who is in an intervention group)) and lack of follow-up data.^{lxvii} Werner-Seidler et al. (2017) concluded that ‘there is substantial room for improvement in the rigour and quality of the research conducted in this field, and in the reporting of study methodologies and outcomes.’

4. Conclusion

Mental health issues in children are increasingly becoming a significant public health concern, with anxiety and depression constituting some of the most common types of disorders. There is growing interest in practices that might help prevent mental health problems in children. The objective of this research note is to provide an overview of existing evidence by summarising the conclusions of 12 systematic reviews on preventive interventions aimed at reducing depression and anxiety in children.

This research note was produced by the European Platform for Investing in Children (EPIC). The objective of this platform is to support European Union Member States in the adoption of the 2013 Recommendation on Investing in Children through the sharing of evidence on current practices. This research note contributes to this objective by supporting the Recommendation's second pillar, which asks Member States to enable the responsiveness of health-care systems to children in need, including to children with mental-health issues.

In total, the 12 sources reviewed for this research note covered numerous different kinds of interventions for preventing mental-health issues in children, with a focus on preventing anxiety and depression. Overall, the evidence suggests that these kinds of interventions can work, although effect sizes have been found to be small. There is some evidence that suggests interventions targeting children who are at risk of anxiety and depression yield greater results than universal interventions aimed at the general population. It is also suggested that interventions that are delivered over a longer period of time are more successful than interventions that might consist of only a few sessions.

While this conclusion is encouraging, many questions remain unanswered or have yet to be investigated.

Because the evaluations and studies are so diverse in their design (e.g. outcomes measured, control groups used, physical setting, data collected/reported, etc.), the authors of the reviews were not able to draw any definite conclusions as to which elements of an intervention work better than others. Psychological-based interventions built on the principles of CBT were by far the most common type of intervention, but which specific CBT approaches and components work best, or how their effectiveness compares to other kinds of interventions – such as educational or physical activity practices – is unknown.

It is also not yet clear if there are any benefits to having a particular professional deliver a preventive mental health intervention. Some evidence found that interventions delivered by mental health professionals were more effective than interventions delivered by other kinds of professionals, such as teachers. Others, however, found no such effects during their trials. There is also a lack of evidence as to whether interventions can be scaled in a cost-effective manner, or which target group is more likely to benefit than others. For

example, there is some evidence that suggests that the effects are greater for younger children. However, another body of evidence found no difference by age.

The large variety of study designs makes drawing definite conclusions about any of these aspects challenging. In addition, there are also some things that have not yet been effectively investigated by systematic reviews. This includes interventions for particularly vulnerable children, if and how there are differences for boys and girls, whether online or in-person delivery is more effective, and whether effects are sustainable. Conclusions included in the sources suggest that future research should include long-term evaluations, be more rigorous in nature, and include more diverse samples of children.^{lxviii}

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Annex: search protocol

The methodology for this research note was a targeted review that consisted of six steps, each of which is detailed below.

Step 1 Framing the research questions and developing the protocol

The following broad research questions were developed to help guide the search:

RQ: What type of intervention or practices help prevent mental-health issues in children, according to available evidence?

- What kind of interventions exist?
- Which kind of interventions have been shown to be effective in preventing mental illness in children?
- What does the evidence say about implementation considerations?

Step 2 Identifying relevant literature (database searching)

To ensure the consistency and replicability of our reviews, we have used the same search terms for all databases. We undertook a test search to see which databases and search terms seemed to return the most relevant results.

The final search string was:

child OR children AND 'mental health' OR anxiety OR depression OR 'conduct disorder' OR 'mental illness' OR 'mental disorder' AND 'prevention' OR 'early detection' AND intervention OR 'experiment' OR 'trial' AND 'systematic reviews'*

Databases and Search Results

After testing several databases, we selected the following three to carry out the search:

Table 3 Search results

Name of Database	Additional Filters	Number of Search Results Selected for Screening
Google Scholar	Results limited to first 10 pages of search results; results limited to since 2015.	108

NICE Evidence Search	Search limited to since 2015; search limited to 'systematic reviews'.	23
Cochrane Library	First search results: more than 4,000; additional database parameters used: 1) child health; and 2) mental health; search results limited to since 2015.	44
Total number of search results to be included in screening:		175
Total results after automatic removal of duplicates:		160
Total number of sources screened:		160
Number of additional duplicates removed during screening:		2
Total number of sources originally identified for review:		15
Total results after exclusion due to lack of relevance after review:		6
Total number of search results added through hand search:		6
Total number of sources included in research note:		12

Step 3: Study selection (screening)

After conducting the search, we used an automated function in Endnote to remove any duplicates. Then we screened the remaining titles and abstracts against the inclusion and exclusion criteria outlined below, to confirm whether each source should be selected for full-text review.

Inclusion and exclusion criteria

All studies to be included in the review must meet the following criteria:

- They must be reviews – not individual studies;
- They must relate to interventions designed to support the prevention of mental health issues among children. Priority will be given to interventions:
 - Addressing either anxiety or depression; and
 - Focused on prevention.
- They must have been published in the last five years (2015–2020);
- The interventions' target group must be children and/or adolescents; and
- Sources must have been published in English.

After removing any duplicates and applying the inclusion and exclusion criteria, we arrived at 15 sources that met our criteria and that were selected for a deeper review. However, once we began reviewing the sources, it became apparent that a further 9 sources did not meet our original criteria. Accordingly, we were left with a total number of 6 sources.

Step 4: Complementary evidence gathering (hand-search)

Given the small number of sources that matched our criteria for inclusion following the search, we conducted a hand-search for other sources that met our criteria but which had potentially been missed in the database search. As part of this hand-search, we identified 6 additional sources to include in the review.

Step 5: Extracting relevant data and information from the selected sources

To ensure consistency across the team when reviewing the sources to be included in the analysis, we created a simple data-extraction tool to record information from the reviewed papers.

Step 6: Synthesis of the evidence

We collated the findings from the different data sources in a narrative format and presented them in two main categories: evidence-based findings and mixed results.

Endnotes

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