Mapping universal prevention and promotion interventions for child and adolescent mental health and wellbeing:

A rapid overview

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March 2019

Acknowledgements

This work was funded by Barnardo's. We would also like to thank Neil Quinn, Co-Director of the Centre for Health Policy for his support of this project.

Suggested citation: Macintyre, A.K. & Karadzhov, D. (2019) Mapping universal prevention and promotion interventions for child and adolescent mental health and wellbeing: A rapid overview. London: Barnardo's

Contents

1. Introduction 4
2. Background 4
  2.1 Child and adolescent mental health and wellbeing in the United Kingdom 4
  2.2 Focusing on prevention and mental health promotion 5
  Box 1: Key definitions 5
3. Focus of the Review 6
4. Method 6
  4.1 Review protocol 6
  4.2 Search strategy 6
  4.3 Inclusion criteria 6
  4.4 Exclusion criteria 7
  4.5 Title and abstract screening 7
  4.6 Full text screening 7
  4.7 Amendments to Inclusion criteria 8
  4.8 Data Extraction 8
  4.9 Quality assessment 8
  4.10 Mapping, matrix and synthesis 8
5. Results 9
  Figure 1: PRIMSA Flow Diagram 10
  5.1 Universal prevention, mental health promotion and treatment 11
  5.2 Main health domains and types of interventions 11
  Table 1: Universal prevention and promotion interventions for child and adolescent mental health and wellbeing (n=77) 12
  Box 2: Definitions of health domains & intervention types for purposes of this rapid review (in alphabetical order) 14
  Box 2 Continued: Definitions of health domains & intervention types for purposes of this rapid .. 15
  review (in alphabetical order) 15
  Figure 2: Matrix of types of universal prevention and promotion interventions for child and adolescent mental health and wellbeing 16
  5.3 Important caveats when reading the evidence 17
  5.4 Anxiety and depression 19
    Table 1: Prevention interventions – mixed 19
    Table 2: Cognitive-behavioural programmes – only 21
    Table 3: Online / web / internet / technology based interventions 22
  5.5 Depression only 24

Table 4: Prevention interventions – mixed ... 24
Table 5: Cognitive-behavioural programmes – only ... 27
Table 6: Physical activity interventions / obesity prevention interventions ... 28
5.6 Anxiety only ... 30
Table 7: Anxiety only - Prevention interventions – mixed ... 30
Table 8: Cognitive-behavioural programmes – only ... 31
Table 9: Cognitive Bias modification of interpretations ... 32
5.7 Internalising / externalising / positive mental health / wellbeing ... 33
Table 10: Mindfulness based interventions, yoga and stress reduction ... 33
Table 11: Mental health promotion / prevention interventions including school based services ... 35
Table 12: Online / web / internet / technology based interventions ... 38
Table 13: Physical activity interventions / obesity prevention interventions ... 40
Table 14: Self-regulation techniques ... 41
Table 15: Creative bibliotherapy / arts activities ... 42
Table 16: Cyberbullying ... 43
5.8 Suicidality and self-harm ... 44
Table 17: Suicide prevention programmes ... 44
5.9 Body dissatisfaction / eating disorders ... 46
Table 18: Body dissatisfaction / eating disorder prevention interventions ... 46
5.10 Positive Youth Development ... 48
Table 19: Positive Youth Development Interventions ... 48
5.11 Stigma and/or mental health awareness ... 50
Table 20: Stigma / mental health awareness interventions ... 50
5.12 Resilience and/or wellbeing ... 51
Table 21: Strength & resilience based interventions ... 51
Table 22: Arts activities ... 52
5.13 Infant mental health ... 53
Table 23: Early years interventions ... 53
6. Strengths and Limitations ... 55
7. Conclusions ... 57
Appendix A: Search Strategy ... 58
Appendix B: Evidence Table of Included Reviews ... 60
8. References ... 117

1. Introduction

Barnardo's is one of the leading Children's charities in the United Kingdom. As part of their Core Priority Programme (2018-2021) Barnardo's identified mental health and wellbeing as a key priority area[1]. The organisation also identified that they wished to focus on a social model of mental health, and to consider prevention and early intervention. In order to begin this work Barnardo's commissioned research to provide a *"mapping of the types of work/policy that is currently considered good practice"* and *"to include and identify aspects which would be considered extremely transformational"*. The intention was to inform stakeholder discussions facilitated by Barnardo's in two Local Authority areas in Scotland and England. As an initial first step, mapping of evidence was required in order that stakeholders could identify gaps in existing practice as well as priorities for future development. Therefore Barnardo's commissioned 2 overviews - one on universal prevention and one on selective prevention in order to inform this work.

This report outlines the first overview: a rapid overview of reviews to provide a mapping of universal prevention and promotion interventions for child and adolescent mental health and wellbeing. This report provides a summary of this work, undertaken by the Centre for Health Policy, University of Strathclyde. This report can be read in conjunction with the second overview (Macintyre & Karadzhov 2019b).

<u>How to use this report:</u> This overview is intended as a mapping of review level (previously synthesised) evidence. It is not intended to provide recommendations of particular interventions, but rather as a resource and signposts to evidence (See Section 5.3). The evidence tables are provided as a summary and readers should consult the included reviews (identified in Table 1 and marked with asterisks ** in the reference list) for further detail.

2. Background

2.1 Child and adolescent mental health and wellbeing in the United Kingdom

Child and adolescent mental health and wellbeing, defined here as both positive mental health and mental health problems (Friedli, 2009), is a public health priority (Patel et al., 2007). Between 10 and 20% of children and adolescents experience mental health problems globally leading to significant impact on health and social outcomes across the life course (Kieling et al., 2011). International evidence points to the possibility of increasing prevalence of youth mental health problems in recent years (Bor et al., 2014, Collishaw, 2015). Furthermore, data from the United Kingdom indicates recent increases in referrals to Child & Adolescent Mental Health Services (CAMHS) (Murphy, 2016, Frith, 2016). For example, in Scotland between 2013/14 and 2017/18 there was a 22% increase in referrals to CAMHS, and over the same period the average waiting time for an initial treatment appointment increased from 7 weeks to 11 weeks (Audit Scotland, 2018). A report published in 2018 by the Education Policy Institute suggested that referral rates in England increased by 26% over the previous 5 years (Crenna-Jennings, 2018). Thus it is clear that child and adolescent mental health and wellbeing is a crucial public health challenge, and has a high degree of salience in the lives of young people in the United Kingdom (Scottish Youth Parliament, 2016).

[1] https://www.barnardos.org.uk/sites/default/files/uploads/Barnardo%27s%20corporate%20strategy.pdf

2.2 Focusing on prevention and mental health promotion

For mental health research, policy and practice in general, there is increasing recognition of the need for greater focus on prevention and promotion (Goldie et al., 2015, Kritsotaki et al., 2019); however, in contrast to the focus on therapeutic treatment there is comparatively little investment in research on mental health prevention and promotion(Wykes et al., 2015). In order to reduce the prevalence of mental health problems in the general population, and to stem the demand for clinical services it is argued that there is a need for increased focus at a population level (Barry, 2010, Wahlbeck, 2015). Accordingly recent years have seen much greater interest in mental health promotion and prevention, as part of a public mental health approach (Wahlbeck, 2015). Encouragingly, there is a growing evidence base evaluating preventative and mental health promotion interventions on which to draw (Barry, 2010, Wahlbeck, 2015).

This need for greater focus on prevention is also pertinent to child and adolescent mental health. Whilst it is recognised that there is an urgent need for increased specialist service provision, it is also essential to support the funding and provision of preventative approaches(Scotland, 2018). The current overview aims to respond to this by focusing on prevention and promotion, and specifically on universal approaches, that is, interventions that can be provided to all children and young people irrespective of their level of risk.

Please see **Box 1** for an outline of key definitions.

Box 1: Key definitions

Children and young people: For the purposes of this review this group is defined as from pre-birth to 26 years.

Mental health and wellbeing: Whilst it is recognised there is a no universal definition (Henderson, 2010), for the purposes of this review, mental health and wellbeing is defined here as both mental health problems and positive mental health (Friedli, 2009), and as relating to a range of outcomes e.g. prevention of anxiety, depression, stress, internalising/externalising problems, promotion of wellbeing, self-esteem, self-efficacy etc..

Mental health prevention: *"concerns itself primarily with specific disorders and aims to reduce the incidences, prevalence or seriousness of targeted problems, i.e. mortality, morbidity and risk behaviour outcomes."* (Barry, 2010, p.53)

Mental health promotion: *"focuses on positive mental health and its main aim is the building of psychosocial strengths, competencies and resources."* (Barry, 2010, p.53).

Universal prevention: *"targeted to the general public or a whole population group that has not been identified on the basis of individual risk"* **(**Mrazek & Haggerty, 1994)

Selective prevention: *"targeted to individuals or a subgroup of the population whose risk of developing mental disorders is significantly higher than average"* (Mrazek & Haggerty, 1994)

Indicated prevention: *"targeted to high-risk individuals who are identified as having minimal but detectable signs or symptoms foreshadowing mental disorder, or biological markers indicating predisposition for mental disorder, but who do not meet DSM-III-R diagnostic levels at the current time"* Mrazek & Haggerty (1994)

Barry, M. (2010) Adopting a mental health promotion approach to public mental health in *Public Mental Health Today. A Handbook.* Goldie, I. (Ed.) Brighton: Pavilion Publishing/Mental Health Foundation

Mrazek & Haggerty (1994), Institute of Medicine (IOM) report *"Reducing Risks for Mental Disorders: Frontiers for Preventive Intervention Research"*

3. Focus of the Review

In order to provide a mapping of universal prevention and promotion interventions within the agreed timescale it was decided that a **rapid overview** would be undertaken. Rapid reviews are defined as: *"a type of knowledge synthesis in which systematic review processes are accelerated and methods are streamlined to complete the review more quickly than is the case for typical systematic reviews"* (Tricco et al., 2017) (p.3). Given the scope of the review question (outlined below) and the need to provide **a 'map' of evidence** across a wide range of topics, it was decided to undertake an overview of reviews rather that to appraise primary evidence; *"the distinguishing feature of overviews is that the information is compiled from systematic reviews, rather than primary studies"* (McKenzie and Brennan, 2017) (p.1). The following report describes a rapid overview of reviews in order to provide **a 'bird's eye view'** on the available interventions to prevent mental health problems and promote positive mental health for children and young people.

Review question: *What types of population-level/universal interventions are identified (by synthesised evidence (primarily systematic reviews) or grey literature) to support the prevention of mental health problems, and the promotion of positive mental health/wellbeing for children and young people pre-birth to age 26?*

4. Method

4.1 Review protocol

A review protocol was developed informed by the conduct of previous reviews in this area (Welsh et al., 2015a, Welsh et al., 2015b, McLean et al., 2017). This was tested with some initial searching, title/abstract screening and data extraction. It was further revised in line with (Tricco, 2017) who provide guidance on the conduct of rapid reviews for health policy and systems. As advised by King et al (2017) the protocol was discussed with the funder to ensure that the intended methodology would meet their requirements, and some slight modifications were made as a result.

4.2 Search strategy

The search strategy is included in Appendix A. Searches were conducted in Web of Science and PsycInfo in November 2018. In addition further sources were identified by searching through Orygen, the National Centre of Excellence in Youth Mental Health, which hosts a database of evidence specifically curated for child and adolescent mental health (https://www.orygen.org.au/Education-Training/Resources-Training/Evidence-Finder).

Additional searching was also undertaken on selected organisational websites (the Mental Health Foundation, NHS Health Scotland, What Works Wellbeing, the Faculty of Public health, Public Health England, Public Health Wales, the Early Intervention Foundation and the Harvard Centre for Child Development) to identify important evidence syntheses/reports relevant to the review question which may not identified in the peer reviewed literature.

4.3 Inclusion criteria

Types of study to be included: Systematic reviews, scoping reviews, rapid reviews which synthesise the evidence relating to effectiveness. Published grey literature e.g. organisational / commissioned reports which synthesise the evidence. English- language studies.

Participants/Population: General population of children and young people from pre-birth to age 26. Focus on high income countries, specifically OECD countries: Australia, Austria, Belgium, Canada, Chile, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, the United Kingdom, and the United States[2].

Intervention: Population level interventions (i.e. those delivered to the whole population regardless of the level of risk) intended to: I) prevent common mental health problems OR II) promote of positive mental wellbeing. Priority given to interventions which could be applied in a UK context.

Condition/domain being studied: Mental health and wellbeing outcomes (e.g. prevention of anxiety, depression, stress, internalising/externalising problems, promotion of wellbeing, self-esteem, self-efficacy).

4.4 Exclusion criteria

Types of evidence: Primary studies of any kind. Evaluations of national / local policies. Studies which focus primarily on theoretical / conceptual issues. Observational studies which primarily focus on epidemiological associations / risk factors / determinants of youth mental health. Editorials / viewpoints / conference papers / abstracts / review protocols / theses / dissertations/ book chapters / book reviews. Studies not published in English.

Population: Focus only on adult population (i.e. do not consider children/young people). Children and young people (or parents) with pre-existing mental health problems / mental disorders / diagnosed mental illness or other forms of diagnosed conditions (e.g. autism / learning disabilities). Children and young people identified as 'higher risk' or vulnerable groups e.g. those with additional support needs such as physical disabilities or learning disabilities, chronic illness, young people with experience of the care system, ethnic minorities/migrants/refugees. College or University students. Studies of interventions in low or middle income countries or those not relevant to UK context. Where tobacco/alcohol and drug use/misuse are the main outcomes i.e. for the purposes of this study these are not considered mental health outcomes.

Interventions: Targeted interventions / clinical interventions, interventions described as 'treatment', mental health service provision / CAMHS / other forms of therapeutic service e.g. counselling.

4.5 Title and abstract screening

Title and abstract screening of electronic database searches was conducted by 1 reviewer (AM) and 10% were cross-checked by a 2nd reviewer (DK). For the reviews identified through Orygen the initial title/abstract screening was conducted by 1 reviewer to identify a list of papers for further consideration (AM).

4.6 Full text screening

Full text screening of papers identified through electronic database searching was undertaken by 1 reviewer (AM) and 20% cross-checked by a 2nd reviewer (DK). Literature review software, Covidence (https://www.covidence.org) was used to assist the full-text screening phase of papers identified through electronic databases. Full text screening of papers identified through Orygen was undertaken by 1 reviewer (AM), and all were cross-checked by a 2nd reviewer (DK). For the Grey

[2] https://www.oecdwatch.org/oecd-guidelines/oecd

literature 1 reviewer searched and identified relevant articles (DK), and a 2nd reviewer cross-checked for relevance (AM).

4.7 Amendments to inclusion criteria

During the course of full text screening and data extraction it became evident that several reviews covered broad topics and might include only a minority of relevant primary studies (e.g. focused on selective or indicated prevention, few intervention studies, or populations outside of the age range). It was decided that a threshold would be set such that 25% of primary studies needed to be relevant to the focus of our review in order to enable meaningful conclusions to be drawn. Where it was not possible to identify an exact percentage of studies a judgement was made about the degree to which the focus of the review was relevant. In addition, whilst overviews were originally intended to be included it was decided that these would be used to cross-check the key conclusions of the synthesis. One reviewer (AM) re-reviewed full texts against this additional criteria and 33 additional papers were excluded. A 2nd reviewer (DK) cross checked 20% of these additional exclusions.

4.8 Data extraction

Data extraction was piloted with several papers to identify key information to extract. These were cross-checked and amended following discussion between reviewers. Data extraction fields included: Study authors; title; primary review aim/objective; total number of primary studies; population; age range (as reported by the review authors and in primary studies); setting; type of intervention; short description of intervention; examples of universal interventions in primary studies; outcomes of the intervention relevant to child and/or adolescent mental health and wellbeing; key findings; any assessment of quality or risk of bias by review authors; limitations of the review (as reported by the review authors); and any other comments. In addition, the main health domain and intervention type were coded to identify key categories across reviews.

4.9 Quality assessment

Due to resource and time constraints for this rapid review it was not possible to undertake quality assessment of the included reviews. Therefore the final selection includes reviews that are likely to be at risk of bias and may be poor quality; however without undertaking quality assessment of reviews it is not possible to identify which reviews are poor quality. The methodological quality of the reviews directly influences the degree to which clear conclusions/recommendations can be drawn and as such the findings of this overview must be interpreted cautiously (Please see section 5.3 below for full discussion of the caveats to be aware of when reading the evidence).

4.10 Mapping, matrix and synthesis

Although it was originally intended to synthesise using a life course framework, it became clear that reviews frequently evaluated evidence across wide age ranges (Johnstone et al., 2018), making it impossible to separate interventions by life course stage. Instead the reviews were synthesised by main health domain and intervention type. This permitted the creation of a matrix which was iteratively revised (See Figure 2 below). Reviews were grouped accordingly and each set of reviews synthesised narratively. A template was created to detail key information for each set of reviews based on the data extraction and to synthesise key findings. In addition, interventions have been identified according to their primary focus on prevention and/or promotion.

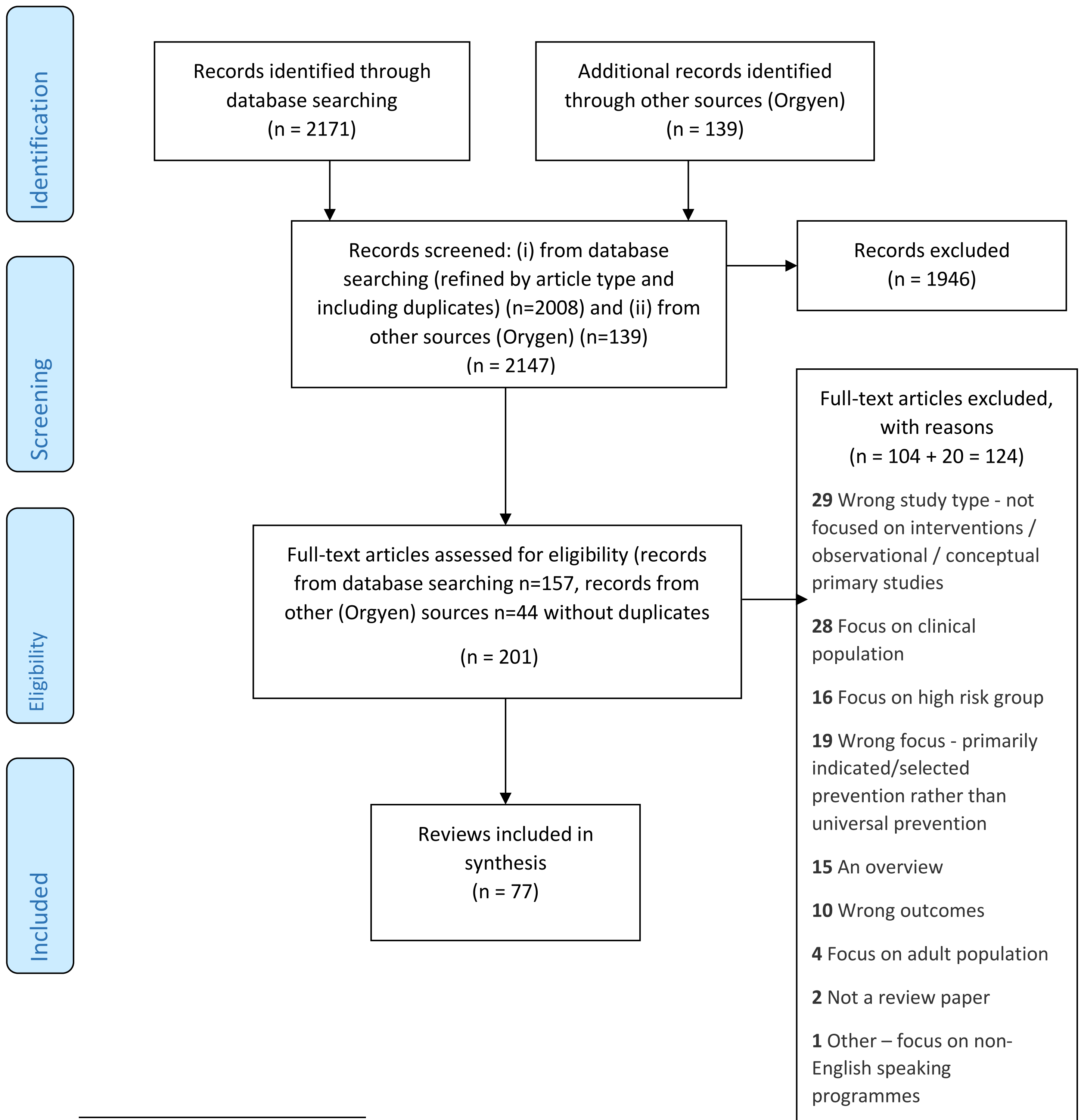
5. Results

In total 77 reviews were identified which met inclusion criteria and these synthesised the data from approximately 2052 primary studies[3]. See Appendix B for full details of included reviews.

In addition 15 overviews were considered relevant to the review, and although not formally included in the synthesis, were used to cross-check the findings for relevant areas. Non peer reviewed literature identified through organisational websites was also not formally included in the synthesis, but has been provided as additional evidence for relevant topic areas. As outlined above, 8 organisational websites were searched for documents relevant to child and adolescent mental health. In total 27 reports were identified which appeared potentially relevant. Further screening excluded 16 reports (e.g. due to wrong primary focus in terms of population/intervention or because they were peer reviewed rather than grey literature). This resulted in 11 grey literature reports deemed relevant to the focus of the overview.

[3] We did not assess the overlap in primary studies between the included reviews and so the total number of unique primary studies is likely less than this figure. Furthermore it must be noted that 2 reviews did not report the number of included studies (Reed 2016; Gladstone & Beardslee 2009)

Figure 1: PRIMSA Flow Diagram[4]



[4] *From:* Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). *P*referred *R*eporting *I*tems for *S*ystematic Reviews and *M*eta-*A*nalyses: The PRISMA Statement. PLoS Med 6(7): e1000097. doi:10.1371/journal.pmed1000097

For more information, visit www.prisma-statement.org.

5.1 Universal prevention, mental health promotion and treatment

Reviews were classified as focused on prevention, promotion, or a combination of prevention/promotion/treatment. See Appendix B for full details of included reviews. In total 45 reviews (58%) were classified as focused on prevention, 10 reviews (13%) were classified as prevention AND promotion, 15 reviews as prevention AND treatment (19%), 6 reviews (8%) as focused on promotion only and 1 review was classified as focused on treatment, prevention and promotion (1%). This is consistent with previous overview evidence, which identified that there had been greater evaluation of interventions designed to prevent mental health problems, than those intended to promote mental health or wellbeing (Welsh et al 2015).

5.2 Main health domains and types of interventions

A wide range of interventions were identified across universal prevention and promotion interventions for a range of topics relevant to child and adolescent mental health and wellbeing. In total 10 key health domains were identified:

- Anxiety AND depression (11 reviews) (plus 1 overview)
- Depression only (15 reviews) (plus 3 overviews)
- Anxiety only (6 reviews) (plus 1 overview)
- Internalising/externalising/positive mental health/wellbeing (19 reviews) (plus 6 overviews and 6 grey literature reports)
- Suicidality/self-harm only (11 reviews) (plus 1 overview)
- Body dissatisfaction/eating disorders (4 reviews) (plus 1 overview)
- Positive youth development and wellbeing (5 reviews)
- Stigma and/or mental health awareness (3 reviews)
- Resilience and/or wellbeing (2 reviews)
- Infant and maternal mental health (1 review) (plus 1 overview and 6 grey literature reports)

In addition 4 overviews cut across several topic areas and are therefore relevant to the whole overview (Das et al. 2016, Oliver et al. 2008; Sandler et al. 2014; Welsh et al 2015a). Das et al (2016) review interventions for adolescent mental health, but do not focus specifically on prevention. Oliver et al (2008) reviewed previous systematic reviews of intervention effectiveness, and young people's views; however all the included evidence was published prior to 2000 and so this requires updating. Sandler et al (2014) review meta-analyses across mental health, substance abuse and conduct problems. Welsh et al (2015) focus specifically on the promotion of wellbeing and reducing inequalities and consider interventions which are relevant across this overview. In addition 1 grey literature report (Mclean et al 2017) focuses on adolescents and considers a range of topics relevant to adolescent health, including mental health. All of these cross-cutting overviews should be considered as reference points to be considered in combination with this overview.

The number of reviews for each health domain and intervention type is outlined in Table 1 and Figure 2 below. As there is no clear taxonomy of mental health promotion/prevention interventions we iteratively revised the matrix to identify a set of 17 different types of interventions. However, we recognise that other iterations and different classifications of health domains and intervention types are possible, and given that there is a degree of subjectivity involved we do not present this as a fixed or unitary interpretation. Other reviewers may have classified and organised these interventions differently; however we present this as one possible reading of the evidence.

Table 1: Universal prevention and promotion interventions for child and adolescent mental health and wellbeing (n=77)

Main Health Domain	Intervention Type	Number of Reviews	Included reviews
Anxiety AND depression (11 reviews)	**Anxiety and depression prevention interventions - mixed**	6	(Ahlen et al., 2015, Christensen et al., 2010, Corrieri et al., 2014, Garber et al., 2016, Werner-Seidler et al., 2017, Woods and Pooley, 2015)
	Cognitive behavioural programmes only	3	(Bastounis et al., 2016, Johnstone et al., 2018, Mychailyszyn et al., 2012)
	Online/web/internet/technology based	2	(Calear and Christensen, 2010a, O'Dea et al., 2015)
Depression only (15 reviews)	**Depression prevention interventions - mixed**	10	(Breedvelt et al., 2018, Brunwasser and Garber, 2016, Calear and Christensen, 2010b, Carnevale, 2013, Dardas et al., 2018, Gladstone and Beardslee, 2009, Hetrick et al., 2015, Hetrick et al., 2016, Merry et al., Stice et al., 2009)
	Physical activity / obesity prevention	3	(Brown et al., 2013, Carter et al., 2016, Pascoe and Parker, 2018)
	Cognitive behavioural programmes only	2	(Brunwasser et al., 2009, Venning et al., 2009)
Anxiety only (6 reviews)	**Anxiety prevention interventions - mixed**	3	(Fisak et al., 2011, Neil and Christensen, 2009, Teubert and Pinquart, 2011)
	Cognitive behavioural programmes only	2	(Higgins and O'Sullivan, 2015, Zalta, 2011)
	Cognitive bias modification	1	(Krebs et al., 2018)
Internalising/externalising/positive mental health/wellbeing (19 reviews)	**Mindfulness based interventions, yoga and stress reduction**	7	(Cheng, 2016, Dunning et al., 2018, Ferreira-Vorkapic et al., Kallapiran et al., 2015, Rew et al., 2014, Tan, 2016, Weaver and Darragh, 2015)
	Mental health promotion/ prevention including school based services	4	(Dray et al., 2017, Mendez et al., 2013, O'Connor et al., 2018, Sanchez et al., 2018)
	Online/web/internet/technology based	3	(Banos et al., 2017, Clarke et al., 2015, Siemer et al., 2011)
	Physical activity / obesity prevention	2	(Hoare et al., 2015, Lubans et al., 2016)
	Self-regulation techniques	1	(van Genugten et al., 2017)

	Creative bibliotherapy	1	(Montgomery and Maunders, 2015)
	Cyberbullying interventions	1	(Reed et al., 2016)
Suicidality/self-harm only (11 reviews)	**Suicide prevention**	11	(Balaguru et al., 2013, Cusimano and Sameem, 2011, Hamilton and Klimes-Dougan, 2015, Harrod et al., 2014, Katz et al., 2013, Klimes-Dougan et al., 2013, Kuiper et al., 2018, Mo et al., 2018, Robinson et al., 2013, Wei et al., 2015, York et al., 2013)
Body dissatisfaction/eating disorders (4 reviews)	**Body dissatisfaction / eating disorder prevention**	4	(Beintner et al., 2012, Ciao et al., 2014, Hart et al., 2015, Yagera, 2013),
Positive youth development and wellbeing	**Positive youth development**	5	(Busiol et al., 2016, Ciocanel et al., 2017, Curran and Wexler, 2017, Sancassiani, 2015, Taylor et al., 2017)
Stigma and/or mental health awareness (3 reviews)	**Stigma/ mental health awareness**	3	(Salerno, 2016, Janoušková et al., 2017, Yamaguchi et al., 2011)
Resilience and/or wellbeing (2 reviews)	**Strengths-based interventions**	1	(Brownlee et al., 2013)
	Arts activities	1	(Zarobe and Bungay, 2017)
Infant and maternal mental health (1 review)	**Early years interventions**	1	(Trivedi, 2015)

Box 2: Definitions of health domains & intervention types for purposes of this rapid review
(in alphabetical order)

As there is no clear taxonomy of intervention types we provide further explanation for how we categorised interventions for the purposes of this review.

Anxiety and depression prevention interventions - MIXED: This is a general category considered reviews which included primary studies evaluated several types of interventions (e.g. cognitive-behavioural interventions, mindfulness-based interventions, physical activity, social skills training etc.). However, these reviews often included predominantly evaluations of cognitive-behavioural interventions.

Anti-cyberbullying interventions: This category considered interventions intended to reduce/prevent the negative psychological and social effects of cyberbullying.

Arts-based activities: This category considered activities such as drama/theatre, music, visual arts and dance taking place within community settings or related to extracurricular activities based within schools.

Body dissatisfaction and eating disorder prevention interventions: This category considered prevention programmes are intended to impact on thoughts/feelings/behaviour associated with body image and eating.

Cognitive behavioural programmes ONLY: This category included reviews which specifically considered cognitive behavioural interventions only (i.e. it is distinguished from the mixed category above).

Cognitive bias modification: This category distinguished from cognitive-behavioural approaches as it was identified as a *"standalone"*, *"adjunct"* or distinct intervention (Krebs et al 2018, p. 831). Cognitive bias modification *"involves teaching participants to generate benign or positive interpretations of ambiguous stimuli (usually ambiguous scenarios) through repeated training trials."* (Krebs et al 2018 p. 831).

Creative bibliotherapy: This category was considered a distinct type of intervention as it involves a unique type of activity. Creative bibliotherapy involves; *"Guided reading of fiction and poetry relevant to therapeutic needs"* (Montgomery & Maunders 2015, p. 37).

Early years interventions: This category was distinguished by a focus was on infants (rather than children and young people more generally).

Mental health promotion and prevention interventions including school based services: This category involved a wide range of interventions intended to promote wellbeing/positive mental health or prevent mental health problems, including social skills training, coping skills, problem solving, stress reduction, social and emotional learning programmes, emotional regulation, parenting programmes, mindfulness based programmes and CBT-based programmes.

Mindfulness-based interventions, yoga and stress reduction: This category mostly included mindfulness-based programmes, as well as yoga, but also included 1 review on stress reduction programmes, which largely consisted of mindfulness, meditation, and yoga, and so these types of interventions were considered together.

Box 2 Continued: Definitions of health domains & intervention types for purposes of this rapid review (in alphabetical order)

Online / web / internet / technology based interventions: This category considered reviews of interventions which used online platforms or technology to deliver the intervention. Reviews used a variety of terms (e.g. tele-mental health, e-health etc.) but these interventions were categorised together where the primary mode of delivery was through some form of technology / online platform. It must be recognised that other categories may also include primary studies of online interventions, but only those reviews for which this is the main focus are included in this category.

Physical activity interventions / obesity prevention interventions: This category mostly considered reviews of physical activity interventions, but one review of obesity prevention interventions was included here for coherence. Physical activity interventions involved a range of physical activity/exercise activities and obesity prevention interventions had an explicit focus on preventing overweight and obesity.

Positive youth development interventions: This is a broad category of intervention involving education/curriculum based approaches, leadership or mentoring to promote positive development and are framed positively e.g. on resilience, social, emotional, cognitive, behavioural development, spirituality, self-efficacy, positive identity development etc. These programmes are often also intended to reduce risk behaviours e.g. substance misuse.

Self-regulation techniques: This category was distinguished because the interventions involve a specific set of techniques which may be present in a wide variety of interventions. Self-regulation can be defined as monitoring and adapting behaviour, emotions, cognition in response to external and internal cues/feedback in order to achieve personal goals (adapted from definition of Moilanen 2007, as cited by van Genugten et al 2017).

Stigma / mental health awareness interventions: This category involved mental health awareness programmes (e.g. in schools or the community) focused on improving mental health/illness knowledge, improving attitudes toward mental health or illness, reducing stigma and/or increasing help-seeking.

Strengths-based or resilience-based interventions: This category was distinguished as there was one review with an explicit focus on strengths and/or resilience-based interventions, which could be contrasted with interventions that are deficit focused.

Suicide prevention programmes: This category included all types of interventions (school- or community-based) for young people that aim to reduce or prevent the risk of suicide ideation and attempts, and/or suicide-related deaths.

Figure 2: Matrix of types of universal prevention and promotion interventions for child and adolescent mental health and wellbeing

Intervention type **Main health domain**	**Prevention interventions mixed**	**Cognitive behavioural programmes only**	**Online/ web/ internet / technology based**	**Mental health promotion/ prevention inc. school based**	**Physical activity / obesity prevention**	**Suicide prevention**	**Body dissatisfaction / eating disorder prevention**	**Positive youth development**	**Mindfulness based and yoga**	**Stigma/ mental health awareness**	**Other types of interventions**
Anxiety AND Depression	**6 reviews** **Table 1**	**3 reviews** **Table 2**	**2 reviews** **Table 3**								
Depression only	**10 reviews** **Table 4**	**2 reviews** **Table 5**			**3 reviews** **Table 6**						
Anxiety only	**3 reviews** **Table 7**	**2 reviews** Table 8									**1 review (Cognitive bias modification)** Table 9
Internalising / externalising / positive mental health / wellbeing			**3 reviews** **Table 12**	**3 reviews** **Table 11**	**2 reviews** **Table 13**				**7 reviews** **Table 10**		**1 review (Self-regulation techniques)** Table 14 **1 review (Creative bibliotherapy)** Table 15 **1 review (Cyberbullying interventions)** Table 16
Suicidality / self-harm only						**11 reviews** **Table 17**					
Body dissatisfaction / eating disorders							**4 reviews** **Table 18**				
Positive youth development								**5 reviews** **Table 19**			
Stigma and/or mental health awareness										**3 reviews** **Table 20**	
Resilience and/or wellbeing											**2 reviews (Strengths-based interventions) Table 21** **1 review (Arts activities) Table 22**
Infant mental health											**1 review (Early years interventions) Table 23**

5.3 Important caveats when reading the evidence

What follows is a rapid overview of available review level evidence across a wide range of universal prevention and promotion interventions for child and adolescent mental health and wellbeing. It is intended to provide a guide to the evidence base and to provide a starting point for further examination of potential interventions. There are several important caveats that must be taken into account when reading the evidence.

Considerations / limitations related to our approach in this overview:

- **Search strategy:** As this was a rapid overview we undertook a streamlined search strategy (e.g. we searched for keywords only in titles rather than abstracts, and we only searched 2 databases)(King et al., 2017). Therefore our overview should not be considered comprehensive or exhaustive, (as relevant evidence may be missing), but rather an indicative 'snapshot' of the evidence base.

- **Review-level evidence:** The evidence presented are reviews i.e. previously synthesised evidence. We report here on what the review authors have concluded and as such we are reliant on the methods and conclusions of review authors. We have not assessed primary evidence.

- **Quality assessment of reviews:** As outlined above we were not able to undertake quality assessment of the included reviews. Therefore some of the included reviews may be poor quality or at risk of bias. This means that we do not know what the overall quality of the evidence is and so we cannot assess the strength of the evidence or draw clear conclusions regarding intervention effectiveness. The findings for each topic area should be treated with caution and should not be taken to indicate a recommendation or support for any particular intervention.

Considerations / limitations of the evidence base we have reviewed:

- **Quality assessment of primary evidence:** Of the included reviews 37 (48% of 77 reviews) did not undertake any quality assessment of primary studies, and so their findings must be treated with particular caution as we do not know the quality of the studies on which the findings are based (e.g. they may have problems with their design such as no control group, high dropout or small sample sizes).

- **Mixed effects/evidence:** For the purposes of this review these are considered to be where a review finds evidence in primary studies of both positive effects and null (no) effects.

- **Harmful effects:** For the purposes of this review these are considered to be where an intervention has a negative effect on an outcome. Very few reviews identified the potential harmful effects of interventions, and this is an under-examined area in general. Further in-depth reviews and analysis of primary evidence is required in order to examine possible harmful effects or unintended consequences of interventions.

- **Statistically significant versus clinically significant effects:** Where the effects of interventions are referred to this is most often a statistical effect, but not necessarily a

meaningful effect from a clinical or public health perspective. Many reviews only considered whether the intervention demonstrated statistically significant effects when compared to a control group, rather than considering whether this change was clinically meaningful. Therefore it should not be assumed that if a review suggests that an intervention shows significant effects that this necessarily means that these effects have clinical or public health significance.

- **Universal versus indicated / selective interventions:** Wherever possible we have tried to highlight the findings for universal interventions; however for many reviews it was not possible to separate findings according to the type / level of prevention as findings were presented for universal/selective/indicated/treatment interventions together. In-depth analysis is required for each topic area to tease out this information in more detail.

Key for Tables: ACT = acceptance and commitment therapy; **CB** = cognitive behavioural; **CBM-I** = cognitive-bias modification of interpretations; **CBT** = cognitive behaviour therapy; **IPT** = interpersonal therapy; **MA** = meta-analysis; **MBI** = mindfulness-based intervention; **NR**= not reported; OECD = Organization for Economic Cooperation and Development; **PS** = primary studies; **PRP** = Penn Resiliency Programme; **RCT** = randomised controlled trial; **SR** = systematic review; **C&YP** = children and young people

$ = as reported by review authors

5.4 Anxiety and depression

For anxiety and depression (combined) 11 reviews (which included at least 175 primary studies) were identified which were categorised into three different types of intervention: mixed prevention interventions (n=6); cognitive behavioural programmes only (n=3) and online interventions (n=2).

Table 1: Prevention interventions – mixed

Number of reviews included	**6 reviews (including 3 meta-analyses) (Ahlen et al., 2015, Christensen et al., 2010, Corrieri et al., 2014, Garber et al., 2016, Werner-Seidler et al., 2017, Woods and Pooley, 2015)**
Total number of primary studies (number of studies more relevant)	255 primary studies (At least 131 on universal interventions with C&YP) (NR by Ahlen et al 2015 but the focus is universal prevention)
Population (youngest and oldest ages in primary studies)	Children and young people (6 years; 25 years) NR (Christensen 2010; Woods & Pooley 2015) Unclear (mean instead of range) (Ahlen et al 2015)
Setting	Mixed (Ahlen et al., 2015, Garber et al., 2016, Woods and Pooley, 2015) Community (Christensen 2010) School ONLY (Corrieri et al 2013; Werner-Seidler et al., 2016)
Short description of the intervention	Prevention programmes (frequently cognitive-behavioural programmes) intended to prevent anxiety / depression
Examples of universal interventions in primary studies (not exhaustive list)	Problem Solving for Life; Beyond Blue; Penn Prevention Program; FRIENDS for life; Taming Worry Dragons; LISA-T; Well Being Therapy; The Aussie Optimism programme; RAP-A (Ahlen et al 2015); CB-based programmes; exercise; stress management programmes; relaxation training; relationship enhancement programmes (Christensen et al 2010); FRIENDS; Penn Resiliency Program; MOODGym (Corrieri et al 2013); CB-based programmes (e.g. FRIENDS, Penn Resiliency Program); bibliotherapy; self-control therapy; behavioural problem solving; (Garber et al 2016) CBT programmes, Interpersonal therapy, psychoeducational programmes, mindfulness-based cognitive therapy (Werner-Seidler et al 2016); Penn Resiliency Program (PRP) and Penn Enhancement Program (PEP); Group depression prevention program (Woods & Pooley 2015).
Key findings (particularly those relevant to universal programmes)	**Across 6 reviews there was a pattern of mixed findings depending on the focus on anxiety and/or depressive symptoms and the type of prevention (universal/selective/indicated), but several reviews found small but significant effects. MIXED SETTINGS:** 1 review found small but statistically significant effects of universal prevention interventions for both anxiety and depression immediately post-intervention (Ahlen et al 2015). 1 review found that anxiety prevention programmes had an impact on both anxiety and depressive symptoms whereas depression prevention programmes did not show significant effects on either depression or anxiety symptoms (Garber et al 2016). Another review found small positive effects of universal prevention programmes in mixed settings (Woods & Pooley 2015). **COMMUNITY:** 1 review of community based interventions suggested the majority of interventions showed positive effects on anxiety and depression outcomes (Christensen et

	al 2010). **SCHOOLS:** 1 review of school based interventions suggested small positive effects for both anxiety and depression scores (Corrieri et al., 2013). 1 review suggested small positive effects of school based prevention intervention for measures of both anxiety and depression (Werner-Seidler et al., 2016).
Universal vs. selective vs. indicated	1 review of community based interventions found that for anxiety symptoms universal programmes were as effective as selective approaches; whereas for depression, universal and indicated programmes a greater proportion of interventions were effective compared to selective programmes (Christensen et al., 2010). 1 review showed that for anxiety symptoms universal and targeted programmes had similar effects, whereas for depression targeted showed better effects (Werner-Seidler et al 2016).
Effects at follow up	1 review highlighted that effects were not maintained at follow up (Corrieri et al 2013) and 1 review showed the effects only remained for depressive symptoms at follow up (Ahlen et al 2015). 1 review found some evidence of effects at follow up (Werner-Seidler et al 2016).
Quality assessment of primary studies?	**4 reviews did not conduct any quality assessment of primary studies and therefore their findings should be treated with caution (Ahlen et al 2015; Woods & Pooley 2015; Corrieri et al 2013; Garber et al 2016). 2 review did conduct quality assessment and found that the majority of included studies had a level of bias (Werner-Seidler et al 2016) or were low quality (Christensen et al 2010).**
Other methodological issues	**The methodological quality of primary studies is likely to include risk of bias which means findings must be treated with caution.** Methodological issues included small sample sizes and few studies to include in meta-analysis, unpublished literature not included (Ahlen et al 2015; Christensen et al 2010; Werner-Seidler et al 2016), lack of follow up data (Christensen et al 2010), key confounders not addressed (Corrieri et al 2013), outcome measures/self-reported data, lack of assessment of program fidelity and issues regarding drop out (Werner-Seidler et al 2016). 1 review focused on a specific subset of RCTs which may not reflect the wider evidence base (Garber et al 2016).
Is there an overview, and are the findings consistent?	1 overview examined prevention interventions for anxiety and depression (selective, indicated and universal interventions) and concluded that universal interventions could reduce the risk of an anxiety disorder just after the intervention, but not at follow up, whereas the risk of a depressive disorder was reduced immediately after the intervention and at 6-9 months follow up (Stockings et al., 2016). These findings are largely consistent with those above i.e. that anxiety/depression prevention interventions can be effective but that there can be mixed findings depending on focus symptoms (anxiety vs. depression), type of prevention, and length of follow up.
Other comments?	1 review considers both treatment and prevention (Garber et al 2016) and several reviews provide combined results for universal, selective and indicated interventions which suggests findings relevant to universal interventions must be treated with caution (Corrieri et al 2013). 1 review of community based interventions reviewed

	interventions mostly conducted in Universities/colleges, and in the U.S. which limits generalisability (Christensen et al 2010).

Table 2: Cognitive-behavioural programmes – only

Number of reviews included	**3 reviews (all are meta-analyses) (Johnstone et al., 2018, Bastounis et al., 2016, Mychailyszyn et al., 2012)**
Total number of primary studies (number of studies more relevant)	86 primary studies (54 on universal interventions with C&YP) 2 reviews focused on universal interventions (Johnstone et al 2018; Bastounis et al 2016)
Population (youngest and oldest ages in primary studies)	Children and young people (6 years; 17 years) NR (Mychailyszn et al 2012). 1 review focused on children ONLY (Johnstone et al 2018)
Setting	All 3 reviews focused on programmes delivered in schools (Mychailyszn et al 2012; Johnston 2018; Bastounis et al 2016)
Short description of the intervention	Preventative interventions based on cognitive-behavioural principles.
Examples of universal interventions in primary studies (not exhaustive list)	The FRIENDS Program, the Aussie Optimism Program (AOP), and the Penn Prevention Program (PPP) (Johnstone 2018); FRIENDS; school curriculum based interventions; (Mychailyszn et al 2012); 1 review focused exclusively on the Penn Resiliency Programme, and its derivatives (such as the Aussie Optimism Programme and the Optimism Lifeskills Programme (Bastounis et al 2016).
Key findings (particularly those relevant to universal programmes)	**Overall the 3 meta-analyses suggest mixed findings for cognitive-behavioural prevention interventions for depression and anxiety depending on the outcome/focus and intervention type.** 1 review of universal prevention interventions (for children specifically) found significant but small effects immediately post-intervention and at long term follow up for depression, but not for anxiety outcomes (Johnstone et al 2018). 1 review found school based universal CB interventions showed small but significant effects for depression but not for anxiety (Mychailyszn et al 2012). 1 review concluded that the Penn Resiliency Programme did not show significant effects on measures of anxiety, depression or explanatory style (Bastounis et al 2016).
Effects at follow up	1 review found significant effects at longer term follow up for depression but not for anxiety outcomes (Johnstone et al 2018). 1 reviews raised the lack of primary studies with longer term follow up data (Johnstone et al 2018) and 1 review concluded that effects were not maintained at 12 month follow up (however this was presented for all types of intervention rather than for universal specifically (Mychailyszn et al 2012)
Universal vs. selective vs. indicated	Mychailyszn et al 2012) concluded that there was a "stepwise" pattern i.e. that treatment, indicated and selective programmes showed greater effects than universal prevention interventions (p. 143).

Quality assessment of primary studies?	**2 reviews did not undertake quality assessment of primary studies so their findings must be treated with caution (Johnstone et al 2018; Mychailyszn et al 2012). 1 review did undertake quality assessment and found that many of the primary studies were high quality (Bastounis et al 2016).**
Other methodological issues	Other methodological issues include a lack of primary studies, lack of data on longer term follow up (Bastounis et al 2016; Johnstone et al 2018), use of self-report measures (Johnstone et al 2018), different types of study designs and small sample sizes/power (Bastounis et al 2016; Mychailyszn et al 2012).
Is there an overview, and are the findings consistent?	1 overview (Stockings et al., 2016) examined prevention interventions for anxiety and depression (selective, indicated and universal interventions) and concluded that universal interventions could reduce the risk of an anxiety disorder just after the intervention, but not at follow up, whereas the risk of a depressive disorder was reduced immediately after the intervention and at 6-9 months follow up (Stockings et al (2016). These findings are somewhat similar to those above but they suggest positive effects for anxiety symptoms which are largely not reflected above. Note that this overview was not specific to cognitive-behavioural interventions.
Other comments?	1 review included both prevention and treatment studies, so the findings must be considered cautiously as they may conflate prevention and treatment effects (Mychailyszn et al 2012).

Table 3: Online / web / internet / technology based interventions

Number of reviews included	**2 reviews (no meta-analyses) (O'Dea et al., 2015, Calear and Christensen, 2010a)**
Total number of primary studies (number of studies more relevant)	13 primary studies (at least 6 primary studies on universal interventions with children and young people)
Population (youngest and oldest ages in primary studies)	Children and young people (7 years; 25 years) NR (Calear & Christensen 2010a)
Setting	Online - delivered through schools/community (O'Dea et al 2015) Online - mixed (Calear & Christensen 2010a)
Short description of the intervention	Prevention and/or treatment programmes for anxiety and/or depression using online platforms/technology.
Examples of universal interventions in primary studies (not exhaustive list)	CB-based anxiety treatment programmes - universal programme - MoodGYM (Calear & Christensen 2010a). This Way Up Combatting Depression; This Way Up Overcoming Anxiety; MoodGYM (O'Dea et al 2015)
Key findings (particularly those relevant to universal programmes)	**Both reviews suggested that online programmes resulted in significant but small effects on symptoms of anxiety and depression; however both reviews included primary studies of both prevention and treatment and so it is difficult to draw firm conclusions regarding universal prevention specifically.** 1 review concluded that 6 of 8 studies showed positive effects on anxiety

	and/or depression symptoms but the results are not separated by type of prevention (Calear & Christensen 2010a). 1 review concluded there were some small positive effects on anxiety and depression symptoms but when reporting the primary studies the effects varied by focus on anxiety and/or depression (O'Dea et al 2015).
Effects at follow up	Neither review explored follow up effects in detail, but both suggest that at least for some studies effects were evident at follow up.
Universal vs. selective vs. indicated	The findings are not separated by type of prevention.
Quality assessment of primary studies?	**Neither review conducted quality assessment of the findings so their findings must be treated with caution.**
Other methodological issues	Methodological issues included the lack of primary studies, lack of longer term follow up studies (Calear & Christensen 2010a) small samples sizes, design issues and outcome measures including a lack of clinical significance (O'Dea et al 2015).
Is there an overview, and are the findings consistent?	No overview was available for this topic.
Other comments?	**Both reviews on this topic evaluate online interventions for both treatment and prevention so the effectiveness of online interventions specifically for universal prevention is difficult to establish.** The small number of primary studies must also be noted, (as well as the small number of primary studies which focus on universal prevention) suggesting that any conclusions are particularly tentative.

5.5 Depression only

For reviews which exclusively focused on depression, a total of 15 reviews were identified covering 3 types of intervention; mixed prevention interventions (n=10); cognitive behavioural programmes only (n=2); and physical activity/obesity prevention interventions (n=3).

Table 4: Prevention interventions – mixed

Number of reviews included	**10 reviews (including 5 meta-analyses) (Breedvelt et al., 2018, Brunwasser and Garber, 2016, Calear and Christensen, 2010b, Carnevale, 2013, Dardas et al., 2018, Gladstone and Beardslee, 2009, Hetrick et al., 2015, Hetrick et al., 2016, Merry et al., Stice et al., 2009)** Note that 2 reviews report the same review (Hetrick et al 2015; 2016) and these are update to a previous review (Merry et al 2011).
Total number of primary studies (number of studies more relevant)	368 primary studies (At least 132 primary studies on universal interventions with children and young people) Unclear (Brunwasser & Garber 2016; Hetrick et al 2015) NR (Gladstone & Beardslee 2009)
Population (youngest and oldest ages in primary studies)	Children and young people (5 years; 24 years). 2 reviews focused on young people only (Carnevale 2013; Dardas et al 2018) and 1 review on young adults (18-25) (Breedvelt et al 2018)
Setting	Schools only (Brunwasser & Garber 2016; Calear & Christensen 2010b; Carnevale 2013; Hetrick et al 2016; Stice et al 2009) Mixed settings (Breedvelt et al 2018; Hetrick et al 2015) School & community (Merry et al 2011) Family, community & school (Gladstone & Beardslee 2009) Family & community (Dardas et al 2018)
Short description of the intervention	Mixture of interventions to prevent depression (frequently including interventions based on cognitive-behavioural principles)
Examples of universal interventions in primary studies (not exhaustive list)	Resilience and Coping Intervention; Reiki (Breedvelt et al 2018) CB-based interventions; bibliotherapy; problem-solving interventions (Brunwasser & Garber 2016) Cognitive-behavioural therapy; relaxation; exercise; psychoeducation; interpersonal therapy (Calear & Christensen 2010b) MoodGYM; Beyondblue; Friends for life programme, Resourceful Adolescent Program (Carnevale 2013) Family psychoeducation; resilient families programmes (Dardas et al 2018) Penn Resiliency Program; Problem Solving for Life (Gladstone & Beardslee 2009) Problem solving therapy; the Penn Resiliency Programme; Adolescents Coping with Emotions programme; LISA-T; I Think, Feel and Act programme (Hetrick et al 2016) A universal school-based CBT and interpersonal therapy intervention delivered by teachers. (Stice et al 2016) Problem Solving for Life; LISA-T; FRIENDS; Coping with Stress programme (Hetrick et al 2015)
Key findings (particularly those relevant to universal programmes)	**Overall the findings were mixed for the effectiveness of depression prevention interventions across 10 reviews with some reviews finding positive effects on symptoms of depression, but this varied by type of programme (NB universal vs. selective/indicated) and type of outcome and is in the context of significant methodological limitations of primary studies. MIXED SETTINGS:** 1 review concluded moderate positive effects of preventative interventions on reducing depressive symptoms (Breedvelt et al 2018). However, a high number

	of the included primary studies are with University/student populations, which may not be generalizable to the wider population of young people, and there was a lack of data on the impact on incidence of depression (Breedvelt et al 2018). 1 Cochrane review found some evidence for universal and targeted depression prevention programmes in reducing the incidence of depression (Merry et al 2011), but important methodological issues were highlighted. Using a subset of data from this review, a second review compared different types of programme and found that for universal programmes the type of programme influenced the impact; although this was more the case for targeted programmes than universal interventions (Hetrick et al 2015). The review by Merry et al 2011 was then updated (Hetrick et al 2016) and the authors concluded that for universal interventions there was no effect on the risk of a diagnosis of depression, but a small, significant effect on symptoms of depression at immediately post intervention, but not at follow ups. The authors suggest that there is insufficient evidence for the implementation of depression prevention programmes and also highlight that the potentially harmful effects of interventions have not been adequately assessed (Hetrick et al 2016). 1 review examined depression prevention interventions and concluded there was evidence of positive impact on symptoms of depression; however quantitative results are not presented and so conclusions must be treated with caution (Gladstone & Beardslee 2009). 1 review examined the role of parental involvement; however both prevention and treatment studies were included and it is difficult to draw conclusions on the role of parental involvement in depression prevention programmes specifically (Dardas et al 2018). **SCHOOLS:** 1 review found evidence of small, positive effects for prevention programmes; however indicated/selective programmes were found to be more effective than universal programmes (Stice et al 2009). 1 review evaluated programmes that had been assessed by at least 2 RCTs and found that all but 2 of 11 programmes demonstrated significant positive effects on symptoms of depression at post intervention or at follow up or at both (Brunwasser & Garber 2016). However the authors caution that none of the programmes evaluated have demonstrated effectiveness (i.e. that the intervention can be implemented beyond trial/controlled conditions). 1 review showed that 9 of 23 trials of universal interventions demonstrated reduced symptoms of depression, but only 4 trials showed significant effects at follow up (Calear & Christensen 2010b). 1 review considered the effectiveness of universal prevention programmes, particularly those that could be delivered in schools by school nurses and found some suggestion that symptoms of depression could be reduced; however this review primarily focuses on implementation of interventions rather than efficacy (Carnevale 2013).
Effects at follow up	There are mixed findings in terms of the effects at follow up. For example some reviews found that effects are maintained at follow up (Brunwasser & Garber), whilst others show mixed effects, possibly related to the length of follow up (Calear & Christensen 2010b; Carnevale 2013; Merry et al; Carnevale), and it is also suggested that effects are not evident until follow up (Calear & Christensen 2010b).

	Several reviews highlighted that there was a lack of follow up data (Breedvelt et al; Stice et al).
Universal vs. selective vs. indicated	1 review found bigger effects for selective programmes in comparison with universal programmes (Stice et al), and another argued that targeted/indicated interventions were more effective than universal programmes (Gladstone & Beardslee 2009). In another review, indicated programmes were shown to have greater efficacy than universal or selective programmes; however the authors suggest that that focus should be on ensuring quality delivery of universal programmes rather than comparing with indicated/selective programmes (Calear & Christensen 2010b). A third review found greater effects for targeted interventions; however studies of targeted programmes often did not have an *"appropriate attention placebo comparison group"* (Hetrick et al 2016, p.49). In contrast, 1 review found both targeted and universal approaches to be effective (Merry et al) and another review found that there was a difference between universal and targeted programmes for symptoms of depression but not for diagnosis of depression (Hetrick et al 2016). For several reviews the effects were not examined separately for universal and targeted interventions, so it is difficult to draw conclusions for universal interventions specifically (Breedvelt et al 2018; Brunwasser & Garber 2016).
Quality assessment of primary studies?	**7 reviews conducted quality assessment (Breedvelt et al 2018; Calear & Christensen 2010b; Merry et al 2011; Hetrick et al 2015; Hetrick et al 2016; Carnevale 2013; Dardas et al 2018) and the majority of reviews concluded that primary studies were of low quality, high risk of bias and had important methodological limitations.** For example, Breedvelt et al (2018) concluded that 81% of studies were high risk of bias, there was publication bias. **No quality assessment was undertaken in 3 reviews (Stice et al 2009; Brunwasser & Garber 2016; Gladstone & Beardslee) and so their conclusions must be treated with caution.** One review highlighted the issue of difference in outcomes when a programme was evaluated independently of those who had developed the programme (Brunwasser & Garber 2016).
Other methodological issues	Other methodological issues included a lack of data on the impact of interventions on the incidence of depression, a lack of long term follow up data, and poor reporting of demographic data (Breedvelt et al 2018; Calear & Christensen 2010b), lack of adequate processes for randomisation in trials, lack of power / adequate sample size, and lack of distinction between statistical and clinical significance (Dardas et al, 2018). Design issues include lack of random allocation, blinding, need for outcome measures which use clinician ratings, and the use of depressive disorder as a key outcome and with longer term (at least 12 months) follow up (Merry et al 2011; Hetrick et al 2016).
Is there an overview, and are the findings consistent?	1 overview of systematic reviews(Angel Bellon et al., 2015) considered depression prevention across a range of population groups (including children and adolescents). The authors concluded that interventions could be effective, but that there was less evidence for long term outcomes (Angel Bellon et al., 2015). This is consistent with the findings reported above; however this overview covered a range of interventions/populations and so the conclusions are very generalised

	rather than specific to universal interventions for children and young people.
Other comments?	**This topic area has a complex evidence base at the level of systematic reviews. Further in-depth assessment of the evidence is required (particularly in relation to particular programmes and universal approaches) before considering implementation.**

Table 5: Cognitive-behavioural programmes – only

Number of reviews included	**2 reviews (including 1 meta-analysis) (Venning et al., 2009, Brunwasser et al., 2009)**
Total number of primary studies (number of studies more relevant)	27 primary studies (16 studies are on universal interventions)
Population (youngest and oldest ages in primary studies)	Children and young people. (8 years; 16 years) 1 review focused on young people only (Venning et al 2009)
Setting	Schools (Brunwasser et al., 2009) Schools and community (Venning et al., 2009)
Short description of the intervention	Cognitive behavioural interventions to prevent depression. 1 review focused on the Penn Resiliency Programme (Brunwasser et al., 2009) and 1 review focused on CB interventions including a focus on 'hopeful elements' (Venning et al 2009).
Examples of universal interventions in primary studies (not exhaustive list)	Penn Resiliency Programme (Brunwasser et al 2009) Penn Prevention Programme; Problem Solving for Life; Penn Resiliency Programme (Venning et al 2009)
Key findings (particularly those relevant to universal programmes)	**Across 2 reviews there was mixed evidence for the effectiveness of cognitive-behavioural based interventions for preventing depression.** 1 review suggested there was limited evidence for the effectiveness of CBT to prevent clinical symptoms of depression in the long term (Venning et al 2009). 1 review indicated there was some for small effects on depressive symptoms of the Penn Resiliency Programme immediately post-intervention and at follow ups (Brunwasser et al 2009). However, effects were not evidence when compared with active controls (Brunwasser et al 2009).
Effects at follow up	1 review found that the Penn Resiliency Programme were maintained up to 12 months; however there was a lack of longer term follow ups into late adolescence/early adulthood (Brunwasser et al 2009). The second review concluded that positive effects were not maintained in the longer term (Venning et al 2009).
Universal vs. selective vs. indicated	Both reviews included both included universal and targeted delivery so it is difficult to draw firm conclusions for universal prevention (Brunwasser et al 2009; Venning et al 2009).

Quality assessment of primary studies?	**There is a lack of assessment of the methodological quality of primary studies and so the findings should be treated with caution.** 1 review undertook quality assessment (Venning et al 2009) but no overall assessment of the quality of primary studies was provided and the other review did not undertake quality assessment (Brunwasser et al 2009).
Other methodological issues	Other methodological issues included a lack of power, and a lack of data on mechanisms and certain outcomes (Brunwasser et al) and issues with drop out (Venning et al 2009).
Is there an overview, and are the findings consistent?	There was no overview identified which was specific to cognitive-behavioural prevention interventions, but the overview by (Angel Bellon et al., 2015) which concluded that educational and/or psychological interventions could be effective in preventing depression.
Other comments?	**Both reviews included both included universal and targeted delivery so it is difficult to draw firm conclusions for universal prevention (Brunwasser et al 2009; Venning et al 2009).**

Table 6: Physical activity interventions / obesity prevention interventions

Number of reviews included	**3 reviews (including 2 meta-analyses) (Brown et al., 2013, Carter et al., 2016, Pascoe and Parker, 2018)**
Total number of primary studies (number of studies more relevant)	31 primary studies (11 primary studies were universal or with general population)
Population (youngest and oldest ages in primary studies)	Children and young people (NR Brown et al 2013 or Pascoe et al 2018; 14.7 years; 17 years Carter et al 2016)
Setting	School and community (Brown et al 2013; Pascoe et al 2018; Carter et al 2016)
Short description of the intervention	Interventions involving physical activity / exercise
Examples of universal interventions in primary studies (not exhaustive list)	Aerobic, resistance and stretching exercises (Brown et al 2013), CrossFit, high intensity interval training, yoga, resistance exercises, cycling (Pascoe et al 2018); Stretching, weight transfer activities (i.e. running) and sports practice (Carter et al 2016)

Key findings (particularly those relevant to universal programmes)	**All 3 reviews suggest small positive effects of physical activity interventions on outcomes relevant to depression (across different types of outcome measures)** (Brown et al 2013; Pascoe et al 2018; Carter et al 2016). However, these conclusions are based on both targeted and universal prevention interventions, and at least 1 review found that effects were not significant with a universal population (Carter et al 2016). Brown et al (2013) and Carter et al (2016) include both prevention and treatment studies and do not draw specific conclusions re: physical activity as a preventative intervention so the conclusions should be treated with caution.
Effects at follow up	None of the reviews consider effects at follow up in detail. 1 review notes the lack of follow up studies (Pascoe et al 2018).
Universal vs. selective vs. indicated	Differences in effects by type of prevention are not explored in detail by any of the reviews. However 1 review notes that effects are not evident for the general population (Carter et al 2016).
Quality assessment of primary studies?	**2 reviews formally assessed quality (Brown 2013; Carter et al 2016) and both suggest mixed/low quality of primary studies. 1 review did not assess the quality of primary studies (Pascoe et al 2018) and so their findings must be treated with caution.**
Other methodological issues	Methodological issues included the need for better outcome measures (Carter et al 2016), issues with study design (Carter et al 2016; Pascoe et al 2018) and lack of longer term follow up (Pascoe et al 2018).
Is there an overview, and are the findings consistent?	Two overviews were available for this topic area (Biddle and Asare, 2011, Biddle et al., 2018). 1 review (Biddle et al 2018) provides an update to the other (Biddle et al 2011). This overview considers the relationship between PA interventions and a range of mental health outcomes. For depression specifically it was found that reviews/meta-analyses of PA interventions on depression outcomes showed positive moderate effects. This is consistent with the findings outlined above; however again this overview did not consider PA interventions specifically as a prevention intervention, and so the findings are not reported for prevention specifically.
Other comments?	**Two reviews mostly includes studies of interventions with higher risk groups (Brown et al 2013; Carter et al 2016) so it is difficult to draw conclusions for universal prevention specifically. It is worth noting the small number of primary studies in this area, and the even smaller number of studies which focus on universal prevention.**

5.6 Anxiety only

For anxiety only 6 reviews were identified, across 3 intervention types; prevention interventions – mixed (n=3), cognitive behavioural interventions only (n=2) and cognitive bias modification (n=1).

Table 7: Anxiety only - Prevention interventions – mixed

Number of reviews included	**3 reviews including 2 meta-analyses (Fisak et al., 2011, Neil and Christensen, 2009, Teubert and Pinquart, 2011)**
Total number of primary studies (number of studies more relevant)	127 primary studies (60 primary studies were universal prevention)
Population (youngest and oldest ages in primary studies)	Children and young people (4 years; 17 years)
Setting	Mixed (Teubert & Pinquart 2011; Fisak et al 2011); Schools only (Neil & Christensen 2009)
Short description of the intervention	Interventions intended to prevent anxiety symptoms/disorder
Examples of universal interventions in primary studies (not exhaustive list)	FRIENDS; MoodGYM (Fisak et al 2011) CB-based interventions; physical exercises; resilience programmes (based on CBT); programmes targeting self-esteem and body image; relaxation; anxiety management programmes; group interventions; social skills and coping skills programmes (Teubert & Pinquart 2011) CB-based programmes, psychoeducation, relaxation, physical exercise (Neil & Christensen 2009)
Key findings (particularly those relevant to universal programmes)	**All 3 reviews concluded that universal anxiety prevention programmes can have positive but statistically small effects on symptoms of anxiety, both in mixed settings (Teubert & Pinquart 2011; Fisak et al 2011) and in schools (Neil & Christensen 2009).** 1 review also showed small positive effects on symptoms of depression and on self-esteem (Teubert & Pinquart 2011).
Effects at follow up	1 review concluded there were smaller effects at follow up (Fisak et al 2011), another review showed smaller effects in studies with a higher proportion of girls and larger effects at follow up where the intervention was specifically targeted to anxiety prevention (Neil & Christensen 2009). The third review highlighted that there were a lack of follow up data for universal prevention studies (Teubert & Pinquart 2011).
Universal vs. selective vs. indicated	1 reviews suggested that indicated/selective prevention interventions had bigger effects than universal prevention. (Teubert & Pinquart 2011), 1 review notes the majority of universal trials showed positive effects but didn't compare with selective/targeted (Neil & Christensen (2009). In contrast, Fisak et al (2011) suggest there was no difference between universal and targeted programmes.
Quality assessment of primary studies?	**2 reviews conducted quality assessment and both concluded that the concluded majority of included primary studies were of low**

	methodological quality (Teubert & Pinquart 2011; Neil & Christensen).
Other methodological issues	2 reviews raised the lack of longer term follow up studies (Frisak et al 2011; Teubert & Pinquart 2011). A lack of primary studies was also raised by 1 review (Teubert & Pinquart 2011)
Is there an overview, and are the findings consistent with the above synthesis?	1 overview includes 3 reviews (all assessed as high quality) and concludes that there is evidence to support anxiety prevention programmes (Bennett et al., 2015a).

Table 8: Cognitive-behavioural programmes – only

Number of reviews included	**2 reviews (including 1 meta-analysis) (Higgins and O'Sullivan, 2015, Zalta, 2011)**
Total number of primary studies (number of studies more relevant)	22 primary studies (11 primary studies universal interventions with young people)
Population (youngest and oldest ages in primary studies)	Children and young people (6 years; 16 years, NR for Zalta 2011)
Setting	Schools only (Higgins & O'Sullivan 2015) Mixed (Zalta 2011)
Short description of the intervention	Cognitive-behavioural based interventions for anxiety symptom prevention.
Examples of universal interventions in primary studies (not exhaustive list)	FRIENDS programme(Higgins & O'Sullivan 2015); Anxiety Sensitivity Amelioration Training; Overshadowing the Threat of Terrorism intervention; Panic Prevention Training (Zalta et al 2011)
Key findings (particularly those relevant to universal programmes)	**Both reviews reported small to moderate positive effects of universal anxiety prevention programmes on anxiety symptoms** (Higgins & O'Sullivan 2015; Zalta 2011). **SCHOOLS ONLY:** Positive (small to medium) effects on symptoms of anxiety were found for the FRIENDS programme (Higgins & O'Sullivan 2015). **MIXED:** Positive (small to moderate) effects for universal cognitive behavioural interventions on general anxiety, symptoms of anxiety and symptoms of depression (Zalta 2011).
Effects at follow up	The observed effects of the FRIENDS programme was found to be maintained at several follow up points (Higgins & O'Sullivan 2015). The effects of universal cognitive behavioural programmes were found to be smaller at follow (6, 12 months) (Zalta 2011).
Universal vs. selective vs. indicated	No significant differences between universal and targeted programmes in 1 review (Zalta 2011), and this was not assessed by the other review (Higgins & O'Sullivan 2015).
Quality assessment of primary studies?	**No formal quality assessment of primary studies conducted by either review and so the findings must be treated with caution.**

Other methodological issues	Both reviews identified a range of methodological issues in the primary studies including drop out, small samples sizes/lack of power (Higgins & O'Sullivan 2015) and 1 review identified a lack of follow up data (Zalta et al 2011).
Is there an overview, and are the findings consistent with the above synthesis?	There was no overview available specific to cognitive-behavioural programmes for the prevention of anxiety. However the overview by (Bennett et al., 2015a) is relevant as many of the included reviews included cognitive behavioural programmes. The conclusions are consistent with the above - i.e. that there is evidence to support anxiety prevention programmes (Bennett et al., 2015a). However, it must be noted that this overview includes reviews which assess universal, selective/indicated prevention programmes together, and the overall conclusions regarding effectiveness are not separated by prevention type or intervention type (Bennett et al., 2015a).

Table 9: Cognitive Bias modification of interpretations

Number of reviews included	**1 meta-analysis (Krebs et al., 2018)**
Total number of primary studies (number of studies more relevant)	26 primary studies (17 primary studies with 'healthy' participants i.e. not clinical)
Population (youngest and oldest ages in primary studies)	Children and young people (6years; 18 years)
Setting	School and community
Short description of the intervention	Cognitive Bias Modification involves "involves teaching participants to generate benign or positive interpretations of ambiguous stimuli (usually ambiguous scenarios) through repeated training trials." (Krebs et al 2018 p. 831)
Examples of universal interventions in primary studies (not exhaustive list)	Ambiguous social skills training
Key findings (particularly those relevant to universal programmes)	**This review concluded that cognitive bias modification showed small effects on anxiety symptoms post-intervention and moderate effects on both positive and negative interpretations. However when separated by age group this effect on anxiety symptoms only remained for children not adolescents (Krebs et al 2018). Furthermore, when the intervention was compared with no training or neutral training (as opposed to negative training) the effects did not remain.**
Effects at follow up	The review highlights that further studies are needed to examine the longer term effects (Krebs et al 2018).
Universal vs. selective vs. indicated	There was no comparison of universal versus selective/indicated programmes (note comment below that focus of review was not on prevention).

Quality assessment of primary studies?	**This review undertook quality assessment and found that studies had unclear risk of bias due to inadequate reporting.** The review only included studies which involved randomisation. Publication bias was assessed but was not found to be present
Other methodological issues	The authors note key limitations including a lack of statistical power, and heterogeneity between studies - both of which suggest that the findings must be interpreted with caution. In addition several of the primary studies used non-standardised measures of anxiety. The authors also highlight that the effect on anxiety was small and may not be clinically significant.
Is there an overview, and are the findings consistent?	No overview identified.
Other comments?	**It must be noted that this review does not explicitly focus on prevention; however most of the primary studies were with "non-clinical unselected community samples" (Krebs et al 2018, p. 834).**

5.7 Internalising / externalising / positive mental health / wellbeing

The category of internalising/externalising/positive mental health/wellbeing covered reviews which either did not explicitly focus on anxiety or depression or included a focus on positive mental health / wellbeing. For this topic area 19 reviews were identified covering a range of interventions; self-regulation techniques (n=1); mental health promotion/prevention including school based services (n=4); online interventions (n=3); creative bibliotherapy (n=1); mindfulness based interventions, yoga and stress reduction (n=7); physical activity / obesity prevention interventions (n=2) and cyberbullying interventions (n=1).

Table 10: Mindfulness based interventions, yoga and stress reduction

Number of reviews included	**7 reviews including 3 meta-analyses (Cheng, 2016, Dunning et al., 2018, Ferreira-Vorkapic et al., Kallapiran et al., 2015, Rew et al., 2014, Tan, 2016, Weaver and Darragh, 2015)**
Total number of primary studies (number of studies more relevant)	138 primary studies (at least 38 primary studies with general population/universal; NR for Cheng, 2016; unclear Ferreira-Vorkapic et al 2015; Rew et al 2014)
Population (youngest and oldest ages in primary studies)	Children and young people (6 years; 19 years)
Setting	School only (Kallapiran et al., 2015; Dunning et al., 2018; Tan, 2016; Ferreira-Vorkapic et al., 2015); School and community (Cheng, 2016; Weaver & Darragh, 2015[5]).
Short description of the intervention	Mindfulness-based interventions, yoga and stress reduction programmes

[5] Note this review could also be considered under the anxiety health domain, but has been included here for the coherence of the synthesis.

Examples of universal interventions in primary studies (not exhaustive list)	Different types of yoga (Weaver & Darragh 2015); Breathing awareness meditation; mindfulness-based eating awareness (Dunning et al 2018); Yoga; physical education; physical activity (Ferreira-Vorkapic et al 2015) Yoga; mindfulness; meditation (Kallapiran et al 2015) HAP (holistic arts-based group programme) modified mindfulness-based art and craft; meditation; the Mindfulness in Schools Programme curriculum; (Tan 2016) Mindfulness-based stress reduction; meditation-relaxation; mindfulness-based cognitive-behavioural therapy; mindfulness training (Cheng 2016); Transcendental meditation; Learning to Breathe; cognitive-behavioural stress-inoculation training; relaxation programmes; multi-component physical activity and breathing exercises, and others (Rew et al 2014)
Key findings (particularly those relevant to universal programmes)	**Across 7 reviews it was found that mindfulness based interventions, yoga interventions and stress reduction interventions can have positive effects (e.g. on increasing mindfulness, reducing anxiety and stress). However it this is a relatively new area of research, there are significant methodological limitations of existing studies and there is a need for much more robust primary studies.** Several reviews suggested there was evidence for the effectiveness of mindfulness-based interventions for increasing mindfulness and reducing stress and anxiety (Dunning et al., 2018; Kallapiran et al., 2015; Cheng, 2016; Tan, 2016). Cheng (2016) and Tan (2016) also reported positive effects on general well-being and on resilience. Two reviews focused exclusively on the effectiveness of yoga-based interventions implemented mainly in school settings and found mostly positive effects on anxiety and mood levels (Weaver & Darragh, 2015) and both positive effects and no effects for anxiety, mood, depression, anger and self-esteem (Ferreira-Vorkapic et al., 2015). Notably, two primary studies reported in Ferreira-Vorkapic et al. (2015) found unintended negative consequences of the yoga intervention on stress and negative affect. The findings on the effects of the interventions on depression were mixed: While Dunning et al. (2018) and Cheng (2016) reported largely positive effects, Kallapiran et al. (2015) and Tan (2016) reported evidence of both positive effects and of no effects of the interventions. With regards to the effects of mindfulness-based interventions on executive functioning and on externalising (problem) behaviours, Cheng (2016) and Tan (2016) reported positive effects, while Dunning et al. (2018) reported no effects when compared to an active control. 1 review focused on stress reduction programmes generally (several of which were mindfulness/meditation/relaxation programmes (Rew et al 2014) and found that of the 17 primary studies included 10 found statistically significant results, 2 studies showed mixed results, and 2 studies showed non-significant results (Rew et al 2014). The authors conclude that the interventions show promise in reducing measures of stress (Rew et al 2014), but that more studies are required.
Effects at follow up	Few of the reviews consider this longer term effects of interventions.
Universal vs. selective vs. indicated	Few reviews compare universal vs. selective/indicated interventions and several reviews include interventions delivered universally in

	schools as well as those with targeted populations so the findings must be treated with caution.
Quality assessment of primary studies?	**Four of the seven reviews assessed the included studies for methodological quality (Dunning et al., 2018; Kallapiran et al., 2015; Weaver & Darragh, 2015; Ferreira-Vorkapic et al., 2015), and where it was assessed methodological quality was found to be poor or mixed/high risk of bias** (Dunning et al 2018). There was also evidence of publication bias in one review (Dunning et al 2018). 2 reviews did not assess the quality of primary studies (Tan; 2016; Cheng 2016; Rew et al 2014) 1 review did not assess methodological quality, but highlighted methodological issues including a lack of primary studies, small sample sizes, and a lack of standardised outcome measures.
Other methodological issues	Methodological issues include issues with the appropriateness of some psychometric tools for use with children (Ferreira-Vorkapic et al 2015); issues with study design, heterogeneity in interventions and outcomes, the lack of primary studies, small effect sizes (e.g. Dunning et al., 2018; Weaver & Darragh, 2015), and small sample sizes (Dunning et al 2018; Ferreira-Vorkapic et al 2015; Cheng 2016; Tan 2016; Kalliparan et al 2015; Weaver & Darragh 2015; Rew et al 2014).
Is there an overview, and are the findings consistent?	1 overview available on the effectiveness of yoga for mental health (Hagen and Nayar, 2014); however this review appears to argue for the effectiveness of yoga interventions without critically appraising the evidence base - therefore this should be treated with caution.
Other comments?	**Within this topic area there are a wide variety of different types of interventions and a wide variety of outcome measures were used in primary studies. The mindfulness-based interventions reviewed differ substantially in their content-making the results for different types of interventions difficult to compare. In some reviews, it was difficult to disentangle the findings relating to at-risk groups and those relating to the general population (universal samples; e.g. Dunning et al., 2018). In many studies, the observed positive statistical effects were of small magnitude but there is little consideration of clinical significance.**

Table 11: Mental health promotion / prevention interventions including school based services

Number of reviews included	**4 reviews (including 1 meta-analysis) consider broad areas of mental health promotion/prevention including school based services (Dray et al., 2017, Mendez et al., 2013, O'Connor et al., 2018, Sanchez et al., 2018)**
Total number of primary studies (number of studies more relevant)	229 primary studies (at least 130 were universal interventions with C&YP)
Population (youngest and oldest ages in primary studies)	Children and young people (5 years; 18 years). NR (Sanchez et al 2018; Mendez et al 2013)

Setting	School only (O'Connor et al 2017; Sanchez et al 2018; Dray et al 2017) Family and school (Mendez et al 2013) - this review focused specifically on the involvement of parents.
Short description of the intervention	This category involved a wide range of interventions intended to promote wellbeing/positive mental health or prevent mental health problems, including social skills training, coping skills, problem solving, stress reduction, social and emotional learning programmes, emotional regulation, group parent training/parenting programmes, mindfulness based programmes and CBT-based programmes.
Examples of universal interventions in primary studies (not exhaustive list)	'Programs based on the following: positive psychology; social and emotional learning; social skills; life skills; coping skills; interpersonal and self-management skills; psychological well-being therapy; the affective-behavioral-cognitive-dynamic (ABCD) model; mindfulness; and mental health promotion. All interventions included a curriculum component...' (Dray et al 2017) 'Group parent training; The Strengthening Families Program; Life Skills Training; FRIENDS' (Mendez et al 2013); Good Behaviour Game ; Positive Action; Overshadowing the Threat of Terrorism; PATHS; Zippy's Friends; Tools for Getting Along (Sanchez et al., 2018) Stress management interventions, mindfulness interventions, anxiety and coping skills interventions, and MH education and anti-stigma interventions, e.g. Social and emotional learning (SEL) programme; Life skills training; psychoeducation; resiliency programmes (O'Connor et al 2018)
Key findings (particularly those relevant to universal programmes)	**The included reviews in this topic area covered a wide range of different programmes and measured effectiveness across a wide range of outcomes and so it is difficult to draw conclusions about particular interventions. Qualitative results:** 2 reviews synthesised results narratively (rather than quantitatively) (O'Connor et al 2017; Mendez et al 2013). 1 review undertook thematic analysis of the synthesised findings and concluded that most of the universal school based mental health promotion interventions had positive effects, but that there was a need for higher quality evaluations (O'Connor et al 2017). However they also note that three studies show null or negative effects. 1 review considered the involvement of parents in school-based mental health services and found that parental involvement (primarily in group-based parent training) could have positive effects; however it must be noted that these findings are presented narratively, with no consideration of effect sizes, and several of the programmes were evaluated in relation to impact on preventing substance abuse rather than mental health outcomes (Mendez et al 2013). **Quantitative results:** 2 reviews provide quantitative assessment of effectiveness (Sanchez et al 2018; Dray et al 2017) 1 review suggested that school-based services (specifically those that could be implemented by school staff) could have "small-to-medium" effects on reducing mental health problems (p.153) and the biggest effects were found for externalising problems then internalising problems, and attention problems (Sanchez et al 2018). 1 review found that there were statistically significant effects of school-based resilience focused interventions for 4 out of 7 outcomes (depression, internalising/externalising and psychological distress) but they suggest that effectiveness varied by the type of outcome, age group and length of follow up (Dray et al 2017).

Effects at follow up	The lack of follow up was highlighted by 2 reviews (Dray et al 2017; Sanchez et al 2018) and 1 review showed that not all effects were maintained a longer term follow up (Dray et al 2017)
Universal vs. selective vs. indicated	1 review highlighted that targeted/selective programmes could be more effective than universal programmes (Sanchez et al 2018) 2 reviews focused exclusively on universal interventions (Dray et al 2017; O'Connor et al 2018)
Quality assessment of primary studies?	**2 reviews did not undertake quality assessment and so their findings must be treated with caution (Sanchez et al 2018; Mendez et al 2013);** however 1 review restricted to controlled evaluations published in peer reviewed literature (Sanchez et al 2018). **2 reviews conducted quality assessment and identified that most studies were at high risk of bias (Dray et al 2017) and had a range of methodological limitations including small sample sizes, drop out and selection bias (O'Connor et al, 2018).**
Other methodological issues	Methodological issues included lack of measuring a range of outcomes beyond mental health outcomes e.g. child development, lack of long term follow up (Sanchez et al 2018), drop out, small sample sizes (O'Connor et al 2018), the lack of primary studies and the heterogeneity of interventions (Dray et al 2017).
Is there an overview, and are the findings consistent?	3 overviews are available for this topic area (Paulus et al., 2016, Maxwell et al., 2008, Welsh et al., 2015). Paulus et al (2016) provide an overview of key issues relating to school based mental health prevention and treatment programmes and highlight some key issues for the selection of a programme and for implementation. Maxell et al (2008) suggest that universal mental health promotion programmes in schools can be "demonstrably effective" (p.273). Welsh et al (2015) found a wide range of interventions for preventing mental health problems in children and young people, but much less evidence on mental health promotion interventions, and a lack of evidence on the equity impact of interventions.
Grey literature	In addition, there were 5 relevant grey literature reports which review evidence on: - **Health and wellbeing interventions in schools and impact on attainment** (White, 2017): This report found *"consistent international review-level evidence suggests that universal social and emotional learning programmes can have positive impacts on wellbeing and educational outcomes. However, findings from studies conducted in the UK and Ireland were mixed"* (White, 2017, p. 2). Please see full report for detailed review of individual programmes (e.g. FRIENDS, PATHS, SEAL, UK Resilience Programme etc.) - **Social & emotional learning** (Early Intervention Foundation, 2017) This policy briefing by the Early Intervention Foundation argues; **"***"Social and emotional learning should be given greater prominence within schools, given its links to mental health as well as attainment, employment prospects and other outcomes for children."* (p.3). See briefing for recommendations. - **School based interventions for promoting mental health of children and adolescents** (Weare & Nind, 2011). This review suggested that the majority of the evidence showed positive (if small) effects on a range of

	outcomes including mental health, education and social/emotional outcomes. Please see full report for full details. - **Home and Community Parenting support programmes** (Stewart-Brown et al., 2010). This review considers a wide range of interventions to support parenting from pre-birth through childhood. Please see full report for details of specific programmes and effectiveness. - **Parenting support for older children and adolescents** (Scott & Woodman, 2014). This report evaluates a range of parenting support interventions using previous reviews. Please see full report for details.
Other comments?	**Some of the interventions considered in this area are also considered in anxiety/depression prevention programmes. Furthermore these reviews considered a broad focus and therefore the conclusions regarding synthesis of findings must be treated with caution given the wide range of interventions.**

Table 12: Online / web / internet / technology based interventions

Number of reviews included	**3 reviews (no meta-analyses) (Baños et al., 2017; Clarke et al 2015; Siemer et al 2011)**
Total number of primary studies (number of studies more relevant)	57 primary studies (at least 11 universal interventions with children and young people but unclear for Siemer et al 2011 and Baños et al., 2017).
Population (youngest and oldest ages in primary studies)	Children and young people (8 years; 25 years) NR for Siemer et al 2011. Baños et al., 2017
Setting	Online (Siemer et al 2011; Clarke et al 2015;Baños et al., 2017)
Short description of the intervention	Interventions delivered through the web / online / tele-mental health. 1 review included treatment interventions (Siemer et al 2011) but both included prevention and promotion interventions. 1 review focused specifically on online positive psychology interventions (Baños et al., 2017)
Examples of universal interventions in primary studies (not exhaustive list)	Health education, blogging, online magazines, CB-based programmes, e.g. Project CATCH-IT, MoodGYM, BRAVE Online, ClimateSchools, My Body, My Life; Body Image Program for Adolescent Girls and the Student Bodies Program, ReachOut! (Siemer et al 2011) MoodGYM; ePREP—internet-based relationship education program; School Internet-based stress management course for adolescents (Clarke et al 2015) Bite Back, InJoy, E-health4Uth, Mother-Daughter Prevention Program (Baños et al., 2017)

Key findings (particularly those relevant to universal programmes)	**Overall, the 3 reviews in this area show mixed findings in terms of online interventions for mental health promotion and prevention and suggest that it is a relatively new area of research which requires more thorough evaluation.** 1 review reported the results of each of 12 interventions - for anxiety, depression, eating disorders, substance use, and health promotion. The diverse range of programmes (NB including treatment, prevention, promotion and across a range of mental health domains) means the findings (of modest effects) must be treated with caution (Siemer et al 2011). Similarly, another review considered interventions across a range of prevention/promotion areas and concluded that there was a need for additional studies in order to evaluate the efficacy of these interventions (Baños et al., 2017). A third review concluded that it was not possible to draw clear conclusions regarding the effectiveness of mental health promotion interventions as there were very few studies, a lack of high quality evidence and a wide range of programmes (Clarke et al 2015). However the same review concluded that the evidence from higher quality studies of online mental health prevention programmes suggested that these resulted in positive reductions in anxiety and depression in young people (Clarke et al 2015).
Effects at follow up	1 review suggested that there were few evaluations at follow up, but where they were available this showed that the effects of mental health prevention interventions were maintained to some extent (Clarke et al 2015). Another review highlighted the need for longer term follow ups (Baños et al., 2017).
Universal vs. selective vs. indicated	None of the reviews considered differences between universal/selective/indicated prevention in detail.
Quality assessment of primary studies?	1 review conducted quality assessment which suggested that a number of studies in the quality primary evidence were considered weak (Clarke et al 2015). 2 review did not conduct quality assessment of primary studies, but methodological improvements are noted including the need for control groups, larger samples sizes, and cost effectiveness analyses (Siemer et al 2011), as well as the need for longer term follow up (Baños et al., 2017).
Other methodological issues	Other methodological issues include issues regarding drop out, randomisation, and lack of control groups. The authors also note that they did not include grey literature, or consider publication bias (Clarke et al 2015).
Is there an overview, and are the findings consistent?	There was no overview available for this topic area.
Other comments?	**For both reviews it was not possible to identify findings specific to universal prevention and so this limits the conclusions that can be drawn.**

Table 13: Physical activity interventions / obesity prevention interventions

Number of reviews included	**2 reviews (no meta-analyses) (Hoare et al., 2015, Lubans et al., 2016)**
Total number of primary studies (number of studies more relevant)	32 primary studies (At least 7 are universal (community) interventions with C&YP and 5 in OECD countries; Unclear - Hoare et al 2015)
Population (youngest and oldest ages in primary studies)	Children and young people. 7 years; 18 years. 1 review young people only (Hoare et al 2015)
Setting	Community (Hoare et al 2015) Family, school, community (Lubans et al 2016)
Short description of the intervention	Physical activity interventions (delivered either in the community or in laboratory), and interventions intended to prevent overweight and obesity.
Examples of universal interventions in primary studies (not exhaustive list)	The COPE Health Lifestyles TEEN programme, ICAPS programme (Hoare et al 2015)
Key findings (particularly those relevant to universal programmes)	**Overall 2 reviews suggested mixed effects of obesity prevention interventions and physical activity interventions on mental health outcomes (Hoare et al 2015; Lubans et al 2016).** 1 review found that the impact of obesity prevention on mental health outcomes was mixed depending on the intervention and the outcome measured (e.g. positive impact on anxiety but not for depression, or self-esteem/self-efficacy and there were contrasting findings for health related quality of life (Hoare et al 2015). Crucially there was evidence from 2 primary studies of negative impacts i.e. those in obesity prevention intervention group demonstrated poor mental health outcomes following intervention; this clearly requires further examination. Furthermore 2 studies did not have positive impact on obesity/weight related outcomes (Hoare et al 2015) and so are not effective for their intended outcome. 1 review was focused on identifying the mechanisms through which PA interventions may impact on cognitive and mental health in young people (Lubans et al 2016). It was found that there was most evidence for the impact of PA on physical self-perceptions and self-esteem (Lubans et al 2016). For studies that reported on a mental health outcome there were mixed findings, though the majority of studies reported a significant effect for a minimum of 1 mental health outcome (Lubans et al 2016).
Effects at follow up	1 review highlighted that different measures of mental health outcomes were used at follow up and there was a lack of reporting of mental health outcomes at follow up (Hoare et al 2015).
Universal vs. selective vs. indicated	There was no consideration of different types of prevention by either review.

Quality assessment of primary studies?	**Both reviews conducted quality assessment and identified concerns regarding risk of bias.** 1 review used GRADE and found that the quality of primary evidence was low, and methodological issues included poor study designs, and no meta-analysis could be conducted (Hoare et al 2015). 1 review used Physiotherapy Evidence Database Scale and assessed that almost half of the studies did not meet half of the risk of bias criteria i.e. there were concerns regarding risk of bias in primary studies.
Other methodological issues	1 review of obesity prevention interventions highlighted that very few studies have examined mental health impacts, and so the evidence base is very limited in this area (Hoare et al 2015). Other methodological issues include a lack of primary studies (Lubans et al 2016) and heterogeneity amongst studies (Lubans et al 2016; Hoare et al 2015).
Is there an overview, and are the findings consistent?	Two overviews were available for this topic area (Biddle and Asare, 2011, Biddle et al., 2018). 1 review (Biddle et al 2018) provides an update to the other (Biddle et al 2011). This overview considers the relationship between PA interventions and a range of mental health outcomes. This overview also suggests that the impact of physical activity might also depend on the outcomes measured. This suggests there is a need for further work to identify more clearly the impact of physical activity interventions on mental health outcomes.
Other comments?	**The possibility of negative impacts of obesity prevention interventions on mental health (Hoare et al 2015) deserves further attention.**

Table 14: Self-regulation techniques

Number of reviews included	1 review (no meta-analyses) (van Genugten et al., 2017)
Total number of primary studies (number of studies more relevant)	40 primary studies (25 are universal interventions with children and young people)
Population (youngest and oldest ages in primary studies)	Young people (Age range NR for primary studies)
Setting	**Mixed** settings (although all universal interventions delivered in **schools**)
Short description of the intervention	Interventions that utilise and/or aim to promote self-regulation techniques. Self-regulation can be defined as monitoring and adapting behaviour, emotions, cognition in response to external and internal cues/feedback in order to achieve personal goals (adapted from definition of Moilanen 2007, as cited by van Genugten et al 2017).

Examples of universal interventions in primary studies (not exhaustive list)	Programmes (which incorporate self-regulation techniques): Empowerment Programme for Early Adolescent Girls; Intervention programme for the reinforcement of self-esteem; Multimedia violence prevention programme for adolescents; CBT-based interventions
Key findings (particularly those relevant to universal programmes)	**1 review included studies of interventions which incorporated self-regulation techniques and assessed both prevention (of internalising disorders) and promotion of positive wellbeing (e.g. self-esteem) (van Genugten et al 2017). It was found there were small positive effects of self-regulation techniques in 'primary prevention' (defined by the authors as primary prevention and promotion) on internalising behaviour in the short term, and both short and long term effects on self-esteem, and no effects on externalising behaviour (van Genugten et al 2017).**
Effects at follow up	It was found that for 'primary interventions' i.e. universal prevention/promotion the effect sizes were smaller at follow up.
Universal vs. selective vs. indicated	Targeted interventions showed bigger effects than universal interventions.
Quality assessment of primary studies?	**The authors assessed the quality of primary studies and found around half of primary studies appeared to have a quality rating suggesting poorer quality.**
Other methodological issues	The authors note the lack of primary studies for inclusion and difficulties in categorising the different types of self-regulation techniques.
Is there an overview, and are the findings consistent?	There was no overview available for this topic area.
Other comments?	**Whilst the focus was specifically on self-regulation techniques, the included studies evaluated a wide range of programmes (e.g. depression prevention programmes, eating disorder prevention programmes, mental health promotion programmes). Therefore the conclusions drawn relate to a wide, but nonspecific set of techniques that may be part of several different types of prevention/promotion programmes (van Genugten et al 2017).**

Table 15: Creative bibliotherapy / arts activities

Number of reviews included	**1 review (no meta-analysis) (Montgomery and Maunders, 2015)**
Total number of primary studies (number of studies more relevant)	8 primary studies (4 primary studies with general population)
Population (youngest and oldest ages in primary studies)	Children and young people (5years; 15 years)

Setting	School and community
Short description of the intervention	Creative bibliotherapy involves; "Guided reading of fiction and poetry relevant to therapeutic needs" (Montgomery & Maunders 2015, p. 37)
Examples of universal interventions in primary studies (not exhaustive list)	Creative bibliotherapy, 'STORIES'
Key findings (particularly those relevant to universal programmes)	**The authors conclude that creative bibliotherapy showed "small to moderate" effects on internalising, externalising and prosocial behaviour (Montgomery & Maunders 2015, p.43); however these findings are not specific to prevention, and include treatment studies. Limitations outlined below suggest the findings should be interpreted with caution.**
Effects at follow up	The authors do not consider follow up effects in detail.
Universal vs. selective vs. indicated	The review considers treatment and prevention together, and does not differentiate different types of prevention.
Quality assessment of primary studies?	**Quality assessment was undertaken using the Cochrane Risk of Bias tool, which identified that the quality of primary studies was mixed.**
Other methodological issues	The authors note that due to the variety of included studies meta-analysis was not possible. There was also a lack of reporting of detail by primary study authors, small sample sizes, and there was no consideration of clinical significance.
Is there an overview, and are the findings consistent?	There was no overview available for this topic.
Other comments?	This review was focused on the use of creative bibliotherapy for both prevention and treatment but the findings are not separated accordingly so it is difficult to draw conclusions specific to universal prevention. The authors outline the need for further research in this area.

Table 16: Cyberbullying

Number of reviews included	1 review (no meta-analyses) (Reed et al., 2016)
Total number of primary studies (number of studies particularly relevant)	NR
Population (youngest and oldest ages in primary studies)	Young people. Ages of participants in primary studies not reported.
Setting	**School and online**

Short description of the intervention	Anti-bullying intervention programs and other interventions aimed at reducing/preventing the negative psychological and social effects of cyberbullying
Examples of universal interventions in primary studies (not exhaustive list)	Peer-led interventions, coping skills training, safety instruction regarding online participation, and the Quality Circle Approach, Best of Coping Program (BOC)
Key findings (particularly those relevant to universal programmes)	At present there is very limited empirical evidence on programmes to address cyberbullying. However, the authors conclude there are a limited number of studies which have shown promise e.g. coping skills training, peer-led interventions, online safety instruction.
Effects at follow up	Not considered.
Universal vs. selective vs. indicated	Not considered.
Quality assessment of primary studies?	No quality assessment of the included studies was carried out.
Other methodological issues	Methodological issues included outcome measures and small sample sizes. It is acknowledged that there is a need for more robust evaluation studies.
Is there an overview, and are the findings consistent?	There was no overview available for this topic.
Other comments?	Only one review on the topic was identified. The review was not a systematic one and included a limited number of intervention studies.

5.8 Suicidality and self-harm

For suicidality and self-harm 11 reviews were identified covering a range of suicide prevention programmes.

Table 17: Suicide prevention programmes

Number of reviews included	11 reviews (including 1 meta-analysis) (Balaguru et al., 2013, Cusimano and Sameem, 2011, Hamilton and Klimes-Dougan, 2015, Harrod et al., 2014, Katz et al., 2013, Klimes-Dougan et al., 2013, Kuiper et al., 2018, Mo et al., 2018, Robinson et al., 2013, Wei et al., 2015, York et al., 2013)
Total number of primary studies (number of studies more relevant)	180 primary studies (at least 72 are with universal populations; Unclear for Hamilton & Klimes-Dougan (2015); Katz et al., (2013); Kuiper et al. (2018); York et al 2013)
Population (youngest and oldest ages in primary studies)	Young people. Ages are not reported or are unclear (e.g. 'youths'; 'adolescents'; 'young people'; students in post-secondary education)

Setting	Schools (Balaguru et al. 2013; Hamilton & Klimes-Dougan, 2015; Harrod et al 2014; Katz et al., 2013; Wei et al., 2015; Robinson et al., 2013; Cusimano & Sameem, 2010; Harrod et al, 2014) Mixed (Klimes-Dougan et al. 2013; Mo et al. 2018; Kuiper et al. 2018; York et al. 2013)
Short description of the intervention	School- or community-based intervention programmes for youth that aim to minimise the risk of suicide ideation and attempts, and/or suicide-related deaths.
Examples of universal interventions in primary studies (not exhaustive list)	Suicide awareness curricula; psychoeducation; gatekeeper training; skills training aimed to risk reduction (e.g. Signs of Suicide; the Good Behaviour Game; Yellow Ribbon suicide prevention programme; the SOS Suicide Prevention Programme; video screenings); public service messaging; peer leadership; policy based interventions; parent education
Key findings (particularly those relevant to universal programmes)	**Overall there were mixed findings regarding effectiveness, and there is a distinct lack of high quality evidence for suicide prevention programmes. The majority of the evidence concerns the effects of the programmes on suicide-related awareness, knowledge, attitudes, and there was less evidence on the impact on suicide related behaviour including suicide rates. Knowledge:** Several reviews (Katz et al., 2013; Cusimano & Sameem, 2010; Robinson et al., 2013; York et al., 2013; Harrod et al., 2014) found positive effects on suicide knowledge. On the whole, gatekeeper training has been shown to be effective for improving suicide-related knowledge (Robinson et al., 2013; Mo et al., 2018; York et al., 2013; Harrod et al 2014). There is mixed evidence as to the effectiveness of gatekeeper training for improving suicide-related attitudes and behaviour (Mo et al., 2018), and mixed evidence on the impact of universal programmes on attitudes (Robinson et al 2013). **Help-seeking:** Mixed evidence was found for help-seeking attitudes and behaviours (Klimes-Dougan et al., 2013; Cusimano & Sameem, 2010; Robinson et al., 2013; Wei et al., 2015), (including some evidence of adverse effects) (Klimes-Dougan et al., 2013; Kuiper et al., 2018). **Negative consequences:** Several reviews identified unanticipated adverse consequences of suicide prevention programmes including negative impact on help seeking and attitudes (Kuiper et al 2018) and on suicidal behaviour (Wei et al 2015). Several reviews identified that further research is required to systematically evaluate any potential harm or possible negative consequences of suicide prevention programmes (Wei et al., 2015; Kuiper et al., 2018; Robinson et al 2013). **Other factors:** One review showed that males and females could benefit from programmes differently (Hamilton & Klimes-Dougan, 2015). 1 review focusing on post-secondary educational settings (Harrod et al., 2014) found evidence of effectiveness for increasing short-term knowledge of suicide but insufficient evidence overall to support the widespread implementation of the reviewed programmes. Finally, 1 review of two specific programmes (SOS and the Yellow Ribbon programme) found that, overall, there was not sufficient evidence to support their large-scale implementation (Wei et al 2015).
Effects at follow up	Several review identified a lack of longer term follow up data (Harrod et al 2014; Klimes-Dougan; Mo et al 2015; Wei et al 2015).

Universal vs. selective vs. indicated	Interventions should take into account the youth's social contexts (Balaguru et al., 2013; Robinson et al., 2013). 1 review found that it was not always possible to identify the effects of universal interventions as the interventions were a mixture of primary and secondary prevention (Harrod et al 2014).
Quality assessment of primary studies?	**5 reviews did not assess the methodological quality of studies, and so their findings must be treated with caution (Balaguru et al; Klimes-Dougan et al; Hamilton et al; Kuiper et al; Robinson et al). Those reviews that did assess quality, found that overall the methodological of the included studies were methodologically weak / at high risk of bias (Harrod et al; York et al; Cusimano & Sameem; Mo et al; Wei et al).** 1 review assessed evidence according to the 'evidence hierarchy' but does not make assess overall quality in detail (Katz et al)
Other methodological issues	A wide range of methodological issues were identified for the primary studies in this area including lack of adequate study designs (in particular very few RCTs) difficulties with outcome measures, lack of longer term follow up, heterogeneity of interventions, small sample sizes, and an overall lack of primary studies (Mo et al; Robinson et al; Wei et al; Cusimano et al; York et al; Katz et al; Klimes-Dougan et al). There is a clearly an urgent need for more rigorous evaluations of the effectiveness of suicide prevention programmes.
Is there an overview, and are the findings consistent?	One overview was available for this topic area, which considered youth suicide prevention in Canada (Bennett et al., 2015b). Overall, the findings are consistent with Bennett et al. (2015), who conclude that there is a lack of good quality evidence on youth suicide prevention interventions and policies, and a further lack of evidence on potential harms.
Other comments?	**Given the sensitive nature of this topic much more rigorous examination of the evidence is required than has been possible in the current review, and the overall findings must be treated with caution. Several review emphasise the lack of high quality evidence in this area and a lack of evidence based programmes, which suggest a need for particular caution when considering interventions in this area (Katz et al 2013; Klimes-Dougan et al 2013; Wei et al 2015). In addition, the reviews contain a relatively small number of universal intervention studies. It must be noted that 1 review did not appear to be systematic (Balaguru et al 2013).**

5.9 Body dissatisfaction / eating disorders

For body dissatisfaction and eating disorders 4 reviews were identified covering a range of prevention interventions.

Table 18: Body dissatisfaction / eating disorder prevention interventions

Number of reviews included	**4 reviews including 1 meta-analysis (Beintner et al., 2012, Ciao et al., 2014, Hart et al., 2015, Yagera, 2013)**

Total number of primary studies (number of studies more relevant)	71 primary studies (Minimum of 14 studies were universal interventions; NR for Yagera et al., 2013; unclear Ciao et al 2014)
Population (youngest and oldest ages in primary studies)	6 years; 18 years, NR (Ciao et al 2014)
Setting	School only (Ciao et al 2014; Yagera et al 2013); Online and school (Beintner et al., 2012); Online, school and family (Hart et al., 2015)
Short description of the intervention	School- and/or online-based body image and eating disorder prevention programmes
Examples of universal interventions in primary studies (not exhaustive list)	School-based eating disorders and body image programmes, incl. CB-based and weight management interventions (Caio et al 2014); Psychoeducational, self-esteem based programmes, weight management programmes, stress management, media literacy, peer programmes (Yagera et al 2013); StudentBodies™ (Beintner et al 2012) the StudentBodies™ online program for adolescents and their parents; a behavioral weight-loss intervention; 90-min weekly workshops (Hart et al 2015).
Key findings (particularly those relevant to universal programmes)	**Overall, there is mixed evidence that body dissatisfaction and eating disorder prevention interventions are effective for reducing a range of risk factors for eating disorders (such as negative body image, low self-esteem and extreme weight control measures) depending on type of programme and type of outcome (Ciao et al., 2014; Beintner et al., 2012). SCHOOLS ONLY:** 1 review (Yagera et al., 2013) found mixed evidence on the effectiveness of body image programmes such that 7 (of 16) programmes were found to be effective in improving measures of body image; however a considerable proportion do not maintain positive effects at longer-term follow-up (Yagera et al., 2013). 1 review found positive effects for reducing risk factors and future eating disorder pathology across 9 eating disorder prevention programmes; however the authors recognise that most of these programmes were selective prevention (Ciao et al., 2014). **ONLINE:** The online cognitive-behaviour based programme, StudentBodies™, was found to be effective for improving eating disorder related attitudes particularly negative body image (Beintner et al., 2012). **FAMILY/SCHOOL/ONLINE - INVOLVEMENT OF PARENTS:** The evidence on the effectiveness of parental involvement in body dissatisfaction and eating disorder prevention interventions was found to be inconclusive (Hart et al., 2015).
Effects at follow up	1 review highlighted that effects of school based programmes were not maintained at follow up (Yagera et al 2013). The review of the online programme found that effects were maintained at follow up (Bientner et al 2012).
Universal vs. selective vs. indicated	1 review highlighted that most of the evidence they reviewed were focused on selective prevention and that more research on universal prevention was required (Ciao et al 2014). 1 review of the online intervention found no difference in effectiveness between universal and selective versions of StudentBodies™ (Bientner et al 2012).

Quality assessment of primary studies?	**Three reviews did not assess the methodological quality of included studies and therefore their findings should be treated with caution (Ciao et al 2014; Bientner et al 2012; Yagera et al 2013). One review (Hart et al 2015) did conduct quality assessment and found primary studies to be of mixed quality.**
Other methodological issues	Methodological issues included heterogeneity between programmes and studies (Yagera et al 2013); outcome measures (Bientner et al 2012; Yagera et al 2015); lack of primary studies (Bientner et al 2012), small sample sizes (Hart et al 2015); issues with drop out (Bientner et al 2012), and other design issues (Yagera et al 2013).
Is there an overview, and are the findings consistent?	There is 1 overview available for this topic (Bailey et al 2014) which maps existing evidence on eating disorder prevention and treatment. Although this overview does not synthesis results on effectiveness, the authors suggest that there is some evidence for the effectiveness of these programmes in improving knowledge, but there are smaller effects on behaviour (Bailey et al 2014), which confirms the mixed evidence outlined above. This overview also confirmed the dearth of studies using longer-term follow-up periods (Bailey et al 2014).
Other comments?	**It must be noted that the findings were not specific to universal prevention and so further reviews are required to identify the effects of this type of prevention programme. One issue with the research in this area appears to be the type of outcome measures used (e.g. knowledge/attitude versus eating/weight control behaviours).**

5.10 Positive Youth Development

For Positive Youth Development interventions 5 reviews were identified.

Table 19: Positive Youth Development Interventions

Number of reviews included	**5 reviews including 2 meta-analyses (Busiol et al., 2016, Ciocanel et al., 2017, Curran and Wexler, 2017, Sancassiani, 2015, Taylor et al., 2017)**
Total number of primary studies (number of studies more relevant)	213 primary studies (at least 121 primary studies are focus on general / universal population) ; Unclear for Curran et al., 2017)
Population (youngest and oldest ages in primary studies)	Children and young people 6 years; 19 years.
Setting	School (Curran et al., 2017; Taylor et al., 2017; Sancassiani et al., 2015); school and community (Busiol et al., 2016); community (Ciocanel et al., 2017)
Short description of the intervention	There is no single definition of positive youth development programmes, but they can involve education/curriculum based approaches, leadership or mentoring to promote positive development and are framed positively e.g. focus on resilience, social, emotional, cognitive, behavioural or moral competence, self-determination, spirituality, self-efficacy, positive identity development, belief in the future, and others. Reduction of risk

	behaviours, including substance use, and encouragement of positive social behaviours are other common goals.
Examples of universal interventions in primary studies (not exhaustive list)	Curriculum-based programmes; leadership development; youth mentorship; and life skills training. Examples include PATHS (Positive Adolescent Training through Holistic Social Programs); Life Skills; the Go Girls Program; Zippy's Friends; Free from Smoking; Project Venture; All Stars, and others.
Key findings (particularly those relevant to universal programmes)	**Overall there was some evidence from the included reviews suggested that positive youth development programmes (in schools and community settings) can show significant but small effects on some outcomes e.g. academic achievement and wellbeing, but not other outcomes e.g. reduction in risk behaviours. There are a range of methodological limitations of the evidence that suggest these findings must be interpreted with caution.** In terms of measures of positive outcomes there was some evidence of effectiveness of positive youth development programmes on academic achievement, indicators of psychological well-being and socio-emotional skills (such as self-awareness, self-management and confidence) (Ciocanel et al 2017; Curran et al 2017). In terms of reducing risk behaviours, while Curran et al. (2017) and Busiol et al. (2016) showed positive effects for reducing risk behaviours and increase positive social behaviours, Ciocanel et al. (2017) found no evidence of any effects for those measures, and Sancassiani et al. (2015) found both primary studies that showed positive effects and studies that showed no effects for those measures.
Effects at follow up	1 review explicitly considers the follow up effects of Social-Emotional learning programmes and found that positive effects were maintained at longer term follow up (Taylor et al 2017).
Universal vs. selective vs. indicated	2 reviews explicitly focuses on universal programmes (Taylor et al 2017; Sancassiani et al 2015); however for other reviews there is little consideration of the differences between universal and selective/indicated programmes and so it was difficult to disentangle the findings relating to at-risk groups and those relating to the general (universal) population. 1 review suggests that programmes should include both 'low' and 'high' risk participants (Curran et al 2017).
Quality assessment of primary studies?	**Three of the five reviews did not assess primary studies for methodological quality and therefore the findings should be interpreted with caution (Busiol et al 2016; Curran et al 2017; Taylor et al 2017). 2 reviews did assess quality and 1 found a lack of high quality studies (Ciocanel et al 2017) and the other raised methodological limitations (Sancassiani et al 2015).**
Other methodological issues	Methodological issues included poor reporting by primary studies, reliance on self-report outcome measures (Taylor et al 2017; Sancassiani et al 2015), issues with drop out, and small samples sizes (Ciocanel et al 2017).
Is there an overview, and are the findings consistent?	There was no overview available for this topic.

Other comments?	**This topic area covers a very wide range of programmes, differences in programme content, and evaluations over a wide range of outcomes which makes drawing clear conclusions difficult. The review by Busiol et al (2016) does not synthesise evidence of effectiveness.**

5.11 Stigma and/or mental health awareness

For stigma and mental health awareness interventions 3 reviews were identified.

Table 20: Stigma / mental health awareness interventions

Number of reviews included	**3 reviews (no meta-analyses) (Salerno, 2016, Janoušková et al., 2017, Yamaguchi et al., 2011)**
Total number of primary studies (number of studies more relevant)	78 primary studies (At least 46 relevant) Unclear for Janoušková et al 2017.
Population (youngest and oldest ages in primary studies)	Children and young people. Unclear ages for primary studies- NR for Yamaguchi et al. (2011) and Salerno, 2016) 14 years; 26 years for Janoušková et al. (2017)
Setting	School
Short description of the intervention	Universal school-based mental health awareness programmes- programmes focused on improving mental health/illness knowledge, improving attitudes toward mental health or illness, and/or increasing help-seeking.
Examples of universal interventions in primary studies (not exhaustive list)	Educational interventions (incl. curriculum-based programmes); contact interventions; video-based contact interventions
Key findings (particularly those relevant to universal programmes)	**Overall the 3 included reviews suggest that there is some evidence of the effectiveness of school-based mental health awareness programmes for improving mental health related knowledge, attitude and help-seeking (Yamaguchi et al., 2011; Salerno, 2016; Janoušková et al., 2017). However, there was also evidence in each review of several primary studies showed no effects (Salerno, 2016; Janoušková et al 2017; Yamaguchi et al 2011).**
Effects at follow up	1 review noted that several studies reported difficulties maintaining effects at follow up (Yamaguchi et al 2011) and the lack of longer term follow up studies is highlighted (Janoušková et al; Yamaguchi et al).
Universal vs. selective vs. indicated	1 review focuses specifically on universal interventions (Salerno 2017).
Quality assessment of primary studies?	**2 reviews conducted quality assessment of primary studies. 1 review found evidence of risk of selection bias and attrition bias (Janoušková et al 2017); and the other suggested medium to high risk of bias (Salerno 2016). This suggests the findings must be treated with caution.**

Other methodological issues	Methodological issues include issues with outcome measures (i.e. not measuring behavioural change) (Yamaguchi et al 2011); issues with study design (Salerno 2016); lack of longer term follow up (Janoušková et al; Yamaguchi et al) and lack of statistically significant effects/analysis beyond descriptive statistics (Salerno 2016). Some of the few high-quality controlled studies have shown no improvement as a result of the interventions (Salerno, 2016).
Is there an overview, and are the findings consistent?	There was no overview for this topic area.
Other comments?	**The majority of reviewed studies tend to measure knowledge and attitudes as opposed to behaviours (e.g. help-seeking and social contact).**

5.12 Resilience and/or wellbeing

For resilience and/or wellbeing 2 reviews were identified, covering arts based activities (n=1) and strengths-based interventions (n=1).

Table 21: Strength & resilience based interventions

Number of reviews included	1 review (no meta-analyses) (Brownlee et al., 2013)
Total number of primary studies (number of studies more relevant)	11 primary studies (4 primary studies appear to be universal/non-selective)
Population (youngest and oldest ages in primary studies)	Children and young people. 3 years; 19years.
Setting	School and community
Short description of the intervention	Strengths-based or resilience-based interventions that aim to impact youth's behaviour and/or emotional functioning
Examples of universal interventions in primary studies (not exhaustive list)	CB-based interventions (e.g. FRIENDS); community-based leadership programmes; curriculum-based programmes focusing on resilience, social competencies, and self-determination
Key findings (particularly those relevant to universal programmes)	Overall, the review concludes that all of the included studies showed some positive effects on a measure of strengths; however the small number of studies included and the poor quality of studies suggests these findings should be treated with caution (Brownlee et al 2013).
Effects at follow up	Follow up effects are not considered in detail.

Universal vs. selective vs. indicated	Whilst the authors recognise the interventions have been implemented with different populations, there is little consideration of the different effects of universal or selective/indicated interventions.
Quality assessment of primary studies?	The review did assess the quality of primary studies and found that the majority of included studies were of moderate or low methodological quality.
Other methodological issues	The authors argue there is a need for more robust studies to assess the efficacy of these interventions (Brownlee et al 2013). The lack of efficacy studies which include control groups is highlighted (Brownlee et al 2013).
Is there an overview, and are the findings consistent?	There was no overview identified for this topic area.
Other comments?	**This review should also be considered alongside the Positive Youth Development Interventions as there is overlap. In many studies, there was insufficient detail about how the intervention was actually implemented (Brownlee et al 2013).**

Table 22: Arts activities

Number of reviews included	**1 review (no meta-analyses)** (Zarobe and Bungay, 2017)
Total number of primary studies (number of studies more relevant)	8 primary studies (5 primary studies with general population, but only 2 studies were quantitative and both with at-risk population)
Population (youngest and oldest ages in primary studies)	Children and young people. 10 years; 26 years
Setting	Community and school
Short description of the intervention	Participation in arts-based activities such as drama/theatre, music, visual arts and dance taking place within community settings or related to extracurricular activities based within schools
Examples of universal interventions in primary studies (not exhaustive list)	Drama and circus skills; youth-led community arts hubs; story-telling, theatre and performance
Key findings (particularly those relevant to universal programmes)	**1 review (Zarobe & Bungay, 2017) was identified that reviewed qualitative and quantitative evidence on arts-based activities, and this contained very few primary studies and even fewer quantitative studies of universal interventions. Whilst there was some evidence for positive impacts on outcomes such as self-esteem, and self-confidence, this must be treated with caution given the very limited evidence base.**
Effects at follow up	This was not considered.

Universal vs. selective vs. indicated	There was no consideration of universal vs. selective/indicated approaches.
Quality assessment of primary studies?	**The review did assess quality of primary studies and 4 of 8 studies were assessed as 'weak' quality.**
Other methodological issues	A range of methodological issues were identified including study design, outcome measures, lack of control groups, selection bias and observation bias.
Is there an overview, and are the findings consistent?	There was no overview identified for this topic area.
Other comments?	**The authors highlight that this was not a full systematic review. The arts activities differed widely making comparisons challenging.**

5.13 Infant mental health

For infant mental health 1 review was identified focused on infant massage. However, several relevant reports were identified in the grey literature; links to these reports are provided below.

Table 23: Early years interventions

Number of reviews included	**1 review (a summary of Cochrane review and meta-analysis) (Trivedi, 2015)**
Total number of primary studies (number of studies particularly relevant)	34 primary studies (12 studies in OECD countries, appears to be with 'low-risk' groups
Population (youngest and oldest ages in primary studies)	Infants
Setting	Schools, community and healthcare settings
Short description of the intervention	Infant massage which was defined as "systematic tactile stimulation by human hands" (Trivedi 2015, p.3)
Examples of universal interventions in primary studies (not exhaustive list)	Different types of massage
Key findings (particularly those relevant to universal programmes)	**The review concludes that there was not enough evidence to support the use of infant massage.** For mental health and development outcomes there were significant effects on gross and fine motor skills, social behaviour, but there were no effects for language development, infant temperament, parent-infant interaction and mental development.
Effects at follow up	The review notes that many of the significant effects were not maintained at follow up.
Universal vs. selective vs. indicated	The review notes that there is a need for studies with higher-risk groups.
Quality assessment of primary studies?	The review did undertake quality assessment and found that 20 studies were considered to be high risk of bias. It is suggested that the primary evidence base is poor quality. When the high risk of bias studies, and those that were

	conducted "the East", p.4, were excluded from the analysis the effects were no longer statistically significant.
Other methodological issues	
Is there an overview, and are the findings consistent?	There was 1 overview available (Barlow et al., 2010) which focused on health-led interventions in the early years. This review considered a range of interventions, most of which were either indicated or selective interventions and it is suggested that primary care practitioners in universal services then identify families who require additional support.
Grey literature	In addition there were 5 grey literature reports on: - **Health-led parenting interventions in pregnancy and early years** (Barlow et al., 2008). This report evaluated a range of health-led interventions for supporting parenting in the early years. It identified that there is a dearth of high quality research (especially in the UK) of ante-natal and post-natal programmes; however a range of approaches can be recommended. - **Early Years Childcare** (Sim et al., 2018). This report evaluated teaching, pedagogy and practice in early years childcare and evaluated programmes across a range of outcomes. For social/emotional outcomes specifically, it was found that in general most studies found moderate positive effects; however many of these evaluated the Head Start programme (which is a selective rather than universal programme). - **Childcare quality** (Scobie & Scott, 2017). This reports evaluates different aspects of the quality of childcare (e.g. structural factors such as group size, and process factors such as nature of interactions with teachers) and the impact on child development outcomes. The report suggests that there is evidence that early learning and childcare can positively impact on outcomes for children in terms of social, emotional and cognitive development; however it is argued that the quality of provision is very important, and the impact can be greater for targeted programmes compared to universal approaches. - **The Health Child Programme** (Asmussen & Brims, 2018). This report provides a summary of the evidence in relation to a variety of interventions as part of the Health Child Programme (0-5 years). These interventions are not evaluated in relation to mental health outcomes specifically, but can support child development. - **Supporting parent child interaction in the early years** (Asmussen et al., 2016) This report evaluated 75 different programmes, and found evidence to support 17

	interventions; however it was also highlighted that the evidence based in the UK was lacking. This in-depth report should be considered in more detail.
Other comments?	**The original review which was summarised by Trivedi (2015) - (Bennett et al., 2013) should be consulted for full details It must also be noted that few of the grey literature reports mentioned above consider mental health outcomes explicitly, but are concerned with child development e.g. social/emotional outcomes.**

6. Strengths and Limitations

This review has been undertaken as a rapid overview of available evidence across a broad remit of child and adolescent mental health and wellbeing. It provides a map of a wide variety of interventions which have been assessed in review-level evidence across a diverse range of topics relevant to child and adolescent mental health and wellbeing. A key strength of this overview is its ability to provide a 'snapshot' or a 'bird's eye view' on the synthesised evidence for child and adolescent mental health. Existing overviews have focused on particular topic areas e.g. anxiety (Bennett et al., 2015a), key topics such as socioeconomic inequalities(Welsh et al., 2015), or particular age groups such as adolescents (McLean et al., 2017). In contrast this overview provides coverage across a diverse topics, focuses specifically on prevention and promotion interventions and considers a wide age range across childhood and adolescence. It provides an important starting point for identifying existing evidence which may strengthen policy and practice intended to prevent mental health problems in children and adolescents, and promote wellbeing.

However, several limitations of this review must be recognised. In line with guidance regarding the conduct of rapid reviews, (Tricco et al., 2017), several decisions were made to 'streamline' the methodology which must be taken into consideration. Firstly the search strategy was restricted to 2 electronic databases, and 1 additional curated database specific to child and adolescent mental health. It must also be noted that searches were restricted to 'title' searches, to between 2008 and 2018, to articles published in English and article/review document types. These parameters will have limited the number of 'hits' and means that it is likely that the search will not have identified all possible records. The search strategy was also not exhaustive and it may be that relevant terms were missed or may have biased the types of results achieved. For example, it is possible that the strategy was not sufficiently sensitive to concepts focused on wellbeing / positive mental health.

Secondly, for title, abstract and full text screening it was not possible for both reviewers to screen all titles. In order to expedite the process a subset were cross-checked by a second reviewer in order to check for consistency. However, it is recognised that this may mean that a degree of bias will have been introduced, potentially missing relevant papers, or including those that are less relevant.

Thirdly, as mentioned above, we were not able to undertake quality assessment of systematic reviews, which limits our ability to draw conclusions regarding the strength of the evidence base and to make recommendations regarding the effectiveness of particular interventions. We also did not outline a prior definition of 'systematic review' and therefore considered some reviews which may not meet strict definitions. However, this approach also ensured that we have maintained an

inclusive approach in order to provide a map of the types of interventions which are currently evaluated, rather than only those that have been appraised in a formal systematic review.

Fourth, the data extraction undertaken was pragmatic and it was not possible to extract all possible relevant information from included reviews. For example, we did not extract specific effect sizes, or moderators of intervention effects, and as such we are not able to comment on factors which may influence effectiveness (such as mode of delivery, training or fidelity, number of sessions, local context etc.). Several reviews contained within this overview explored these factors in detail, and so reviews on specific topic areas should be considered in more depth in order to examine factors which may influence effectiveness.

Fifth, many reviews considered broad topic areas (including universal, selective, indicated prevention in combination, and sometimes not distinguishing between prevention and treatment). As outlined above, we iteratively applied an exclusion criterion which excluded reviews with less than 25% of primary studies relevant to the focus of the review. Some of these excluded reviews may have considered the interventions relevant to the review question, and their exclusion may limit the comprehensive nature of the review. Relatedly, our classification of intervention types is tentative as a significant proportion of the intervention categories are mixed.

Sixth, our grey literature searches were restricted to pre-determined key websites and therefore only cover specific parts of the evidence. We did not incorporate overviews and grey literature into the key findings sections of the synthesis, and so this may mean that the full range of interventions and approaches are not fully represented.

Finally, our overview is also subject to the limitations of overviews in general (McKenzie and Brennan, 2017), in that we were reliant on the data provided in systematic reviews, and were not able to assess the primary evidence directly. This means that the interventions reviewed are those which have been previously evaluated in primary studies and therefore our review may miss emerging or newly developed practice and interventions which have not yet been considered in synthesised evidence (Weare & Nind, 2011).

7. Conclusions

There is an emerging evidence base (at the level of reviews) focused on universal prevention and promotion for child and adolescent mental health and wellbeing. This overview provides a snapshot of this evidence and signposts for specific topic areas for further consideration.

A wide range of interventions have been evaluated in primary evidence and have been synthesised by reviews including a range of school-based and community-based prevention interventions. Some topic areas (such as the prevention of depression and anxiety) have been extensively evaluated by systematic reviews, whilst other areas (such as the promotion of positive mental health and wellbeing) are less comprehensively covered. Appraisal of both types of approaches are required to improve population mental health for children and young people.

It is encouraging that there is a developing evidence base on universal prevention and promotion interventions for children and young people's mental health, and without recommending specific interventions, it is clear that there is evidence to support the impact of a range of interventions on a variety of mental health and wellbeing outcomes. However, there are significant limitations of available evidence, with many primary studies considered high risk of bias, and suffering a range of methodological limitations. This limits the conclusions that can be drawn regarding the effectiveness of interventions, and necessitates further scrutiny of both the extant and future evidence base.

This overview has provided a map the types of interventions which have been evaluated in relation to universal prevention and promotion child and adolescent mental health, but is not able to provide conclusions regarding intervention effectiveness or the strength of the evidence. In order to make recommendations regarding particular interventions further reviews and overviews are required which assess the quality and strength of the evidence for specific topic areas. Service commissioners should conduct further in-depth examination of the evidence for specific topic areas in order to determine the most appropriate interventions before proceeding to implementation.

Appendix A: Search Strategy

Web of Science Core Collection and PsycInfo (EBSCOhost) will be searched for reviews published in the last 10 years (2008 – November 2018) for articles published in English.

In addition searching of 8 organisational websites will be conducted: Mental Health Foundation; NHS Health Scotland, What Works Wellbeing, Faculty of Public Health, Public Health England, Public Health Wales, Early Intervention Foundation and the Harvard Centre for Child Development. Some limited citation searching of key papers will also be undertaken.

As a robustness check additional searching will be conducted on an available open-access evidence database which has been developed to help map evidence in the area of youth mental health: https://www.orygen.org.au/Education-Training/Resources-Training/Evidence-Finder (De Silva et al 2016). Search string not required: Key search: Universal prevention. Dates: 2008 – 2018. Limited to systematic reviews.

The search strategy has been adapted from Welsh et al (2015). Given the short timescale for this review the search strategy was refined. Any terms that were specific to the Australian context were removed as well as the search term for high income countries. The focus of the review by Welsh et al (2015) was "to present an overview of the social determinants of inequities in mental wellbeing in children and adolescents and to identity successful approaches to reducing inequities at each layer of the Framework." For the purposes of this review the focus is not on identifying the evidence on key social determinants, rather the focus is on interventions. Therefore the search was amended to remove terms related to risk factors/determinants (political/socioeconomic/cultural context, daily living conditions, individual-related factors), and terms related to equity. **In addition, the life-course search terms were amended and some additional terms included (informed by search strategy of McLean et al 2017) to identify reviews focused on young adults. The outcome search strategy the following terms were removed: vitality; psychopathology; delinqu*; ADHD; ADD; risky behaviours)**

Searches: (Each category i, ii, iii, iv combined with AND) Restricted to title searches.
Searches restricted to: 2008 – November 2018 (n.b. PsycINFO specifies from 1st Jan 2008); English language articles only.

N.B. PsycINFO: 'Find all my search terms' Auto AND all search terms entered (E.G. web AND accessibility)

i) POPULATION (TITLE SEARCH)

child* OR youth OR adolescen* OR young OR pediatric OR paediatric OR infant* OR neonat* OR toddler* OR pre-school OR preschool OR prenatal **OR life course OR life-course OR young adult OR young women OR young men OR young people OR young male* OR young female* OR parent** [6]

ii) OUTCOMES (TITLE SEARCH)

mental health OR mental wellbeing OR mental well-being OR mental health prob* OR depressi* OR anxiety OR post-traumatic stress disorder OR temperament OR emotional difficulties OR internalizing OR internalising OR externalising OR externalizing OR prosocial OR stress OR eating disorders OR conduct disorders OR oppositional defiant disorder OR suicide OR self-harm OR resilien* OR mental capital OR positive development OR mental illness OR mental disorder OR affective disorders OR mood disorders OR behavioural disorders

[6] These additional search terms in bold were added 21.11.18 following initial searches and discussion with funder.

iii) INTERVENTIONS (TITLE SEARCH):

health promotion OR policy OR legislat* OR regulat* OR law OR program* OR intervention* OR advocacy OR service OR initiative OR media OR review OR public awareness OR prevent OR mental health promotion OR online OR internet OR web OR workplace OR community-based OR school-based OR family-based OR parenting OR social marketing OR prevent*

iv) PUBLICATION TYPE (TITLE SEARCH)

review OR literature review OR systematic review OR scoping review OR rapid review OR overview OR meta-analysis

Additional notes: The original search was re-run on 26.11.18 and hits were refined by document type (to reviews and articles in Web of Science, and to academic journals in PsycInfo). This excluded book chapters, proceedings papers, books, dissertations, and electronic collections). Given there were only a small number of duplicates (less than 50) it was decided to screen titles and abstracts in the electronic databases before exporting to Endnote. For electronic database searches the web based tool COVIDENCE was used for screening full texts.

Appendix B: Evidence Table of Included Reviews

Key: ACT = acceptance and commitment therapy; **CB** = cognitive behavioural; **CBM-I** = cognitive-bias modification of interpretations; **CBT** = cognitive behaviour therapy; **IPT** = interpersonal therapy; **MA** = meta-analysis; **MBI** = mindfulness-based intervention; **NR**= not reported; OECD = Organization for Economic Cooperation and Development; **PS** = primary studies; **PRP** = Penn Resiliency Programme; **RCT** = randomised controlled trial; **SD** = standard deviation; **SR** = systematic review; **$** = as reported by review authors

Author, year [Type of review]	Aim / objective / question $	Number of primary studies [Number relevant to review].	Age	Setting	Type of intervention $	Outcomes	Key findings $	Quality assessment of primary studies?
ANXIETY AND DEPRESSION								
Prevention interventions – mixed								
Ahlen et al 2015 [MA] PREVENTION	"…to determine the effectiveness of universal interventions to prevent anxiety and depressive symptoms…"	30 [Focus is universal prevention]	SR: 6-18; PS: Mean age = 12.77 (SD=1.58)	Mixed (mostly school)	CB-based interventions; cognitive interventions; resilience interventions; stress management; multi-component interventions; interpersonal interventions; problem solving interventions	Reductions in anxiety and depression scores	Small but significant effects regarding anxiety and depression as measured at immediate post-test were identified. For longer follow-ups, significant effects were observed for depression but not for anxiety. No significant moderation effects were detected for deliverer, intervention aim, gender, age and length of intervention.	NO: No risk assessment of the original studies was reported. Publication bias of the review was assessed to be low.

Christensen et al. 2010 [SR] PREVENTION	To evaluate the effectiveness of prevention and early intervention programs for depression and anxiety for young people and adolescents once they leave or dropout from school	44 [5 universal depression prevention trials and 11 universal anxiety prevention trials]	SR: 11-25; NR	Community	Anxiety and depression prevention programmes	Anxiety and depression scores	"Anxiety and depression symptoms were reduced in ~60% of the programs. Cognitive behavioural therapy programs were more common than other interventions and were consistently found to lower symptoms or prevent depression or anxiety. Automated or computerized interventions showed promise, with 60% of anxiety programs and 83% of depression programs yielding successful outcomes on at least one measure." (p. 139); "For anxiety, universal programs appeared to be as useful as selective approaches. For depression, universal and indicated programs were associated with higher percentage of successful outcomes than selective programs…"	YES: "A validated measure devised by Jadad et al. (1996) was used to rate the quality of included studies."

Corrieri et al 2013 [SR] PREVENTION	To evaluate the effectiveness of "…school-based prevention interventions on depression and anxiety disorders utilizing an RCT design…"	28 [Most studies included were universal]	NR; PS: 7-19	School	School-based prevention programmes for anxiety and depression in adolescence: CB-based interventions; resilience-based interventions; exercise; problem-solving programmes; socio-emotional learning;	Depression and anxiety scores	"The majority of interventions turn out to be effective, both for depression (65%) and anxiety (73%). However, the obtained overall mean effect sizes calculated from the most utilized questionnaires can be considered rather small…"	NO
Garber et al., 2016 [MA] PREVENTION & TREATMENT	To examine "…whether interventions for children and adolescents that explicitly targeted either anxiety or depression showed treatment specificity or also impacted the other outcome (i.e.	56 [14 (of 56) studies were universal]	SR: 0-20; PS: 6-19	Community and school	Interventions aimed at treating or preventing anxiety and/or depression	Anxiety and depression scores.	"Anxiety prevention studies significantly affected anxiety symptoms, but not depressive symptoms, and not surprisingly, the ES was significantly larger for anxious than depressive symptoms. Thus, there was no evidence of a significant cross-over effect of anxiety prevention trials on depressive	NO

	cross-over effects).”						symptoms in our primary model. It is noteworthy, however, that post hoc analyses showed an interesting pattern of findings. Anxiety prevention programs delivered universally were effective in targeting both anxiety and depressive symptoms (i.e. a cross-over effect), whereas targeted anxiety prevention programs were not.”	
Werner-Seidler et al, 2016 [SR and MA] PREVENTION	“…to provide a comprehensive evaluation of randomised-controlled trials of psychological programs, designed to prevent depression and/or anxiety in children and adolescents delivered in school settings.”	81 [44 (of 81 studies) were universal prevention]	SR: 5-19; PS: Mean age ranged from 10 to 19.	School	School-based anxiety and depression prevention programs	Measures of anxiety and depression	"Across the eighty-one included RCTs involving 31,794 participants, our findings show that school-based prevention programs have a small beneficial effect on depressive and anxiety symptoms when compared to a control condition."	YES: Overall, the quality of evidence was low to moderate.

Woods and Pooley 2015 [SR] PREVENTION	"…to examine existing programs aimed at the prevention of depression and anxiety in adolescence, with a particular focus on programs that assist adolescents in their transition into high school."	16 [11 of 16 studies appear to be universal prevention]	NR; NR	Mixed	Programmes aimed at the prevention of depression and anxiety in adolescence	Anxiety, depression and stress scores	"The majority of the investigated programs delivered to this specific cohort had a cognitive-behavioural underpinning and showed significantly positive results when implemented in a methodologically sound manner."	NO
Cognitive-behavioural programmes only								
Bastounis et al., 2016 [SR and MA] PREVENTION	To assess the effectiveness of the universal application of resilience interventions for reducing anxiety and depression and improving explanatory style	9 [Focus is on universal application of PRP]	SR: 8-17; PS: 8-17	School	Resilience interventions	Depression and anxiety scores, explanatory style, hopelessness, social skills, self-esteem, optimism, coping, life satisfaction	"No evidence of PRP [Penn Resiliency Program] in reducing depression or anxiety and improving explanatory style was found. The large scale roll-out of PRP cannot be recommended. The content and structure of universal PRP should be re-considered."	YES: Risk of bias was assessed using the Cochrane Collaboration tool for assessing risk of bias. "The Quality Assessment Tool for Quantitative Studies, developed by the Effective

								Public Health Practice Project, was used for assessing the quality of evidence." (p. 41). The quality of the evidence of the individual studies ranged from weak to strong. The authors state; "Fig. 2 presents authors' judgements about the ratings for included studies in each item of risk of bias tool. "Most of the RCTs' were of high quality."

Johnstone et al. 2018 PREVENTION	"…to investigate the efficacy of universal school-based prevention programs that target both anxiety and depression in children (aged 13 years or below), and examine three moderators (i.e., program type, primary target of program, and number of sessions) on prevention effects."	14	SR: 0-13; PS: 6-13	School	CB-based programmes	Anxiety and depression scores	"Prevention programs were effective in preventing depressive symptoms at post-program and long-term follow-up, while no significant preventative effect on anxiety symptoms was observed."	NO: Publication bias was reported only
Mychailyszyn et al., 2012 [MA] PREVENTION & TREATMENT	To answer the question: "How effective are school-based interventions in reducing anxious and depressive symptoms among school-age youth?"	63 [31 (of 63) studies were universal prevention]	NR	School	Cognitive-behavioral school-based interventions for anxious and depressed youth	Anxiety and depression scores (primary outcomes); self-esteem; hopelessnes s	"Mean pre–post effect sizes indicate that anxiety-focused school-based CBT was moderately effective in reducing anxiety (Hedge's g = 0.501) and depression-focused school based CBT was mildly effective in reducing depression	NO

							(Hedge's g = 0.298) for youth receiving interventions as compared to those in anxiety intervention control conditions (Hedge's g = 0.193) and depression intervention controls (Hedge's g = 0.091)…School-based CBT interventions for youth anxiety and for youth depression hold considerable promise, although investigation is still needed to identify features that optimize service delivery and outcome."	
Online/web/internet/technology based								
Calear & Christensen 2010a [Literature/narrative review] PREVENTION	"To identify and describe current internet-based prevention and treatment programs for anxiety and depression in children and adolescents."	8 [3 (of 8) studies were universal prevention]	SR: 5-19; PS: 7-25	Online - mixed	internet-based prevention and treatment programs for anxiety and depression	Depression and anxiety scores	"All the interventions were based on cognitive behaviour therapy, and six of the eight studies reported post-intervention reductions in symptoms of anxiety and/or depression or improvements in diagnostic ratings. Three	NO: "Study quality was mixed…" (p. S12).No details of a quality appraisal procedure.

							of these studies also reported improvements at follow-up.”	
O'Dea et al 2015 [SR] PREVENTION & TREATMENT	“This article aims to review the current evidence for e-health interventions for depression and anxiety in youth, as a potential solution to the gaps in mental health service provision”	5 [At least 3 of 5 studies universal]	SR: 12-18 years; PS: NR	School; online	E-health interventions	Outcome measures related to symptoms of depression and/or anxiety	"There is growing evidence for the effectiveness of online CBT interventions for reducing the level of anxiety and depressive symptoms in adolescents aged between 12 and 18 years, when delivered in school and clinical settings, with some level of supervision"	NO: formal quality assessment reported. Methodological issues reported e.g. "heterogeneity in sample sizes, randomization procedures, and outcome measures". Need for larger RCTs, diverse samples, longer term follow up etc.
DEPRESSION								
Depression prevention interventions – mixed								

Breedvelt et al 2018 [SR and MA PREVENTION	To assess "the effectiveness of programs that aim to reduce depressive symptoms or diagnosis of depression in young adults"	26 [14 (of 26 studies) are universal prevention]	SR: 18-25; PS: 19.6 years (SD= 1.40)	Mixed (incl. online)	CB- , mindfulness-based interventions, and others, e.g. positive psychology interventions, ACT	Reduction in depressive symptoms	"…there is a moderate, positive effect of preventative interventions on reducing the symptoms of depression compared to controls. This effect appears to be sustained at longer-term follow-up time point."	YES: Assessed and adjusted the effect sizes for publication bias. Quality assessment of the primary studies was conducted. Most studies have a high risk of bias.
Brunwasser & Garber, 2016 [Literature/narrative review] PREVENTION	"To evaluate the current state of evidence of the effectiveness of depression prevention programs for youth"	37 [At least 6 of 11 programs have been implemented universally]	SR: 0-18; PS: NR	School	Depression prevention interventions for youth	Depression symptoms and diagnoses	"Eight programs demonstrated significant main effects on depressive symptoms relative to controls in multiple RCTs; five programs had at least one trial with significant main effects present at least one year post-intervention. Two programs demonstrated efficacy for both depressive symptoms and depressive episodes across multiple independent trials. Regarding effectiveness, six programs had at least	NO

							one study showing significant effects when delivered by endogenous service providers; four programs had significant effects in studies conducted independently of the program developers…Several programs have demonstrated promise in terms of efficacy, but no depression prevention program for children or adolescents as yet has garnered sufficient evidence of effectiveness under real-world conditions to warrant widespread dissemination at this time.”	

Calear & Christensen, 2010b [SR] PREVENTION	"…to identify and describe school-based prevention and early intervention programs for depression and to evaluate their effectiveness in reducing depressive symptoms."	42 [23 (of 42) studies were universal studies]	SR: 5=19; PS: 8-16	School	School-based prevention and early intervention program for depression	Depression scores.	"Overall the results of this review are mixed, with only half of the trials identified reporting a significant reduction in depressive symptoms at post-test or follow-up…The universal programs that included all participants regardless of symptom level, displayed the lowest level of efficacy and effectiveness." Some universal programs produced positive effects.	YES: study quality was assessed against three key criteria: randomisation, double-blinding, and withdrawals and dropouts. "Trial quality was on the whole quite poor, with only eight of the 42 studies receiving a rating of three, and thus the results of this review should be interpreted with this in mind."

Carnevale 2013 [Narrative/ literature review] PREVENTION	"…to systematically review previously implemented adolescent depression prevention program studies that can be administered by school nurses in the school setting…"	11 [Focus is universal prevention]	NR	School	Cognitive–behavioral universal prevention interventions	Reduction in depressive symptoms	"Cognitive–behavioral universal prevention interventions can be effective on decreasing depressive symptomalogy in adolescents."	YES: a two-tiered approach was used. The studies were of mixed quality.
Dardas et al 2018 [SR] PREVENTION & TREATMENT	"... to (i) identify and describe clinical trials that included parents as an integral component of adolescent depression interventions, (ii) examine the effectiveness of these trials in reducing depressive symptoms, and (iii) evaluate their	16 [5 of 16 studies focused on prevention]	SR: 10-19	Family and commun ity	Parental involvement in depression interventions	Depressive scores; changes in parent-child relationship s and family conflict	"Overall, this review supports increasing parental involvement in adolescent depression interventions." Both studies that show no effect and studies that show positive effect were found. How parents are involved seems to be especially important.	YES: A number of methodologic al issues were highlighted

	methodological quality."							
Gladstone & Beardslee 2009 [Literature/narrative review] PREVENTION	"To review the recent literature on the prevention of clinical diagnoses of depression in children and adolescents"	NR [Not clear how many studies were included]	NR	Family, community and school	CB-based and problem-solving programmes; interpersonal programmes	Depression scores	"In general, successful prevention programs targeting youth depression are based on evidence-based treatment programs for youth depression, structured and outlined in manuals, involve careful training of personnel implementing the protocols, and include assessment of fidelity to the intervention protocols. The programs were consistent with cognitive-behavioural and (or) interpersonal psychotherapy traditions. Overall, it appears that there is reason for hope regarding the role of interventions in preventing depressive disorders in youth."	NO

Hetrick et al., 2015 [MA] PREVENTION	"To examine the overall effect of individual depression prevention programs on future likelihood of depressive disorder and reduction in depressive symptoms."	53 [Not clear how many universal, but definitely over 25%]	SR: 5-19	Mixed	Depression prevention programmes for children or adolescents- psychological or educational	Depression scores; stress and anxiety scores; coping skills	"While overall the findings indicate small but significant effect sizes suggesting a small but positive effect on reducing depression symptoms and disorders, one of the most striking findings from this exploratory re-analysis of depression prevention programs is the variation in outcome across trials. There is some evidence that more consideration should be given to the specific therapeutic approach used in depression preventions programs. CBT is the most studied type of intervention and there is some evidence of its efficacy in reducing the risk of developing a depressive disorder and reducing depression symptoms. IPT appears promising from the trials that included intervention arms using a purely IPT based intervention; two	YES: "Allocation concealment was unclear or not reported in the majority of studies and commonly participants and assessors were not blind to the treatment groups or blinding was unclear."

							combined IPT with CBT but it is impossible to tease out the differential effects of the IPT approach from these trials.”	
Hetrick et al., 2016 [SR and MA] PREVENTION	“To determine whether evidence-based psychological interventions (including cognitive behavioural therapy (CBT), interpersonal therapy (IPT) and third wave CBT)) are effective in preventing the onset of depressive disorder in children and adolescents.”	83 trials [29 (of 83) trials were with 'unselected' populations. Majority of trials were in schools.]	SR: 5-19; PS: 8-24	School	Depression prevention interventions for children and adolescents	Depression scores.	“For universal interventions there was no evidence of an effect: • in reduction of depressive disorder at medium-term follow up (primary outcome) or at other time points (post-intervention assessment, or at short-medium- or long-term follow-up); • in reduction of depression symptoms beyond post-intervention assessment (primary outcome) (i.e. at short-, medium- or long-term follow-up)…Prevention programmes delivered to universal populations showed a sobering lack of effect when compared with an attention placebo control... We conclude that there is still not	YES: “We assessed the quality of evidence for the primary outcomes using GRADE.” The evidence was of moderate to low quality.

							enough evidence to support the implementation of depression prevention programmes.”	
Merry et al., 2011 [SR and MA] PREVENTION	“To determine whether psychological or educational interventions, or both, are effective in preventing the onset of depressive disorder in children and adolescents.”	53 [31 (of 53) studies were universal]	SR: 5-19; PS: 5-19	School and community	Psychological (CB-based) and educational interventions for preventing depression in children and adolescents	Depression symptoms and diagnoses (Secondary outcomes included: general/social functioning, academic scores, cognitive style, anxiety, suicidal ideation)	“There is some evidence from this review that targeted and universal depression prevention programmes may prevent the onset of depressive disorders compared with no intervention.”	YES: Higgins' Risk of Bias tool was used. The allocation concealment was unclear in most studies.

Stice et al 2009 [MA] PREVENTION	To summarise "the effects of depression prevention programs for youth"	47 [19 studies focused on universal prevention]	SR: 0-22	School	CB-based interventions; problem-solving interventions	Depression scores	"The average effect for depressive symptoms from pre-to-post treatment (r .15) and pre-treatment to-follow-up (r .11) were small, but 13 (41%) prevention programs produced significant reductions in depressive symptoms and 4 (13%) produced significant reductions in risk for future depressive disorder onset relative to control groups. Larger effects emerged for programs targeting high-risk individuals, samples with more females, samples with older adolescents, programs with a shorter duration and with homework assignments, and programs delivered by professional interventionists."	NO
Physical activity / obesity prevention								

Brown et al., 2013 [SR and MA PREVENTION & TREATMENT	“…to assess the impact of PA interventions on depression in children and adolescents…”	9 [3 (of 9) studies with general population]	SR: 5-19; NR	School and commun ity	Physical activity interventions	Reduction in depressive symptoms	“There was a significant overall effect of PA on depression.”	YES: Publication bias and study quality was assessed. Mixed level of quality (both low and high). "in Table 2. Two studies scored 7 of the maximum score of 8; neither blinded patients to the intervention [30, 32]. A further study did not include an intention-to-treat analysis and did not blind participants and therefore scored 6 of 8 [37]. The remaining studies

								received lower quality scores ranging from 5 [33] to 2 [35, 38]."
Carter et al ., 2016 [SR and MA] PREVENTION & TREATMENT	"The purpose of this review was to examine the treatment effect of physical exercise on depressive symptoms for adolescents aged 13 to 17 years."	9 [5 (of 9) trials were with general population]	SR: 13-17; PS: 14.7-17.	School and commun ity	Exercise	Depression scores.	"Exercise showed a statistically significant moderate overall effect on depressive symptom reduction…"	YES: The Delphi list was used to assess quality. No evidence of reporting bias was found.
Pascoe et al 2018 [Literature/narr ative review] PREVENTION	"…to examine the efficacy of physical activity and exercise as a universal prevention for depression in young people"	11 [8 (of 11) were controlled trials and 4 (of 11) were with school aged students, 1 of these was with "at risk" group]	SR: 0-25	School and commun ity	Physical activity	Depression scores	"The reviewed studies indicate that exercise and physical activity might be an effective universal depression prevention intervention for young people."	NO: "Three of the controlled studies had a passive control group or no control group and only one study had longer-term follow-up. No trial used a longitudinal design to determine if

								interventions prevent the onset of new cases of depression. "
Cognitive-behavioural programmes only								
Brunwasser et al., 2009 [MA] PREVENTION	"…to evaluate whether the Penn Resiliency Program (PRP), a group cognitive-behavioral intervention, is effective in targeting depressive symptoms in youth."	17 [6 (of 17) studies were universal]	NR; PS: 8-18	School	Depression intervention	Depression scores.	"PRP participants reported fewer depressive symptoms at post-intervention and both follow-up assessments compared to youth receiving no intervention…Limited data show no evidence that PRP is superior to active control conditions. Subgroup analyses showed that PRP's effects were significant at 1 or more follow-up assessments among studies using both targeted and universal approaches, when group leaders were research team members and community providers, among participants with both low and elevated baseline symptoms, and among boys and girls.	NO

							Preliminary analyses suggest that PRP's effects on depressive disorders may be smaller than those reported in a larger meta-analysis of depression prevention programs for older adolescents and adults."	
Venning et al 2009 [SR] PREVENTION	To "…[e]xamine the best available evidence to determine the effectiveness of CBT to prevent the onset of depression in young people, and assess whether the incorporation of hopeful elements makes CBT more effective."	10 [7 studies universal]	SR: 10-16; PS: 10-16	School and community	Cognitive-behavioural therapy with hopeful elements	Depression scores	"Limited evidence was found to indicate that CBT, regardless of its content (i.e. with or without hopeful elements), is effective at preventing the onset of clinical levels of depression in young people on a sustained basis."	YES: the standardised critical appraisal instrument from the Joanna Briggs Institute (JBI) was used. All studies used randomisation. All compared CBT to a control condition. All included treatment protocols. A couple of studies had very high attrition rates

								and the respective comparisons were not included in the MA.
ANXIETY								
Anxiety prevention interventions – mixed								
Fisak et al., 2011 [MA] PREVENTION	"…to provide a comprehensive review of the effectiveness of child and adolescent anxiety prevention programs."	35 [15 of 27 studies universal]	SR: NR; PS: Mean age ranged from 3.9 to 15.2	Mixed	Anxiety prevention and early intervention programmes	Anxiety scores	"Overall, based on the current review, anxiety prevention appears to be a promising strategy to reduce the incidence rates of anxiety disorders."	NO: Publication bias was assessed and it was concluded there was none.
Neil and Christensen, 2009 [SR] PREVENTION	"…to identify and describe the programs available, and to evaluate their effectiveness in reducing symptoms of anxiety."	27 [16 (of 27) were universal]	SR: 5-19; PS: 8-17	School	School-based prevention and early intervention programmes for anxiety	Anxiety scores (primary outcome)	"Results of the review indicated that most universal, selective and indicated prevention programs are effective in reducing symptoms of anxiety in children and adolescents …Overall the current findings support the usefulness of anxiety prevention and early intervention programs in schools."	YES: "Study quality was also assessed by the two coders using a validated measure that assesses quality against three key criteria: randomizatio n, double-blinding, and

								withdrawals and dropouts (Jadad et al., 1996).” The majority of included studies had a quality rating of 2 out of 5, hence poor quality.
Teubert & Pinquart 2011 [MA] PREVENTION	To estimate “…the mean effect sizes of studies targeting the prevention of symptoms of anxiety in children and adolescents as a primary or a secondary goal.”	65 [29 (of 65) were universal prevention programs]	SR: 3-18; PS: 3.9 to 17.05 years (M = 11.65, SD = 2.96,	Mixed	Programs aiming at the prevention of an anxiety disorder or anxious symptoms in children or adolescents.	Anxiety symptoms scores	“Anxiety prevention programs produce effects size of practical relevance… We found small but significant effects on anxiety at posttest and follow-up. Intervention effects at posttest varied by type of prevention: Indicated/ selective prevention programs showed lager effect sizes than universal programs. At follow-up, smaller effects were found in samples with higher percentages of girls and stronger effect size for programs focusing primarily on anxiety prevention.”	YES: Wortman (1994) as well as Jadad et al. (1996) was used to assess the methodologic al quality of randomized clinical trials. 40 of the studies had “low” methodologic al quality.

Cognitive behavioural programmes only								
Higgins & O'Sullivan., 2015 [SR] PREVENTION	"…to systematically review the research base surrounding the FRIENDS for Life programme."	7 [Focus is universal prevention]	SR: 4-16; PS: 6-16	School	CB-based programmes	Anxiety scores	"All reviewed studies found that the programme had a positive impact on primary anxiety outcome measures compared to control groups, with small to medium effect sizes reported."	NO: The strengths and limitations of the study are reported collectively and narratively. No evidence of a structured assessment checklist used.
Zalta, 2011 [MA] PREVENTION	To assess the "…efficacy of cognitive-behavioral interventions in preventing anxiety symptoms."	15 [4 of 15 studies are universal with young people]	NR	Mixed	Cognitive-behavioural based interventions for anxiety symptom prevention	Anxiety and anxiety symptom scores; depression scores	"Results of this meta-analysis provide evidence for the efficacy of cognitive-behavioral prevention programs for anxiety. These programs revealed small to moderate effects in the reduction of general anxiety, anxiety disorder symptoms, and depression symptoms."	NO
Cognitive bias modification								

Krebs et al 2018 [MA] PREVENTION	"…to establish the independent effects of CBM-I (cognitive bias modification interventions) on interpretations biases and anxiety in youth."	26 [17 (OF 26) studies the participants were categorise as 'healthy' i.e. non-clinical]	SR: 0-18; PS: 6-18	School and community	Cognitive bias modification of interpretations Interventions	Interpretation biases and/or mood	"CBM-I had moderate effects on negative and positive interpretations (g = 0.70 and g = 0.52, respectively) and a small but significant effect on anxiety assessed after training (g = 0.17) and after a stressor (g = 0.34). No significant moderators were identified."	YES: The risk of bias tool developed by the Cochrane Collaboration (Higgins et al., 2011) was used. "...overall studies were assessed as being at unclear risk of bias, principally due to a lack of documentation." Publication bias was also assessed. No such bias was detected.

INTERNALISING / EXTERNALISING / POSITIVE MENTAL HEALTH / WELLBEING								
Mindfulness based interventions, yoga and stress reduction								
Cheng, 2016 [Literature/narrative review] PREVENTION & TREATMENT	To investigate "…the effectiveness of meditation on psychological problems for adolescents under age of 20…"	36 [Not clear how many universal but outcomes appear relevant to gen. pop.]	SR: 0-20; PS: 7-19	School and community	Meditation	Depression and anxiety scores; emotional regulation; attention and behavioural problems; metacognition	"Outcomes indicate a decrease in self-harm thoughts, disruptive behaviour, stress, anxiety, impulsivity, and psychological distress; and improvements in self-control, quality of sleep, emotional regulation, executive function, anger management, and social competence, resulting in better academic performance, quality of life, mental wellness, and child-parent relationships."	NO
Dunning et al 2018 [MA] PREVENTION & TREATMENT	"…to establish the efficacy of MBIs for children and adolescents in studies that have adopted a randomized, controlled trial (RCT) design."	33 [19 (of 33) studies sample was 'general education']	SR: 0-18	School	Mindfulness-based interventions	Mindfulness, social behaviour, depression, anxiety/stress, attention, executive function	"Across all RCTs we found significant positive effects of MBIs, relative to controls, for the outcome categories of Mindfulness, Executive Functioning, Attention, Depression, Anxiety/Stress and Negative Behaviours, with small effect sizes (Cohen's d), ranging from .16 to .30. However,	YES: "The Cochrane Collaboration's Risk of Bias Tool (Higgins & Green, 2011) was used to assess study quality." Risk of bias identified ranged from

							when considering only those RCTs with active control groups, significant benefits of an MBI were restricted to the outcomes of Mindfulness (d = .42), Depression (d = .47) and Anxiety/Stress (d = .18) only.”	low to high. Some components of the bias assessment were rated as “unclear”. Publication bias was also assessed. There was evidence of publication bias in the Mindfulness category only.
Ferreira-Vorkapic et al., 2015 [SR] PREVENTION	“…to systematically examine the available literature for yoga interventions exclusively in school settings, exploring the evidence of yoga based interventions on academic, cognitive, and	9 [Not clear whether universal or selective but focused on delivery in schools so likely universal]	SR: 5-18; PS: 8-17	School	Yoga-based interventions and other physical activities	Internalising and externalising problems; mood; perceived stress; resilience; anger; psychological well-being	“Effect size was found for mood indicators, tension and anxiety in the POMS scale, self-esteem, and memory when the yoga groups were compared to control.”	YES; “The quality and reliability of the randomized control trials (RCTs) were evaluated according to the evidence levels recommended by the Oxford Center for

	psychosocial benefits.”							Evidence-Based Medicine…Generally, the RCTs had low AHRQ evidence scores.”
Kallapiran et al 2015 [MA] PREVENTION & TREATMENT	“…to examine the effects of different MBIs (mindfulness-based interventions) on mental health symptoms and quality of life in both clinical and nonclinical samples of children and adolescents using data from only randomized control trials.”	15 (11 in the MA) [8 (of 15) studies in non-clinical school setting]	NR; PS: 6-18	School and community	Mindfulness-based interventions	Mental health symptoms stress, anxiety, depression, quality of life and others	“Mindfulness-based stress reduction/mindfulness-based cognitive therapy arm was more effective than nonactive control in the nonclinical populations...Other MBIs were also effective improving anxiety and stress but not depression in nonclinical populations compared to nonactive control.”	YES: “The quality of interventions was mostly good.” Publication bias was also assessed. “The results indicated that publication bias was likely across all comparisons”
Rew et al., 2014 PREVENTION & TREATMENT	To systematically review the literature on stress management	17 [Not clear how many studies were universal population,	SR: 10-19; PS: 6-21 (means ranged from 10 to 17.4)	School and community	Stress management interventions	Stress reduction, stress management and other stress-	“...there is evidence to support the effectiveness of interventions that aim to develop cognitive skills among adolescents.” Among the reviewed	NO

	interventions for adolescents	but study populations suggest 8 studies were universal.]				related outcomes	studies, there were some that showed statistically significant results; others-'equivocal' results, and others-no statistically significant results.	
Tan, 2016 [Literature/narrative review] PREVENTION & TREATMENT	To analyse "…the characteristics, objectives and outcomes of mindfulness interventions for adolescents, focusing on the mindfulness programme adjustments and adaptations made to the content for this target group."	12 [6 studies (of 12) interventions]	SR: 12-19; PS: 8-18	School	Mindfulness-based programmes	Acceptability, depression, mindfulness, worry, impulsivity, self-regulation, self-esteem, parenting stress, executive functioning, quality of life	"Overall, adolescents who have undergone mindfulness training experienced positive benefits and outcomes. Thus far, the positive outcomes included modest reductions in worry/rumination and increase in quality of life for adolescents with depression (Ames et al., 2014), increase in self-regulation and sense of well-being (Barnert et al., 2013; Huppert & Johnson, 2010), an improvement in self-esteem and reduction in psychological distress (Tan & Martin, 2013, 2014) and improvement in ADHD regulation (Haydicky et	NO

							al., 2015; Van de Weijer-Bergsma et al., 2012). These positive trends are consistent to adult outcomes (Baer, 2003)."	
Weaver & Darragh 2015 [SR] PREVENTION & TREATMENT	To examine the evidence base for yoga interventions addressing anxiety among children and adolescents	16 [5 of 16 with non-clinical/universal populations]	SR: 3-18; NR	School and community	Yoga	Anxiety scores	"Nearly all studies indicated reduced anxiety after a yoga intervention."	YES: the PEDro scale and the CEBM guidelines were used. Outcomes reported in a supplementary table.
Mental health promotion/prevention including school based services								
Dray 2017 [SR] PREVENTION	"To examine the effect of universal, school-based, resilience-focused interventions on mental health problems in children and adolescents."	57 [Focus is universal prevention]	SR: 5-18	School	Resilience-focused interventions (incl. CBT-based, mindfulness based, problem solving, etc.), all featured a curriculum component	Reductions in depressive symptoms, anxiety symptoms, hyperactivity, conduct problems, internalizing problems, externalizing problems, or general	"For all trials, resilience-focused interventions were effective relative to a control in reducing 4 of 7 outcomes: depressive symptoms, internalizing problems, externalizing problems, and general psychological distress."	YES: Both risk of bias and reporting bias were assessed. The majority of studies had a high risk of bias

						psychologic al distress		
Mendez et al 2013 [Literature/narr ative review] PREVENTION	To review "…student mental health interventions involving parents delivered in school settings."	100 [16 programmes of all programmes were 'Tier 1' which is defined as universal.]	NR	Family and school	School-based mental health interventions involving parents	The prevention of substance abuse and reduction of externalizin g behaviour problems	"...involving families in school-based mental health treatment programs has the potential to improve outcomes in multiple domains."	NO
O'Connor 2017 [Literature/narr ative review] PREVENTION & PROMOTION	"To examine evidence—using a range of outcomes—for the effective-ness of school-based mental health and emotional well-being programmes."	29 [Focus is universal prevention]	SR: 5-18; PS: 5-18	School	School-based mental health promotion programmes that target help-seeking and coping skills; the reduction of stress; social skills; emotional regulation and emotional skills; psychoeducatio	Help-seeking and coping; social and emotional learning; psycho-educational effectivenes s;	Most of the reviewed programmes showed "…some positive effect on young people; however, three studies noted either a negative effect or no effect at all (Essler et al., 2006; Jones et al., 2010; Wigelsworth et al., 2013."	YES: The SR authors commented on the limitations of all included studies. Small samples were common making it difficult to generalise; High levels of attrition were common; possibility for

					n. Most interventions were underpinned by social learning and/or by CBT principles			selection bias was evident;
Sanchez et al 2018 [MA] PREVENTION	To evaluate "…the effectiveness of school-based mental health services when implemented by school professionals."	43 [28 (of 43) studies were universal]	NR	School	School-based mental health services	Reductions in internalising and/or externalising problems	"Overall, school-based services demonstrated a small-to-medium effect… in decreasing mental health problems, with the largest effects found for targeted intervention…, followed by selective prevention…, compared with universal prevention… Mental health services integrated into students' academic instruction…, those targeting externalizing problems…, those incorporating contingency management…, and those implemented multiple times per week… showed particularly strong effects."	NO

Online / web / internet / technology based								
Baños et al 2017 [Literature/narrative review] PREVENTION & PROMOTION	To synthesize information on online interventions for promoting health and well-being in adolescents and young people	9 [Not clear how many studies are universal - the focus is online interventions.]	NR	Online	Online positive psychology interventions to promote well-being and resilience	Changes in depression, stress, anxiety, life satisfaction, health-related quality of life and well-being scores; adherence to the programme; self-efficacy; child-parent relationship; use of alcohol; disordered eating	The findings show positive effects of the interventions. "…there is a need for more controlled studies with long-term follow-ups, the interventions should be designed considering the specific characteristics of the target users…" and the specific delivery contexts	NO
Clarke et al 2015 [SR] PREVENTION & PROMOTION	"…to provide a narrative synthesis of the evidence on the effectiveness of online mental health promotion and prevention interventions for	28 [11 of 28 studies with general population]	SR: 12-25; PS: 8-25	Online	Mental health promotion and prevention interventions.	Stress management and coping; help-seeking; perceived competence; psychoeduc	Mental health promotion: "It is difficult to be conclusive regarding the evidence of online mental health promotion interventions due to the small number of studies, the moderate to weak quality of	YES: "Quality was assessed using the Quality Assessment Tool for Quantitative Studies developed by the Effective

	youth aged 12–25 years.”					ation; anxiety and depression	these studies, and the considerable heterogeneity across the interventions in terms of content and delivery." Mental health prevention: "Of the seven cCBT studies that received a strong or moderate quality assessment rating, there is evidence that these interventions had significant positive effects in reducing anxiety and depression among adolescents and emerging adults identified at risk of developing a disorder."	Public Health Practice Project (Jackson et al. 2004)…The quality of the evidence from these studies was moderate to weak.”
Siemer et al 2011 [Literature/narrative review] TREATMENT, PREVENTION & PROMOTION	To summarise progress in the area of tele mental health and web-based applications in children and adolescents	20 [Not clear how many studies but online mode of delivery more universal than treatment]	NR	Online	Interventions for children and adolescents delivered via tele mental health or web-based applications	Depression scores, anxiety scores, body image and concerns, social skills, resilience	“...modest evidence was found that Internet interventions demonstrated benefits compared to controls and pre-intervention symptom levels.”	NO

Physical activity / obesity prevention								
Hoare et al 2015 [SR] PREVENTION	"…to systematically evaluate the mental health and well-being outcomes observed in previous community-based obesity prevention interventions in adolescent populations."	7 [Appear to be community based studies - not selective. 5 of 7 studies OECD]	SR: 10-19; PS: 9-18	Community	Community-based obesity prevention interventions	Depression and anxiety; quality of life; self-esteem and self-perception	"Positive mental health outcomes demonstrated that following obesity prevention, interventions included a decrease in anxiety and improved health-related quality of life."	YES: the GRADE rating scheme was used. The quality of evidence was graded as very low.
Lubans et al 2016 [SR] PREVENTION & PROMOTION	"To present a conceptual model explaining the mechanisms for the effect of physical activity on cognitive and mental health in young people	25 [Not clear how many studies are universal.]	SR: 5-18; PS: 7-11 (only reported for a sub-section of the included studies)	Family, school and community	Physical activity	Changes in cognitive function or indicators of global well-being or ill-being.	"Significant changes in at least 1 potential neurobiological mechanism were reported in 5 studies, and significant effects for at least 1 cognitive outcome were also found in 5 studies. One of 2 studies reported a	YES: "Risk of bias was assessed by using the Physiotherapy Evidence Database scale...In total, 12 (48%) studies

	and to conduct a systematic review of the evidence.”						significant effect for self-regulation, but neither study reported a significant impact on mental health... The strongest evidence was found for improvements in physical self-perceptions, which accompanied enhanced self-esteem in the majority of studies measuring these outcomes.”	satisfied fewer than one-half of the risk of bias criteria, and 6 (24%) studies satisfied two-thirds or more.”
Self-regulation techniques								

van Genugten et al 2017 [MA] PREVENTION & PROMOTION	"…to identify effective self-regulation techniques (SRTs) in primary and secondary prevention interventions on mental wellbeing in adolescents."	40 [25 (of 40) studies universal prevention]	SR: 12-18; NR	Mixed	Self-regulation techniques used in primary and secondary prevention interventions on mental wellbeing in adolescents	Changes in scores on: depression, anxiety, internalising symptoms, self-perception, self-esteem, resilience, self-efficacy and other measures of well-being	Primary interventions had a small-to-medium effect on self-esteem and internalising behaviour. "For primary interventions the effect sizes were lower at longer term follow-up…For primary interventions, there was not a single SRT that was associated with a greater intervention effect on internalising behaviour or self-esteem."	YES. "A nine-item coding scheme, based on the Cochrane Collaboration Depression, Anxiety and Neurosis Review Group (Cochrane Depression, Anxiety and Neurosis Group, 2012), was used to assess the quality of the included studies." Scores ranged from 0 to 7.
Creative bibliotherapy								
Montgomery & Maunders 2015 [SR] PREVENTION & TREATMENT	To assess "…the efficacy and effectiveness of creative bibliotherapy for the prevention and treatment of internalizing and	8 [4 (of 8) studies with general pop.]	SR: 5-16; PS: 5-15	School and community	Creative bibliotherapy	Internalising and externalising problems, and prosocial behaviour	"Overall results suggest that creative bibliotherapy has small to moderate effect for internalizing behavior (δ range: 0.48–1.28), externalizing behavior (δ range: 0.53–1.09),	YES: The Cochrane Risk of Bias tool was used. Study quality was mixed.

	externalizing behaviors, and the strengthening of prosocial behaviors in children."						and prosocial behavior (δ range: 0–1.2)."	
Cyberbullying interventions								
Reed 2016 PREVENTION & TREATMENT	To examine "…interventions for 12–18-year-old adolescents experiencing depressive symptoms as a consequence of cyberbullying."	NR [Not clear how many studies were included and not clear how many are intervention studies / impact on mental health]	SR: 12-18; PS: NR	School and online	Cyberbullying interventions	Coping skills; depression; disclosure of bullying experiences; psychoeducation and awareness	"…at present no empirical evidence supports an effective program for cyberbullying…" However, several feasibility studies have shown promise.	NO
SUICIDALITY AND SELF HARM								
Balaguru et al., 2013 [Literature/narrative review] PREVENTION	"…to clarify and lay out what type of suicide intervention programme might be useful in schools, based on the local needs and context."	9 [6 (of 9) studies are universal interventions]	SR: NR; PS: 13-16	School	School-based suicide intervention programmes	Suicidal ideas, depression, hopelessness, suicidal attempts, self-harm and completed suicides	"Interventions are likely to be effective when they are sustained and involve peers, parents and the community during delivery. Comprehensive suicide prevention strategies incorporating	NO

							all components can still fail in the presence of severe youth, parental psychopathology and adverse social circumstances due to poor engagement in the intervention. Hence, it is recommended to deliver locally designed interventions with clear theories, pathways and evaluation methods that can contribute to building on the available evidence."	
Hamilton & Klimes-Dougan., 2015 [Literature/narrative review] PREVENTION	"…to delineate how the potential gender bias in suicide prevention responses may translate into youth suicide prevention efforts."	22 [Not clear how many universal but authors state that they consider primarily universal programmes]	NR; NR	School	School-based suicide prevention programmes	Awareness of suicide risk; knowledge of depression and suicide; suicide attempts; suicide intent and ideation; help-	"The results that feature programming effects for both males and females are provocative, suggesting that when gender differences are evident, in almost all cases, females seem to be more likely than males to benefit from existing prevention programming."	NO

						seeking behaviours		
Harrod et al., 2014 PREVENTION	To evaluate "…the effect on suicide and suicide-related outcomes of primary suicide prevention interventions that targeted students within the post-secondary setting."	8 [Most studies are with University populations / University staff]	NR; NR	School	Suicide prevention interventions	Completed suicides; suicide-related knowledge and attitudes	"In 3 RCTs (312 participants), classroom-based didactic and experiential programs increased short-term knowledge of suicide (SMD = 1.51, 95% CI 0.57 to 2.45; moderate quality evidence) and knowledge of suicide prevention […] The incidence of student suicide decreased significantly at one university with the policy relative to 11 control universities."	YES: "Five of eight studies had high risk of bias."
Katz et al., 2013 [SR] PREVENTION	To evaluate the effectiveness of school-based suicide prevention programmes.	16 [Not clear how many studies are universal, but several programmes reviewed are universal]	SR: 0-18; PS: NR	School	School-based suicide prevention programmes	Attitudes toward and knowledge about suicide (e.g., understanding of suicide and depression), general	"Signs of Suicide and the Good Behavior Game were the only programs found to reduce suicide attempts. Several other programs were found to reduce suicidal ideation, improve general life skills, and	NO: Just the grade/hierarchy of the evidence was assessed.

						skills training (e.g., increasing protective factors, such as coping and decision-making skills, and decreasing risk factors such as depression, hopelessness, and poor academic achievement), gatekeeper behavior change, help-seeking, and suicide behavior change.	change gatekeeper behaviors."	

Klime Dougan et al., 2013 [Literature/narrative review] PREVENTION	"To comprehensively review the universal prevention literature [on suicide] and examine the effects of universal prevention programs on student's attitudes and behaviors related to help-seeking."	17 [Appears to be focused on universal prevention]	SR: 13-18; PS: NR	School and community	Universal suicide-prevention programmes for youth	Help-seeking behaviours	"The results of this review suggest that suicide-prevention programming has a limited impact on help-seeking behavior. Although there was some evidence that suicide-prevention programs had a positive impact on students' help-seeking attitudes and behaviors, there was also evidence of no effects or iatrogenic effects [...] Caution is warranted when considering which suicidal prevention interventions best optimize the intended goals."	NO
York et al., 2013 PREVENTION	"…to evaluate the effectiveness of 16 community, primarily youth, suicide prevention interventions."	16 [Primary studies published up to 2002. Not clear how many studies universal and whether focused on	NR	School and community	Suicide prevention programmes	Suicide - related knowledge and attitudes, and suicide behaviours.	"Results indicated that student curriculum, combined curriculum and gatekeeper training, and competence programs have a positive effect on adolescent's knowledge and attitudes about suicide, but only a negligible effect on suicidal behaviors."	YES: Quality of study execution was assessed as either good, fair or limited using the Community Guide method (Briss et al., 2000).

		adolescents or gen. pop.]						Overall, half of the studies were rated as “good”and six-“fair”, while one-as “limited”.
Cusimano & Sameem 2010 [SR] PREVENTION	“To assess the effectiveness of middle and high school-based suicide prevention curricula.”	8 [All studies seem to be conducted in high schools with general population]	SR: 13-19; NR	School	School-based suicide prevention curricula.	Suicide-related knowledge, attitudes, help-seeking and behaviours (incl. suicide attempts)	“Overall, statistically significant improvements were noted in knowledge, attitude, and help-seeking behaviour. A decrease in self-reported ideation was reported in two studies. None reported on suicide rates.”	YES: Downs and Black’s instrument for methodological analysis was used. “The calibre of reporting in all of the studies was deemed adequate.”
Kuiper et al 2018 [Literature/narrative review] PREVENTION	To review what is known about the adverse unintended consequences of youth suicide prevention programmes	22 [At least 10 studies appear to be with general population]	NR	School, community and healthcare	Suicide prevention interventions	Suicide prevention, help-seeking, mental health related knowledge and attitudes	“While rare, unanticipated adverse consequences include an increase in maladaptive coping and a decrease in help-seeking among program targets, overburden or increased suicide ideation among program implementers, and inadequate systemic preparedness...Overall, the benefits of youth	NO

							suicide prevention outweigh the unanticipated adverse consequences."	
Mo et al 2018 [SR] PREVENTION	To review "…the effectiveness of school-based gatekeeper training in enhancing gatekeeper-related outcomes."	14 [Outcome is gatekeeper attitudes etc.]	N/A	School; online	School-based gatekeeper training	"…improvement in gatekeepers' knowledge; attitudes; self-efficacy; skills; and likelihood to intervene…"	"Gatekeeper training appears to have the potential to change participants' knowledge and skills in suicide prevention, but more studies of better quality are needed to determine its effectiveness in changing gatekeepers' attitudes."	YES: "Most included studies were methodologically weak."
Robinson et al 2013 [SR] PREVENTION	"To review the empirical literature pertaining to suicide postvention, prevention, and early intervention, specifically in school settings."	43 [15 (of 23) studies were universal prevention.]	NR	School	School-based interventions aimed at preventing, treating, and responding to suicide	Suicide-related behaviours, knowledge of and attitudes towards suicide, help-seeking behaviour	"In terms of increased levels of knowledge of the risk factors and warning signs for suicide, all trials that measured knowledge as a study outcome reported positive effects. Some benefits regarding self-reported likelihood of help-seeking and improved attitudes toward suicide-related behavior and suicidal	NO: "No systematic appraisal of quality. 'Overall, the evidence was limited and hampered by methodological concerns, particularly a lack of RCTs."

							peers were also reported. There was also some reduction in suicide-related outcomes, including self-reported risk of suicide, SI and SA. …'The most promising interventions for schools appear to be gatekeeper training and screening programs.”	
Wei et al 2015 [SR] PREVENTION	To conduct “…a systematic review of two suicide prevention programmes and determine whether the quality of the evidence justifies their wider dissemination.”	5 [Only 2 programs, but both school based, appear to be universal]	NR	School	Suicide prevention programmes	Knowledge and attitudes, help-seeking, suicide attempts, suicidal ideation	There was inconclusive and insufficient evidence as to the effectiveness of the two suicide prevention programmes. “Independent critical analysis demonstrates that neither program meets minimal criteria for effectiveness or readiness for dissemination. They should not be marketed as nor considered to be suicide prevention programs before more rigorous studies are conducted.”	YES: The Office of Justice Program (OJP) What Works Repository (National Criminal Justice Reference Services, 2005) was used to evaluate the quality of the included studies. “None of the studies reached the level of the

								"promising" cut-off OJP-R criterion for readiness of program dissemination "
BODY DISATISFACTION / EATING DISORDERS								
Beintner et al., 2012 [MA] PREVENTION	To evaluate the effectiveness of "…a cognitive–behavioural, Internet-based, 8-week prevention programme for eating disorders (StudentBodies ™) evaluated in the USA and in Germany…"	10 [6 (of 10) studies were universal - may include college/university students but not clear - average ages are around 20]	NR; PS: Mean ages ranged from 15-22.	Online and school	Internet-based prevention programmes for eating disorders	Body dis/satisfaction, desire for thinness, eating disorders, shape concerns, eating concerns, weight concerns	"The intervention was associated with moderate improvements in eating disorder-related attitudes, especially reductions of negative body image and the desire to be thin. The reported effects remained significant at follow-up."	NO
Ciao et al., 2014 [Literature/narrative review] PREVENTION	"…to review the evidence base for these nine successful programs for eating disorders and discuss their common and unique features."	26 [Not clear how many primary studies included but minimum of 9 studies reported were universal]	NR	School	Eating disorders prevention programs	Reduction in eating disorder risk factors such as dieting, body dissatisfaction, and thin-ideal internalization	"The bulk of the nine programs included in this review were also able to demonstrate a reduction in eating disorder risk factors such as dieting, body dissatisfaction, and thin-ideal internalization. Finally, two programs (Body Project and Healthy	NO

							Weight) were found to reduce the risk of eating disorder pathology onset over multi-year follow-up and one program (Student Bodies™) reduced the risk of eating disorder onset in a subset of individuals studied.”	
Yagera et al., 2013 [SR] PREVENTION	“…to review the research on interventions to improve body image in schools.”	15 [Not clear how many studies (vague definition re: universal-selective) but seems to include universal interventions]	SR: 12-18; PS: mean ages between 12 and 16	School	School-based body image interventions	Body image and body satisfaction measures; self-esteem	“Seven of these programs were effective in improving body image on at least one measure, from pre to post test, though effect sizes were small…Effective Programs tended to (a) target younger adolescents aged 12–13 years, (b) include some media literacy, self-esteem and peer-focused content, but not psychoeducation, and (c) were multi-session, and an average of 5.02 h in total program length.”	NO

Hart et al 2015 [SR] PREVENTION	"To systematically review the literature on interventions involving parents that aim to prevent body dissatisfaction or eating disorders in children…"	20 [7 (of 20) studies appear to be with general population]	No restrictions on age; PS: 6-16	Family, school, online	Interventions involving parents that aim to prevent body dissatisfaction or eating disorders	Child body image, child eating pathology or eating behaviors, or parental behavior impacting on child eating or body image, for example, parental feeding behaviors	"...although many studies provided large and unbiased data on intervention programs for students, many studies provided no data on how parents affected child outcomes. Studies with medium quality data (those scoring one point on CASP item 4) revealed that many prevention interventions achieve meaningful reductions in child risk factors, such as overweight and pressure to be thin...Four high quality studies provided mixed data, with two being inconclusive on the role of the parent intervention, while the others reported that parental involvement in prevention programs significantly improved child outcomes."	YES: The Critical Appraisal Skills Program (CASP) screening tool was used. Only four studies were rated as high quality.
POSITIVE YOUTH DEVELOPMENT AND WELLBEING								

Ciocanel et al 2017 [MA] PREVENTION & PROMOTION	To examine "…the effects of positive youth development interventions in promoting positive outcomes and reducing risk behavior."	24 [8(of 24) appear to be low risk/mixed risk - so could be assumed to be general population.]	SR: 10-19; PS: 10-19 (Means ranged from 10 to 16)	Commun ity	Positive youth development interventions	Positive social behaviours, problem behaviour, emotional distress, self-perceptions	"Positive youth development interventions had a small but significant effect on academic achievement and psychological adjustment. No significant effects were found for sexual risk behaviors, problem behavior or positive social behaviors."	YES: Using the Cochrane Collaboration Risk of Bias Tool. Publication bias was also assessed. Some methodologic al weaknesses include: high attrition bias in 13 studies; inadequate details on blinding, allocation concealment and sequence generation in the majority of studies, and others. Publication bias was not detected.
Busiol et al 2016 [Literature/narr ative review]	To review adolescent prevention and positive youth development	61 [9 (of 61) studies focused on	SR: 0-25; NR	School and commun ity	Adolescent prevention and positive youth development programmes	Life skills, self-efficacy, substance use, stress	A range of programmes was identified. *Evidence of effectiveness was not systematically*	NO

PREVENTION & PROMOTION	programmes in non-English speaking European countries	mental health and 12 on positive youth development]				manageme nt and coping, empathy, self-control, and others	*synthesised by the reviewers.*	
Curran et al 2017 [SR] PREVENTION & PROMOTION	To review school-based programmes focusing on positive youth development	24 [Not clear how many studies focused on at risk or general population, but school based programmes.]	NR	School	Positive youth development programmes	Various outcomes pertaining to positive (social or emotional) developme nt, e.g. self-efficacy, expressiven ess, communica tion skills, risk taking behaviour, social reasoning, goal setting	“Evaluations indicate that programs increase intrapsychic measures of well-being in youth as well as social confidence and healthy behaviors.”	NO

Sancassiani et al., 2015 [SR] PROMOTION	“To describe the main features and to establish the effectiveness of universal school-based RCTs for children and the youth, aimed to promote their psychosocial wellbeing, positive development, healthy lifestyle behaviours and/or academic performance by improving their emotional and social skills.”	22 [All studies are universal i.e. 22]	SR: 0-17; PS: 6-18	School	Universal school-based interventions aimed to promote their psychosocial wellbeing, positive development, healthy lifestyle behaviours and/or academic performance by improving their emotional and social skills	A range of health behaviours (e.g. smoking) and a range of emotional and social skills (e.g. interpersonal perceptions, self-efficacy, prosocial behaviour)	The systematic review shows “…promising findings about the effectiveness of such interventions on the outcomes considered by the authors…While only small percentages of the included studies collected data at 6 month follow-up after the end of the intervention (40.9%) or during at least two academic years by repeated measures (27.3%), the effects remained statistically significant by the time they were assessed.” Overall, the findings are “controversial” and “difficult to compare” but “promising”.	YES: Risk of bias was not assessed. Some “quality features” of the studies were assessed such as length of follow-ups and the use or non-use of standardised measures. 10 of the trials used standardised measures, 3-both standardised and non-standardised, and 9-non-standardised. Only 9 studies had a follow-up period of more than six months.

Taylor et al 2017 [MA] PREVENTION & PROMOTION	To summarize the findings on "…how participation in SEL programs has affected some critical subsequent developmental outcomes."	82 [All studies are universal i.e. 82]	NR	School	Social and emotional learning interventions	Changes in: 'positive social and emotional assets (social and emotional skills; attitudes toward self, others, and school) and positive (positive social behaviors; academic performance) and negative (conduct problems; emotional dis-tress; substance use) indicators of well-being.'	"Follow-up outcomes (collected 6 months to 18 years post-intervention) demonstrate SEL's enhancement of positive youth development. Participants fared significantly better than controls in social-emotional skills, attitudes and indicators of well-being."	NO
STIGMA AND/OR MENTAL HEALTH AWARENESS								

Salerno 2016 [SR] PROMOTION	"…to review empirical literature pertaining to universal mental health awareness interventions aiming to improve mental health related outcomes among students enrolled in US K-12 schools…"	15 [Focus on universal prevention]	NR	School	Universal school-based mental health awareness programs	Knowledge of and attitudes towards mental health; help-seeking	"Nine studies measuring knowledge, 8 studies measuring attitudes, and 4 studies measuring help-seeking, indicated statistically significant improvements."	YES: Risk of bias and quality of the evidence was assessed. Risk of bias was assessed to be between medium and high.
Janoušková et al. 2017 [SR] PROMOTION	To review "…the effectiveness of video intervention in reducing stigma among young people between 13 and 25 years."	23 [At least 6 studies examine help-seeking and at least 14 studies examine knowledge about mental illness]	SR: 13-35; PS: 14-26	School	Video based interventions aimed at reducing mental health stigma	Attitudes towards help-seeking; knowledge about mental illness	"Video interventions led to improvements in stigmatising attitudes …" In several studies, positive effects were observed for knowledge about mental health problems and for attitudes towards help-seeking, especially after repeated exposure. Three studies, however, found no effects for knowledge about mental health difficulties.	YES: The Cochrane Handbook for Systematic Reviews of Interventions was used. "Overall, the risk of selection bias is considerable, and it is especially high in those studies where there are insufficient

								data on sampling and/or no data on response rates." The risk of attrition bias was also noted in several studies.
Yamaguchi et al 2011 [Literature/narrative review] PROMOTION	"…to examine the effects of educational interventions to reduce stigmatization and improve awareness of mental health problems among young people."	40 [18 of 40 studies with high school aged students]	NR	School	Educational interventions	Knowledge of and attitudes towards mental health problems	The majority of studies reported significant improvements in knowledge and/or attitudes. Several of the studies reported difficulties maintaining improved knowledge, attitudes and social distance.	NO
RESILIENCE AND/OR WELLBEING								
Strengths-based interventions								
Brownlee et al 2013 [SR] PREVENTION & PROMOTION	To identify and review "…all of the outcome studies over the last decade for strength and resilience based	11 [4 of 11 studies appear to be universal / non-selective]	NR; PS: 3-19	School and community	Strengths and resilience based intervention programmes	Positive youth development, depression scores, youth	"We concluded that these 11 studies provide preliminary support for the efficacy of strength and resilience based interventions."	YES: The Quality Assessment Tool for Quantitative Studies, which was

	intervention programs…” relevant to children and adolescents					competency, self-concept, addiction, and others		developed by the Effective Public Health Practice Project (EPHPP 1998) was used. Three studies had high quality and eight-moderate or low quality.
Arts activities								
Zarobe et al 2017 [Literature/narrative review] PROMOTION	To explore "…the role of arts activities in promoting the mental wellbeing and resilience of children and young people aged between 11 and 18 years."	8 [5 (of 8) studies appear to be with general population. Only 2 studies were quantitative and both with 'at risk' populations.]	SR: 11-18; PS: 10-26	Community and school	Arts activities	Confidence, sense of belonging, stress management, self-expression, social relationships, communication, meaning and purpose in life, and others.	"It was found that participating in arts activities can have a positive effect on self-confidence, self-esteem, relationship building and a sense of belonging, qualities which have been associated with resilience and mental wellbeing."	YES: "Quantitative papers were assessed using the Evidence for Policy and Practice Information (EPPI) appraisal tool, and qualitative studies using the Critical Appraisal Skills Programme

								(CASP) for qualitative appraisal.” Some notable methodological issues in the primary studies include the reliance on retrospective narrative accounts and inadequate description of the programme activities.
INFANT MENTAL HEALTH								
Trivedi (2015) [SR and MA] PROMOTION	To ascertain whether infant message is effective in promoting infant physical and mental health in a healthy population aged under six months	34 [12 studies (of 34) in OECD countries. (n.b. 20 studies conducted in China). Appers to be with 'low-risk' groups]	<1 y.o.a.	School, community and healthcare	Massage	Mental health related outcomes- infant temperament, attachment, behaviour, parent–infant interaction development	Significant positive effects of the interventions were found for personal and social behaviour. No significant differences were found for temperament and mother-child interaction measures.	YES: 20 studies were rated as having high risk of bias

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