MRC/CSO Social and Public Health Sciences Unit

Occasional Paper no. 26
October 2016

Health, Happiness and Wellbeing for Adolescents Transitioning to Adulthood: A Systematic Review of Individual-Level Interventions for Adolescents from Vulnerable Groups

Vojt G, Thomson H, Campbell M, Fenton C, Sweeting H, McQueen J, Skivington K

University of Glasgow
Chief Scientist Office
MRC Medical Research Council

www.gla.ac.uk/sphsu

Health, Happiness and Wellbeing for Adolescents Transitioning to Adulthood: A Systematic Review of Individual-Level Interventions for Adolescents from Vulnerable Groups

Vojt G, Thomson H, Campbell M, Fenton C, Sweeting H, McQueen J, Skivington K

MRC|CSO Social & Public Health Sciences Unit, Institute of Health & Wellbeing, University of Glasgow

Submission to Caledonian Research Fund of the RSE Scotland Foundation

October 2016

THE RSE Scotland FOUNDATION

THE ROYAL SOCIETY OF EDINBURGH

Contents

ACKNOWLEDGEMENTS 4
EXECUTIVE SUMMARY 5
1 INTRODUCTION 7
1.1 Background 7
1.2 Review aim and questions 9
2 METHODS 10
2.1 Review approach to prioritising best available evidence 10
2.2 Review inclusion and exclusion criteria 10
2.2.1 Included evidence type 12
2.2.2 Definition of Systematic Reviews 12
2.3 Screening of search results 13
2.4 Quality appraisal of included evidence 13
2.4.1 Quality appraisal tool for Systematic Reviews 13
2.4.2 Quality Appraisal of RCTs and grey literature 13
2.5 Data extraction 14
2.6 Data synthesis 14
3 RESULTS 15
3.1 Search results & study selection 15
3.2 Data synthesis 15
3.3 Vulnerable group results 17
3.3.1 Vulnerable Group: Looked after adolescents 17
3.3.2 Vulnerable Group: Homeless adolescents 20
3.3.3 Vulnerable Group: Young Offenders 23
3.3.4 Vulnerable Group: Adolescents living in socio-economically deprived areas 26
3.3.5 Vulnerable Group: Unemployed adolescents 28
3.3.6 Vulnerable Group: Out of school or excluded adolescents 29
3.3.7 Vulnerable Group: Teenage parents 30
3.3.8 Vulnerable Group: Young Carers 33
3.3.9 Vulnerable Group: Adolescents from ethnic minority groups 34
3.3.10 Vulnerable Group: Refugee or asylum seeking adolescents 36
3.3.11 Vulnerable Group: adolescents who have experienced sexual abuse 38
3.3.12 Vulnerable Group: Adolescents who have been exposed to domestic violence or intimate partner violence 40

3.3.13 Vulnerable Group: 'At risk' adolescents ... 42
4 DISCUSSION ... 44
4.1 Key findings for included vulnerable groups ... 44
4.2 Strengths and limitations of this review ... 45
4.3 Policy and practice implications ... 46
4.4 Research implications ... 46
4.5 Conclusions ... 46
5 REFERENCES ... 47
6 APPENDICES ... 55
6.1 Searches of bibliographic databases ... 56
6.2 AMSTAR quality assessment, and amended items ... 62
6.3 AMSTAR quality assessment results for included systematic reviews ... 64
6.4 PRISMA statement ... 66
6.5 Flow diagrams of screening & inclusion (Figure 1, Figure 2, Figure 3) ... 68
6.5.1 Flow diagram: Systematic Reviews (Figure 1) ... 68
6.5.2 Flow diagram: Randomised Controlled Trials (Figure 2) ... 69
6.5.3 Flow diagram: grey literature (Figure 3) ... 70
6.6 List of systematic reviews excluded at full text screening ... 71
6.7 List of randomised controlled trials excluded at full text screening ... 80
6.8 Data extraction for included systematic reviews ... 84
6.9 Summary table with characteristics & findings from included systematic reviews ... 117
6.10 Summary table with characteristics & findings of included randomised controlled trials. 130

ACKNOWLEDGEMENTS

We would like to thank our University of Glasgow colleagues and Co-Investigators, Dr Michael Green, Professor Stewart Mercer and Professor Daniel Wight for helpful comments in respect of the original funding application, our methods and the final report. Thanks also to our Advisory Group, Emma Hogg (NHS Health Scotland), Dr Pete Seaman (Glasgow Centre for Population Health), Professor Andy Furlong (College of Social Sciences, University of Glasgow) and Professor Sally Wyke (Institute of Health and Wellbeing, University of Glasgow) for input, particularly at the stage of selecting vulnerable groups. We would also like to acknowledge the members of our RSE Scotland Foundation Steering Group (Professor Donald Ritchie who acted as our main RSE contact, Professor John Wyke, Professor Dame Victoria Bruce, and Sir Andrew Cubie), and Expert Advisory Group (Professor Sir Harry Burns, Sir Kenneth Calman, Professor Marie Johnston, Professor Jeremy Peat, Professor Jill Pell and Professor Elizabeth Russell).

Funding: The project was funded by the Caledonian Research Fund of the RSE Scotland Foundation.

EXECUTIVE SUMMARY

Background

Most mental health disorders begin in late adolescence and early adulthood, and can impact on other critical outcomes of the youth–adult transition, including health and health behaviours, relationships, education and employment. Within the general population there are groups of particularly vulnerable adolescents who are at higher risk of poor health outcomes and who require additional support to make successful and healthy transitions into adulthood. These adolescents are likely to be missed in interventions implemented within a mainstream educational setting.

Review question and methods

This report presents the findings of a comprehensive systematic review of the best available evidence on interventions targeting key vulnerable groups aged 10-24 years.

The main research question addressed by this review was: ***what is known about the impacts of non-clinical interventions on mental health, or wellbeing of vulnerable adolescents?***

The review is restricted to interventions delivered to individuals and complements the sister review supported by RSE looking at interventions delivered at a whole population level.

The vulnerable groups included were:

- Looked after and care leavers
- Homeless
- Young offenders
- Sexually abused
- Teenage parent s
- Ethnic minorities
- Asylum seekers and refugees
- Those exposed to domestic and Intimate Partner Violence
- Those living in socio-economically deprived areas
- Unemployed
- Those out of/excluded from school
- Young carers

The review prioritised best available evidence for the synthesis on which the conclusions are based. Well conducted systematic reviews were considered strong sources of evidence. Findings from randomised controlled trials (RCTs) were also used to support conclusions. Comprehensive searches were conducted to identify relevant reviews and studies in published and unpublished (grey) literature since 2005. The scope of the review was informed by two Advisory Groups.

Key findings for included vulnerable groups

There was insufficient evidence to identify interventions which clearly benefit the mental health of any of the vulnerable groups included in this review. However, a small body of evidence was identified which reported some evidence on impacts on mental health for some groups. The findings for these groups are:

Adolescents who are or have been "looked after" or in foster care

- This was the group for which most evidence was identified, in respect of a wide range of practical support and psychological interventions. However, the findings are conflicting, meaning that it is unclear whether or not these interventions are beneficial or harmful for mental health.
- There is some, very limited, evidence that mentoring, either peer or natural (i.e. via an unrelated, older person), may benefit wellbeing and mental health for looked after adolescents.

Homeless adolescents

- Practical support services, in particular independent living and homelessness support interventions, and psychological interventions, in particular cognitive behavioural therapy (CBT), or a package combining both practical support and psychological interventions, can benefit the mental health of homeless young people.

Young offenders

- There is some evidence to suggest that CBT can improve the mental health of young offenders.

Adolescents who have been sexually abused

- There is some evidence to suggest that CBT, individual or group, can lead to reduced stress and anxiety among adolescents who have experienced sexual abuse.

Teenage parents

- There is limited evidence to suggest that psychological interventions such as parenting skills and inter-personal therapy may lead to improved mental health.
- It is unclear whether home visiting benefits the mental health of teenage parents.

There is insufficient evidence on the mental health impacts of practical support or psychological interventions targeting the following groups: *asylum seekers or refugees; ethnic minorities; adolescents exposed to domestic or inter-partner violence; or adolescents living in socio-economically deprived neighbourhoods.* For these groups, evidence was limited to a single study or a good quality review which did not identify any relevant studies (an empty review) assessing mental health impacts of interventions.

No systematic reviews, RCTs, or grey literature reporting evaluations of mental health impacts were identified for the following groups: *unemployed; out of school or excluded; and young carers*. Very little is known about the impacts of interventions on mental health, happiness or wellbeing of interventions in these groups.

Implications

The lack of evidence identified suggests the need for much greater attention to the wellbeing of the most vulnerable groups of young people in our population. It highlights the need for more policy and practitioner attention, and more research, on both specific non-clinical 'wellbeing' interventions and the wellbeing impacts of existing interventions. In addition to evaluating future interventions for their mental health impact, further evidence reviews which go beyond the scope of this review may be valuable. In particular, these could examine other sources of research evidence, such as non-randomised evaluations and qualitative research in peer reviewed literature. This would provide a more detailed assessment of the mental health impacts of specific interventions including examination of the impacts of mainstream interventions on specific vulnerable groups.

Conclusions

There is insufficient evidence to point to promising interventions which clearly benefit the mental health and wellbeing of vulnerable adolescent groups. There is some evidence to suggest that psychological interventions, including CBT, may be beneficial, in particular for young offenders, and adolescents who have been sexually abused or who are homeless. However, the broad scope of this review and the diversity of interventions identified prevents drawing conclusions about specific interventions. Further synthesis of evidence on specific interventions which include examination of wider sources of evidence may help shed light on promising interventions for specific groups

.

1 INTRODUCTION

This literature review resulted from a call for proposals to the RSE Scotland Foundation for systematic reviews of empirical evaluations of population- or individual-level interventions intended to improve health, happiness and wellbeing or reduce inequalities for young people undergoing the transition to adulthood. The aim is that the resulting reviews should form a background to a new programme of RSE-funded research in the area of 'health, happiness and wellbeing', specifically aimed at understanding factors that enable young people to make successful transitions from adolescence to adulthood.

1.1 Background

Although levels of physical morbidity are relatively low in late adolescence and early adulthood, mental health disorders are common in this age-group; indeed most mental disorders begin between the ages of 12-24, although often not identified until later (Patel et al., 2007). Thus, analysis of 2010 Global Burden of Disease study data found the highest proportion of disability-adjusted life years for all mental and substance use disorders occurred in adolescents and young to middle-aged adults (10–29 years) (Whiteford et al., 2013). Thirteen percent of 16-24 year-olds in the 2012 Scottish Health Survey reported symptoms indicating presence of a possible psychiatric disorder and the proportion with more minor levels of psychological distress was higher than at all older ages (Rutherford et al., 2013) and in 2002-4, 7% of 18-20 year old participants from a population-based survey based in and around Glasgow reported ever having tried to deliberately hurt or harm themselves (Young et al., 2007). The 2004 Office of National Statistics survey of child and adolescent mental health found around 12% of British 11-16 year olds had a mental disorder (Green et al., 2005). Among Scottish 15-year olds in 2014, only 27% reported feeling 'very happy' with their lives, 15% always feeling happy and 9% always self-confident (Currie et al., 2015). Evidence on whether or not rates of mental health problems are increasing in this age-group is mixed (Sweeting et al., 2010, Hagell et al., 2015).

Mental disorders are associated with other health outcomes, educational engagement and achievement, relationships with family and friends and the ability to develop independence (Patel et al., 2007, Hagell et al., 2015) and thus potentially affect both current and future health and well-being. In addition, although there is evidence that health inequalities are less evident in adolescence than either childhood or adulthood, this does not apply to more severe impairments and disabilities nor, importantly, the most disadvantaged groups (West, 1997), and any inequalities in mental health or psychological distress evident in late adolescence and early adulthood, are generally maintained or increased into later adulthood (Ellaway et al., 2012). Adolescence is therefore a potential key life-stage for mental health-related interventions (Viner et al., 2015, Weisz et al., 2005, Patel et al., 2007).

The focus of this review of interventions to improve health, happiness and wellbeing in the transition to adulthood is *vulnerable children and adolescents*. Definitions of 'vulnerable group' vary according to context, but within UK policy, 'vulnerability' is associated with marginalisation, social exclusion, limited opportunities and income, the experience of abuse, hardship, prejudice and discrimination (Larkin, 2009). Vulnerable young people are at risk of poor health outcomes (Flaskerud and Winslow, 1998). For example, there is evidence that homeless adolescents (Edidin et al., 2012), young offenders (Chitsabesan et al., 2006, Kinner et al., 2014), and those who are 'looked after' (Ford et al., 2007), experience violence or abuse (Sansone et al., 2005) or are unemployed, (Young et al., 2007) or are at greater risk of poor mental health than the general population of young people. In addition, these young people are likely to face extra challenges in making transitions to higher education, parenthood, employment, and independent living, often in the absence of family

support (Osgood, 2005). Vulnerable groups often cluster: for example, young care-leavers are more likely than those who have not been in care to be teenage parents, homeless, unemployed and young offenders (Stein, 2006), thus increasing the risk that they will experience problems.

The Scottish Government's policy summary on 'Supporting Young People's Health and Wellbeing' advocates for extra support for those most at risk, with the foreword, by then Chief Medical Officer, Sir Harry Burns, stating that: "while we want to support all young people, we must ensure we [also] target those most at risk of poor health outcomes, such as those exposed to chaotic early lives. We must work with these young people to improve their life chances" (Scottish Government, 2013c, page 2). Interventions aimed at these high-risk groups represent a valuable component of strategies to address health inequalities, a Scottish Government priority (Scottish Government, 2010a).

We have also described our review as focusing on *individual-level* interventions rather than on interventions targeting *whole populations* (for example, all school-children). However, some of the identified interventions are group-based therapies and we acknowledge that many interventions cannot be satisfactorily classified using the population-individual distinction (Michie et al., 2011).

Our review focuses on 13 different vulnerable population groups (looked after and care leavers; homeless; young offenders; adolescents living in low socio-economically deprived areas; unemployed; out-of-school or excluded; teenage parents; young carer; ethnic minorities; asylum seeker or refugee; sexually abused adolescents; adolescent victims or observers of domestic violence; and other 'at risk' populations including neglected adolescents). These groups were specifically selected due to an established association with increased risk of poor health and inequality, and following advice and consultation from our expert advisory group and the funder.

Successful transitions from adolescence to adulthood could be defined in terms of roles and/or "markers" of adult status (Arnett, 2000). Alternatively, they can be conceptualised in terms of good health and well-being which will, in turn, increase the likelihood of successful transitions more broadly and reduce future morbidity. We have adopted the latter approach, identifying studies describing interventions that aim to improve mental health, wellbeing, or happiness, or that include these or related terms as their primary or secondary outcomes.

1.2 Review aim and questions

The aim of this review is to synthesise the literature that evaluates targeted non-clinical individual interventions aiming to improve the mental health, mental wellbeing, or happiness of vulnerable adolescents.

Primary review question

- What is known from the existing literature about evaluations of non-clinical interventions intended to improve mental health, happiness, or wellbeing of vulnerable adolescents?

Secondary review questions

- What are the gaps in research evidence to date?
- What are the most promising non-clinical intervention strategies to improve adolescent mental health, mental wellbeing, or happiness for each vulnerable group?
- What are the key similarities and differences in promising interventions across population groups?
- What is the utility of the results in developing and informing an intervention for vulnerable adolescents in Scotland?

2 METHODS

2.1 Review approach to prioritising best available evidence

The review protocol is registered and available on the University of Glasgow intranet (http://www.sphsu.mrc.ac.uk/publications/reports-and-protocols.html) (Skivington et al., 2016).

We used systematic review methods to prepare a synthesis of the best available evidence of the mental health impacts of interventions targeted at the included vulnerable populations. The approach used prioritised best available evidence in three different categories of publication: reviews; primary studies published in journals; and primary studies in unpublished ('grey') literature. The review comprised three phases which are described below:

Phase I: Review of systematic reviews. Well conducted systematic reviews provide a transparent and rigorous synthesis of existing evidence, incorporating consideration of the bias in available evidence, and are considered the highest quality evidence. Identified systematic reviews were appraised for quality and the synthesis prioritised those reviews assessed to have a Low Risk of Bias.

Phase II: Review of Randomised Controlled Trials. In line with our "best available evidence" approach, we searched for and incorporated Randomised Controlled Trials (RCTs) published in peer reviewed journals. The RCT design randomly assigns participants into two (or more) groups, typically an intervention group and a control group, in order to test the effectiveness of a specific intervention or treatment. RCTs are considered the most controlled and therefore least biased study design, as differences between the intervention and the control group are thought to be due to the intervention rather than demographic or idiosyncratic characteristics of the participants.

Phase III: Review of grey literature. We also searched for unpublished or "grey" literature. In line with our "best available evidence" approach, only RCTs or evaluations with a control or comparison group were included.

The review scope was agreed in discussion with our Advisory Groups which comprised all co-investigators, a panel of external experts in the field and representatives of the funder (see acknowledgements). We consulted with these groups in respect of the review scope and approach and the possibility that key interventions may not have been identified by the searches.

2.2 Review inclusion and exclusion criteria

Details of the review inclusion and exclusion criteria are provided in Table 1.

We defined our population, vulnerable young people and children, as belonging to social groups with increased risk of health-related problems and social inequalities. The list of included groups was agreed in discussion with the Advisory and Expert Advisory Groups. The included vulnerable groups are listed in Table 1.

Table 1: Inclusion and exclusion criteria for reviews and studies

Inclusion	Exclusion
Population	
'Vulnerable populations': social groups with increased risk of health-related problems and with a focus on social inequalities, specifically: 1. Looked after or care leavers 2. Homeless 3. Young offenders 4. Living in socio-economically deprived areas 5. Unemployed 6. Out of school or excluded 7. Teenage parent 8. Young carer 9. Ethnic minorities 10. Asylum seekers or Refugees 11. Sexually abused 12. Domestic Violence and Intimate Partner Violence 13. Other 'at risk' (including neglect)* * A number of reviews addressed vulnerable populations as one coherent group, often referring to them as 'at risk'. We decided to include these reviews provided that at least one of the vulnerable populations of relevance to the present review was included in the systematic review. We excluded all mixed population reviews when none of our populations of interest were represented.	Clinical populations, under medical treatment or supervision. This includes interventions targeted towards those with particular diagnosed disorders, including substance use disorder.
Aged 10-24 years. If the age range partially covered our age range (e.g. 5-17 years), we applied the following rule:- 1. The number of years relevant to us must outweigh the number of irrelevant years (e.g. a review addressing young people aged 5-17 inclusive would be included because eight years were relevant to our focus (ages 10-17) and five were irrelevant (ages 5-9)). 2. If reviews referred to their target population as 'adolescents' without providing an age range, these were only included if at least 50% percent of the included primary studies addressed samples within our 10-24 year age range.	Studies where the intervention is not targeted at participants aged within the 10-24 years age range.
Intervention	
Studies describing interventions that aim to improve mental health, wellbeing, or happiness (or that include one of these concepts as the primary outcome).	Clinical or pharmacological interventions. Interventions delivered in a clinical setting. School-based interventions.
Comparison	
Research that allows us to make some evaluation of the intervention:- 1. Published systematic reviews. 2. Published Randomised Controlled Trials (RCTs). 3. Unpublished evaluations with a comparison group.	Studies that do not include a comparison group. Qualitative studies.

Table 2: Inclusion and exclusion criteria for reviews and studies - continued

Inclusion	Exclusion
Outcome	
Mental health: measures of general mental health. Mental wellbeing: wellbeing scales, measures of life satisfaction (could be a single question) or quality of life. Happiness: specifically states that happiness will be measured. Resilience. Impulsivity. Self-esteem Sense of coherence. Our protocol (written prior to conducting formal searches) stated that we would only include reviews and studies where the ***primary outcome*** measured health, wellbeing or happiness. However, during the screening process, we decided to revise the inclusion criteria pertaining to outcomes. Many reviews focussed on outcomes important to the wider public or the government (e.g. reducing reoffending; reducing rapid repeat pregnancy), with mental health or wellbeing as *secondary outcomes*. In order to include data from these reviews, we extended our inclusion criteria to cover health, wellbeing or happiness as ***either primary or secondary outcomes***.	Studies where only a change in 'vulnerable' status has been recorded e.g. welfare to work interventions that evaluate employment outcomes but not health outcomes. Physical health outcomes and physical wellbeing. Health risk behaviours (e.g. sexual health risk behaviour; smoking; diet; exercise; substance use). Clinical diagnoses as outcome, including self-harm and stress. Change in health service use.
Other	
English language only. OECD countries only. Published since 2005.	Non-English language. Non-OECD country. Published before 2005.

2.2.1 Included evidence type

We included systematic reviews and RCTs from the published literature. We also included RCTs and evaluations with a control group from the grey literature, i.e. reports and papers which have not been published in a peer-reviewed journal (see further details above). To be included, the study needed to have evaluated impacts of an intervention on a relevant mental health outcome among a vulnerable adolescent group. Dissertations and theses, case reports, letters, conference abstracts and commentaries were excluded.

2.2.2 Definition of Systematic Reviews

Systematic reviews were defined using guiding principles from the Database of Abstracts of Reviews of Effects (DARE) (Centre for Reviews and Dissemination, 2002). The review had to meet the following criteria:

- have a comprehensive search strategy;
- have searched at least one database plus other forms of searching (e.g. checking of references); and
- inclusion criteria stating at least three of the following five elements:- Population, Intervention, Comparator, Outcomes, Study design (PICOS).

A search strategy was developed to search Medline using free text and controlled vocabulary terms, and adapted for other databases. Searches were restricted by publication type to Systematic Review and Randomised Controlled Trials using established and validated filters, where available. Searches were restricted by date to 2005 onwards and to English language. A range of databases covering relevant subject areas of medicine, psychology, education, social studies and children were searched, as follows: MEDLINE; Embase, British Education Index, PSYCHARTICLES, Socindex, ERIC, Child Development & Adolescent Studies, Social Care Online, Psycinfo, Cochrane Library and the Campbell Library. Details of the search strategies are provided in Appendix 1. Grey literature was searched for on the Planex database. Planex is a popular and well established forum for grey literature. While we maintained the same search strategy for reviews and RCTs, we simplified our search when examining the grey literature in line with the search functions available on the Planex database.

2.3 Screening of search results

Screening to select eligible reviews and studies was performed by the authors (GV, HT, MC, HS, JM & KS,). For reviews, 10% of the search hits were independently screened by two authors to ensure consistency across reviewers. All reviews, RCTs and hits from the grey literature database that were screened at full text stage were independently screened by two authors. Disagreements were resolved by discussion with a third author. Screening the large number of search hits was facilitated using specialised software (Covidence: https://www.covidence.org/) which allows independent screening and recording of reasons for exclusion.

2.4 Quality appraisal of included evidence

2.4.1 Quality appraisal tool for Systematic Reviews

Included systematic reviews were appraised for quality using an amended version of the AMSTAR tool ("A Measurement Tool to Assess Systematic Reviews") (Shea et al., 2009) (see Appendix 2 for an outline of the original and the amended AMSTAR items).

This assessment was used to categorise reviews as either High or Low in risk of bias. Low risk of bias (described in our Results as 'good quality') reviews had to meet the following criteria:

- include a comprehensive literature;
- provide the range of characteristics of included studies (either in tabular or narrative form);
- assess and document the scientific quality of the included studies; and
- use scientific quality in the formulation of findings and/or the review's conclusions.

High risk of bias reviews, which did not meet these criteria are described in our Results as 'poor quality'. Detail of the assessment for each review is provided in Appendix 3.

2.4.2 Quality Appraisal of RCTs and grey literature

RCTs and controlled studies identified from the grey literature were not assessed for Risk of Bias. While RCTs vary in quality, for example with respect to blinding and attrition rates, to enable the review to include primary studies we prioritised inclusion of RCTs, using their status as the best study design to establish the effectiveness of an intervention as a proxy for best available evidence amongst primary studies. Similarly, unpublished RCTs and controlled studies, i.e. evaluations with a control or comparison group, were considered best available evidence within the grey literature. Where serious limitations in single studies were identified during the data extraction process, these were noted for consideration.

2.5 Data extraction

Data were extracted using a structured data extraction template and checked by a second author. Reviews were assessed for the number of studies which included relevant outcomes and relevant populations to assess the level of applicability of the review findings.

2.6 Data synthesis

We synthesised findings narratively. Extracted data were tabulated to facilitate comparison across included reviews and studies to provide an overview of the best evidence available for each intervention and each vulnerable population.

A PRISMA statement is provided (see Appendix 4).

3 RESULTS

3.1 Search results & study selection

The results of the searches and screening work to identify reviews and studies eligible for inclusion in this review are outlined below.

Phase I Systematic Reviews

We identified 7,231 search results in respect of systematic reviews. Following initial screening (titles and abstract), the full text of 208 reviews was screened with reference to the inclusion and exclusion criteria (Table 1). Of these, 176 reviews were excluded leading to a final sample of 32 reviews. Figure 1 (see Appendix 5) outlines the search results at each screening stage. Appendix 6 lists the reasons for excluded reviews at full text screening.

Phase II Randomised Controlled Trials

The search for RCTs found 4,449 hits. Following initial screening (titles and abstract), the full text of 76 studies was screened in reference to the inclusion and exclusion criteria (Table 1). RCTs which were included in the systematic reviews included at Phase 1 were excluded to avoid double counting. We excluded 563 studies and conducted data extraction on 16 RCTs from 20 papers (some RCTs had more than one publication). Figure 2 (see Appendix 5) outlines the search results at each screening stage, and verifies the reasons for excluded primary studies at full text screening (see Appendix 7 for list of excluded RCTs).

Phase III Unpublished evaluations with a control group in the grey literature

This final search identified 8,854 results within the grey literature. This included a large number of duplicate publications. Based on a randomly chosen vulnerable group (young offenders), we calculated a duplicate rate of 40% which indicates that 5,313/8,854 were unique publications. Following initial screening of title and abstract, 69 studies proceeded to full text screening. We excluded all 69 studies as none of these were evaluations with a control group that had not been published in a peer-reviewed journal. Figure 3 (see Appendix 5) outlines the search results at each screening stage, and verifies the reasons for excluded grey literature studies at full text screening.

Table 2 summarises all identified evidence across the vulnerable populations with reference to the number of good quality (Low Risk of Bias) and poor quality (High Risk of Bias) systematic reviews, RCTs and evaluations with a control group in the grey literature.

3.2 Data synthesis

We synthesised findings narratively. Extracted data (see Appendix 8) were tabulated to facilitate comparison across included reviews and studies to provide an overview of the best evidence available for each intervention and each vulnerable population (see Appendices 9 and 10 for summary tables of included systematic reviews and RCTs). We grouped the included interventions into two broad categories:

1. ***Practical support services*** such as mentoring, transition support services, case management and practical skill training (e.g. independent living skills); and
2. ***Psychological interventions*** such as cognitive behavioural therapy (CBT), foster care treatment and training with a CBT component and general and specific mental health interventions such as Multi-systemic therapy (MST), outdoor adventure activities and animal-facilitated therapy.

However, in a number of reviews, it was not possible to isolate practical support services from psychological interventions as the authors synthesised all interventions into one single group or provided effect sizes only for combined interventions. We therefore also include a third category of practical support services and psychological interventions combined.

Table 2: Summary of identified evidence across all Vulnerable Populations

Report Section	Vulnerable Group	Systematic Review – Low Risk of Bias	Systematic Review – High Risk of Bias	RCT	Grey literature evaluations*
1	**Looked after**	7	3	3	0
2	**Homeless**	3	1	1	0
3	**Young offenders**	3	1	0	0
4	**Living in socio-economically deprived areas**	1	2	1	0
5	**Unemployed**	0	0	0	0
6	**Out-of-school/excluded**	0	0	0	0
7	**Teenage parent**	2	0	7	0
8	**Young carer**	0	0	0	0
9	**Ethnic minority**	1	0	1	0
10	**Asylum seeker/Refugee**	1	0	1	0
11	**Experience of sexual abuse**	2	2	1	0
12	**Exposure to domestic violence or intimate partner violence**	0	1	1	0
13	**Other - "At Risk"**	2	0	0	0
	TOTAL	22	10	16	0

* includes RCTs and evaluations with a control group

Vulnerable Populations: "at risk" and "neglect"

During the search process for each of the identified vulnerable populations, we identified reviews describing a mix of vulnerable adolescents referred to via the general term 'at risk'. Where possible, we isolated the relevant findings pertaining to our specific vulnerable populations and synthesised the review's findings within those specifically relating to each. For two reviews, however, this was not possible, and we therefore present the findings separately in a section on other 'at risk' adolescents. We further decided to add the vulnerable population 'neglect' to the 'at risk' group as it became apparent during the search process that neglect – while a serious problem – is a poorly defined concept. While neglect has been defined by the Scottish Government as "the persistent failure to meet a child's basic physical and/or psychological needs, likely to result in the serious impairment of the child's health or development" (Scottish Government, 2010b, page 166), there is no universally agreed range of activities or components characterising neglect (Moran, 2009).

Reporting of results

Results are reported separately for each vulnerable group. As noted in our Introduction, each of these sections begins with information on the size of each of these groups of young people in Scotland and their health and well-being and longer-term outcomes. This is followed by detail of the evidence identified, in terms of tables of numbers and brief descriptions (of good and poor quality systematic reviews, and of RCTs and evaluations with a control group in the grey literature) with further tabular information on the good quality systematic reviews (i.e. best available evidence). Note that for three vulnerable groups, no evidence was identified. Overall findings are categorised into those relating to provision of practical support services, psychological interventions, or a combination. Each of these results sections ends with brief, bulleted key messages.

3.3 Vulnerable group results

3.3.1 Vulnerable Group: Looked after adolescents

Background

In Scotland, children and adolescents may become 'looked after' for a number of reasons, including neglect, abuse, offending behaviour or complex disabilities requiring specialist care. At 31 July 2015, there were 15,404 looked after adolescents, representing around 15 per 1,000 Scottish under 18s. Around 13,900 were in the community (split roughly equally, a third with parents, a third with friends or relatives and a third with foster carers, together with a very small number with prospective adopters) and around 1,500 in residential accommodation. The looked after children and adolescent population includes more males (53%) than females (47%), with around 20% aged 0-4, 40% 5-11, 30% 12-15 and 10% 16 or more. Following an increase from around 2000, numbers have dropped since 2012 because more have left care than have started (Scottish Government, 2015a, Scottish Government, 2016a).

'Looked after' children and young people are at high risk of poor current and future mental health problems, low educational attainment, poor occupational outcomes and criminality. Surveys of UK 5-17 year olds conducted 2000-2004 found higher rates of psychopathology, educational difficulties, neurodevelopmental disorders and psychiatric diagnoses (including anxiety, depression, hyperkinesis, behavioural and autistic spectrum disorder) among 'looked after' compared with other children; 46% of 'looked after' children and adolescents had at least one psychiatric diagnosis [Ford 2007]. Evidence suggests emotional wellbeing at care entry is associated with subsequent placement instability and that placement instability can, in turn, cause or exacerbate mental health problems among looked after adolescents, contributing to a downward spiral of instability and poor emotional well-being (Hannon et al., 2010, Rubin et al., 2007, Ward et al., 2008). The transition to adulthood is compressed and generally occurs at younger ages among care leavers than their non-care peers, and as noted in our Introduction, this group is at high risk of homelessness, isolation, loneliness, unemployment, poverty and mental health problems in Scotland as elsewhere (Stein, 2006, Dixon and Stein, 2005).

Identified Evidence

We identified ten systematic reviews focussing on interventions for Looked After adolescents, seven were good quality (Everson-Hock et al., 2011, Jones et al., 2012, Montgomery et al., 2006, Armelius and Andreassen Tore, 2007, Stewart et al., 2013, Turner et al., 2007, Turner and Macdonald, 2011) and three were poor quality (Donkoh et al., 2006, Leve et al., 2012, Thompson et al., 2016) The reviews were published between 2006 and 2016. We found three RCTs and no evaluations with a control group in the grey literature. Table 3 displays the quantity and quality of all identified reviews and studies.

Table 3: Quantity and quality of identified evidence– looked after adolescents

	Systematic review: Good quality	Systematic review: Poor quality	Randomised Controlled Trials	Grey literature
Number	7	3	3	0

All ten systematic reviews were intervention driven (Armelius and Andreassen Tore, 2007, Turner and Macdonald, 2011, Montgomery et al., 2006, Donkoh et al., 2006, Turner et al., 2007, Thompson et al., 2016, Leve et al., 2012, Everson-Hock et al., 2011, Stewart et al., 2013, Jones et al., 2012), i.e. their primary aim was to identify evidence for the effectiveness of a particular intervention or type of intervention. The interventions included and identified by the reviews were highly diverse and

there was little information on components in each intervention. Table 4 presents a summary of good quality reviews only.

Table 4: Good quality systematic reviews– looked after adolescents

Good quality systematic reviews identified n = 7			
Authors	**Interventions searched for**	**Evidence of impacts on mental health, wellbeing or happiness**	**Limitations**
Everson-Hock et al (2011)	Practical support	No impact on mental health or life satisfaction.	Limited applicability: only 3 out of 7 included studies focused on mental health impacts.
Jones et al (2012)	Practical support	No evidence available*.	n/a
Montgomery et al (2006)	Practical support	No evidence available*.	n/a
Armelius et al (2007)	Psychological	No evidence reported**.	5 studies identified but data not reported.
Stewart et al (2013)	Psychological	Mixed impacts on mental health – unclear overall impact.	Limited applicability: only 6 out of 27 included studies focused on adolescents.
Turner et al (2007)	Psychological	Mixed impacts on mental health – unclear overall impact.	Limited applicability: only 2 out of 6 included studies focused on adolescents.
Turner et al (2011)	Psychological	No evidence available*.	n/a

**This systematic review did not identify any studies with outcomes pertaining to mental health, wellbeing or happiness.*
***This systematic review did identify studies with relevant outcomes but did not report or synthesise findings.*

Overall Findings

Provision of Practical Support Services

Transition Support Services: There is evidence from one good quality systematic review that providing practical support in the form of transition support services does not lead to improvements in mental health, life satisfaction or happiness when compared to the control group (Everson-Hock et al, 2011).

Access to Services: One good quality systematic review searched for interventions on promoting access to any services for looked after young people (Jones et al, 2012). None of the five included studies addressed mental health, wellbeing or happiness, but instead focused on the numbers of young people accessing health and educational services post intervention.

Mentoring: One poor quality systematic review of practical support for looked-after adolescents searched for studies of mentoring programmes, in particular natural mentoring which involves an unrelated older mentor for the young person (rather than a peer mentor). Based on findings from 11 studies this review reported a significant improvement in young people's psychological wellbeing and resilience following the intervention (Thompson et al, 2016).

An additional RCT of a mentoring and skills based group intervention (Fostering Healthy Futures) based in the USA reported significant improvement in trauma, depression and anxiety symptoms amongst a group of looked after adolescents at high risk for developing clinical trauma (Taussig and Culhane, 2010).

Independent Living Skills: Two related reviews, conducted by the same author team, searched for impacts of independent living programmes for looked after children (Montgomery et al, 2006; Donkoh et al, 2006). One of these reviews was good quality (Montgomery et al, 2006). Neither

review found any RCTs or non-randomised studies which had assessed impacts on mental health and wellbeing of independent living programmes for this population.

Psychological interventions
Cognitive Behavioural Therapy: One good quality review assessed the effectiveness of any CBT intervention in reducing criminal behaviour, and a range of secondary outcomes including improving psychological adjustment and self-esteem amongst looked after adolescents and children (Armelius et al, 2007). Although the authors identified five studies which included mental health outcomes, these were not reported or synthesised as the data were not suitable for meta-analysis.

Cognitive Behavioural Therapy and Treatment Foster Care: Two reviews of interventions delivered to foster carers were identified and included as their scope included mental health outcomes for looked after adolescents. One good quality review conducted by Turner et al (2007) reported on any CBT-based foster carer training. Of the relevant studies, two assessed impacts on the mental health of looked after adolescents, and reported conflicting findings: one reported no impact on the wellbeing of looked after children, while the other reported a positive effect on looked after children's mental health post intervention and when compared with controls. The second good quality review, also by Turner et al (2011), reviewed foster carer interventions with therapeutic, individualised, community or family services. None of the five included trials addressed mental health, wellbeing or happiness in non-clinical adolescents.

Multi-dimensional Treatment Foster Care: This is a multicomponent programme which involves individual placement within a specialised and trained up foster family. One relevant study from a poor quality review (Leve et al, 2012) reported that multidimensional treatment foster care for adolescents resulted in improved mental health for the intervention group when compared with controls.

Other Mental Health interventions: There is mixed evidence from one good quality review (Stewart et al, 2013) on the impact of *any* mental health intervention for looked after children. The authors categorised interventions as either 'differentiated' (manualised, tailored) or 'undifferentiated' (broad based and less focused). It was not clear exactly which interventions were included in either category. While three relevant studies in this review report an improvement in looked after adolescents' mental health, two studies report no impact and one study reports deterioration in mental health in the intervention group.

These mixed results for other mental health interventions are also reflected in the identified RCTs on interventions for looked after young people. Jee et al. (2015) reported no effects of a stress management intervention which attempted to assist young people in regulating their stress responses. In contrast, Height et al (2010) investigated the impacts of a 'life story' intervention, which is typically part of reminiscence therapy. The aim is to help young people reflect, understand and internalise feelings and experiences from life events to date. The findings indicated improved mental health, in particular reduced post-traumatic stress symptoms.

Key messages

- Overall, there is insufficient evidence to identify interventions which clearly benefit the mental health of looked after adolescents.
- The available evidence for practical support services and psychological interventions is conflicting, reporting a mix of improvement, no impact, and deterioration in mental health.
- There is some, very limited, evidence that mentoring, either peer or natural (i.e. via an unrelated, older person), may benefit wellbeing and mental health for looked after adolescents.

3.3.2 Vulnerable Group: Homeless adolescents

Background

Homeless people tend to be young: among Scottish Household Survey respondents (2003-12), around 4% of 16-24 year olds reported ever having been homeless (Fitzpatrick et al., 2011). In 2014/15, around 8,200 Scottish 16-24 year olds were assessed as homeless, representing 29% of the homeless population (Scottish Government, 2015f) and 1.3% of all Scottish 16-24 year olds. On 31 March 2016, there were 5,224 dependent children living in temporary accommodation across Scotland (Shelter Scotland, 2016).

A range of life crises – including poor mental health and family breakdown – can trigger homelessness, and homelessness is both associated with and perpetuated by a wide range of issues including poverty, lack of social support, isolation, mental disorders and cultures of violence, sexual exploitation and addiction (Turnbull et al., 2007). The health of young homeless people is poor, with high levels of mental health and substance misuse problems; those in temporary accommodation report feeling their lives are 'on hold' (Quilgars et al., 2008). Homelessness also increases the risks of dying: a Glasgow-based study found the hazard ratio of all-cause mortality in homeless adults (18+) compared with non-homeless was 4.4 (Morrison, 2009). Qualitative work suggests the importance of feeling safe, positive, connected to others and able to participate in 'normal' life to the well-being of homeless adults (Thomas et al., 2012).

Identified Evidence

We identified four systematic reviews, three good quality, (Slesnick et al., 2009, Altena et al., 2010, Coren et al., 2013) and one poor quality (Dawson and Jackson, 2013) published between 2009 and 2013. We found one RCT, but no evaluations with a control group in the grey literature. Table 5 summarises the quality and quantity of evidence identified.

Table 5: Quantity and quality of identified evidence– homeless adolescents

	Systematic review: Good quality	Systematic review: Poor quality	Randomised Controlled Trials	Grey literature
Number	3	1	1	0

One review was intervention driven (Dawson et al, 2013) searching for any intervention promoting services to homeless young people. Three reviews were population driven (Slesnick et al, 2009; Altena et al, 2010; Coren et al, 2013) searching for any intervention aimed at homeless children and adolescents with the aim of improving this group's life situation. Table 6 provides further information on the good quality systematic reviews.

Table 6: Good quality systematic reviews– homeless adolescents

Good quality systematic reviews identified n = 3			
Authors	**Interventions searched for**	**Evidence of impacts on mental health, wellbeing or happiness**	**Limitations**
Altena et al (2010)	Practical support and Psychological	Practical support: improved mental health. Psychological: Group and individual CBT improved mental health.	Limited applicability: only 7 out of 11 included studies focused on mental health.
Slesnick et al (2009)	Any	Practical support: improved mental health. Structured support and psychological combined: improved mental health and self- esteem.	Limited applicability: only 7 out of 32 included studies focused on mental health.
Coren et al (2013)	Any	Practical support and psychological combined: mixed impacts – unclear overall impact.	Limited applicability: only 6 out of 11 included studies focused on mental health.

Overall Findings

Provision of Practical Support Services

Independent Living Skills: One good quality review reported that individual interventions of independent living skills training improved mental health symptoms and life satisfaction when compared with a control group of homeless adolescents who received no such training (Altena et al, 2010).

Homeless Services: One good quality review covered a wide range of interventions and services with the aim of improving the life situation of homeless young people (Slesnick et al, 2009). Among those studies which assessed mental health impacts, attendance at shelter and drop in services for homeless young people were associated with reduced psychological distress and emotional problems.

Psychological interventions

Cognitive Behavioural Therapy: One good quality review indicated that CBT delivered in a group or on an individual basis reduced mental health symptoms among homeless young people. Group CBT interventions, in particular, increased overall wellbeing in the intervention group (Altena et al, 2010).

Health promotion and Art therapy: One RCT conducted in youth drop-in agencies in the USA evaluated the impact of a nurse led health promotion intervention in improving health knowledge (in relation to HIV and Hepatitis) and mental health among homeless adolescents (Nyamathi et al., 2013). The study found those receiving the nurse-led health intervention had significantly improved psychological wellbeing when compared to a control group receiving art therapy.

Practical support and psychological interventions combined

Combined practical support and psychological interventions: One good quality review covered a diverse range of therapeutic interventions including intensive case management, ecologically based family therapy, functional family therapy, and group CBT (Coren et al, 2013). Synthesis was conducted by outcome. Two relevant studies reported improved self-esteem; three studies described reduced depression, while one study found no change in depression between the control and intervention group.

There is further evidence from another good quality review that long term day treatment consisting of intensive case management and vocational training in combination with a cognitive behavioural intervention (Community Reinforcement Approach Therapy) in addition to short term shelter services, improved mental health, self-esteem and reduced depressive symptoms when compared to short term shelter alone (Slesnick et al, 2009).

One poor quality review focused on the impact of any primary care services delivered to homeless young people in the community, e.g. in drop in centres, or outreach services (Dawson et al, 2013). One out of 12 included studies matched the inclusion criteria for this review. This study found that CBT in combination with case management and better housing improved mental health among homeless young people.

Key message

- The available evidence suggests that practical support services, in particular independent living and homelessness support interventions, and psychological interventions, in particular Cognitive Behavioural Therapy, or a package combining both practical support and psychological interventions, can benefit mental health among homeless young people.

3.3.3 Vulnerable Group: Young Offenders

Background

In 2012/13, 4.7% (or 24,000) of Scottish 8-17 year olds were involved in offending behaviour, this group being charged with around 43,000 crimes. Police statistics suggest that in the period 2008/9-2012/13 youth offending in Scotland fell by 45%, compared with a fall of only 4% among adults. It has been suggested that this relates in part to Scottish policy and practice, with its increasing emphasis on prevention, diversion and desistance (e.g. the 'Getting It Right For Every Child' approach to children's services) (Lightowler et al., 2014). Most youth offending is low level (e.g. littering, drunkenness), with only 1% being violent crimes. In Scotland in 2010/11 there were 296 under age 18 prison receptions (entering a prison on remand or having been sentenced) and 276 secure admissions (resulting from Children's Hearings System or court orders) (Lightowler et al., 2014).

Those who have been imprisoned have very high mortality rates, with analysis of Scottish 1996-2007 data showing the age-standardised mortality ratios for prisoners compared with the general population to be 3.3 for men and 7.6 for women, these excesses only partly explained by deprivation. The largest excesses were for drug and alcohol related causes, suicide and homicide (Graham et al., 2015). The 2015 Scottish Prisoner Survey, administered in all prisons, found only around 50% of respondents reported feeling 'interested in other people', 'loved' or 'close to other people', while 40% said they were under the influence of drugs at the time of their offence and 17% had committed their offence to get money for drugs (Scottish Prison Service, 2015). Studies of young offenders have identified high levels of mental health needs, particularly depression, anxiety and self-harm, and also social, family and educational difficulties (Kroll et al., 2002, Chitsabesan et al., 2006). Many needs remain unmet during custodial sentences and, even if they are reduced over this period, increase again on discharge (Harrington et al., 2005).

Identified Evidence

We identified four systematic reviews which searched for interventions aimed at adolescent offenders, three good quality (Townsend et al., 2010, Daykin et al., 2013, Lubans et al., 2012) and one poor quality (van der Stouwe et al., 2014), published between 2010 and 2014. We identified no relevant RCTs or evaluations with a control group in the grey literature. Table 7 outlines the quality and quantity of identified evidence.

Table 7: Quantity and quality of identified evidence– young offenders

	Systematic review: Good quality	Systematic review: Poor quality	Randomised Controlled Trials	Grey literature
Number	3	1	0	0

One of the identified systematic reviews was outcome driven (Townsend et al, 2010) searching for any intervention, provided the outcome was mental health, self-harm or suicidal intent. Three reviews were intervention driven (van der Stouwe et al, 2014; Daykin et al, 2012; Lubans et al, 2012) describing the impacts of music making (Daykin et al, 2012), outdoor activities (Lubans et al, 2012) and Multisystemic Therapy (van der Stouwe et al, 2014). Table 8 provides further information on the good quality systematic reviews.

Table 8: Good quality systematic reviews– young offenders

Good quality systematic reviews identified n = 3			
Authors	**Interventions searched for**	**Evidence of impacts on mental health, wellbeing or happiness**	**Limitations**
Daykin et al (2012)	Music making	Possible improvement in mental health and wellbeing.	Limited applicability: 5 out of 11 included studies were qualitative studies, or from a low income country.
Lubans et al (2012)	Physical activity	Mixed impacts on wellbeing – unclear overall impact.	Limited applicability: only 2 out of 15 included studies focused on young offenders.
Townsend et al (2010)	Any	Improved mental health.	Limited applicability: 4 out of 10 included studies related to clinical populations.

Overall Findings

Psychological interventions

Cognitive Behavioural Therapy: There is evidence from a good quality review that a range of group-based interventions utilising CBT (e.g. group psychotherapy, stress management, problem solving and social interaction skills programmes) can be effective in reducing depression and anxiety symptoms in young offenders when compared to young offenders who did not receive CBT (Townsend et al, 2010).

Music therapy: One good quality review assessed the effectiveness of music making interventions in reducing reoffending and improving health and wellbeing among young offenders. Due to complexities in synthesising the diverse range of identified interventions (e.g. song writing, hiphop and rap therapy and guitar lessons) from both Low and High income countries, the authors tentatively suggest music making may promote the mental health of young offenders and adolescents at risk of offending (Daykin et al, 2012).

Outdoor activities: One good quality review identified two relevant studies reporting mixed impacts on young offenders' wellbeing following outdoor activity interventions, neither of which was well described (Lubans et al, 2012). In one study of outdoor family activities only ('Outward Bound', which is an established outdoor learning programme), significant improvements in self-worth were reported. However, in the second study there was no intervention effect of outdoor activities ('an intensive 3 day outdoor adventure') combined with job preparation and family skill-building workshops.

Multisystemic Therapy: This is an intensive programme, focusing on all systems/levels (i.e. peers, family, schools, community) which impact on offenders. One poor quality review reported on the effectiveness of multisystemic therapy in improving delinquency and psychopathological outcomes (Van der Stouwe et al, 2014). This review concluded that multisystemic therapy reduced psychopathology symptoms in the intervention group, in particular amongst juveniles under the age of 15 years, with more extensive offending histories and where treatment is of longer duration and under controlled conditions. However, while the authors note that they identified some studies which had assessed impacts on mental health, the review did not report which studies were included in the synthesis, or provide sufficient detail to allow an assessment of the quantity or quality of relevant data.

Key messages

- There is insufficient evidence to identify interventions which clearly benefit the mental health of young offenders.
- The available evidence for psychological interventions is limited, but suggests that group based CBT improves the mental health of young offenders.
- The potential impact of activities such as music making, outdoor activities, or multi-systematic therapy on the mental health of young offenders is not clear.

3.3.4 Vulnerable Group: Adolescents living in socio-economically deprived areas

Background

The Scottish Index of Multiple Deprivation (SIMD) identifies small area concentrations of multiple deprivation ('datazones') across Scotland in order to target policies and funding. The local authorities with the largest local share of Scotland's 15% most deprived datazones are Glasgow (41.6%), Inverclyde (40.0%) and Dundee (30.7%) (Scottish Government, 2012). Because the SIMD identifies concentrations of deprivation, it cannot easily identify rural deprivation because these populations are spread out and more mixed. However, the scale of Scottish rural poverty is significant, although often hidden and poorly addressed, with low pay often compounded by high living costs (Poverty Alliance, 2012).

Stark differences according to SIMD demonstrate the poorer life-chances for young people in more deprived areas, with 2012 statistics demonstrating: unemployment was around 17% in the most deprived decile (10% most deprived datazones) and 5% in the least deprived decile; the proportion of 16-64 year olds with low/no qualifications was 27% in the most deprived quintile (20% most deprived datazones) and 5% in the least deprived; crime victimisation rates were 22% in the most and 17% in the least deprived quintiles; while 25% in the most and 81% in the least deprived decile rated their neighbourhood as very good [Scottish Government, 2012]. An illustration of socio-economic health inequalities is the comparison of life expectancy in Glasgow's Jordanhill (around 76 years for males, 83 for females) and Bridgeton (62 years for males and 75 for females), representing a drop in life expectancy of 2.0 years for males and 1.2 years for females for each station stop on the railway line between the two places (McCartney, 2011). Rates of many health-risk behaviours, including smoking, drinking, illicit drug use and poor diet are higher in more deprived areas, as are rates of adult psychological distress (Marmot et al., 2010, Wilson et al., 2015, Scottish Government, 2016c). However, some studies provide evidence of 'relative equality' in many aspects of health (including psychological distress) in adolescence, contrasting with both childhood and adulthood (West, 1997) thus highlighting the importance of processes during adolescence and early adulthood in the creation of health inequalities (Sweeting et al., 2016).

Identified Evidence

We identified three systematic reviews focussing on interventions for adolescents residing in socio-economically deprived areas published between 2008 and 2015, one good quality (Lucas et al., 2008) and two poor quality (Brunton et al., 2015, Farahmand et al., 2012). Additionally, we found one RCT, which was reported on in four individual research papers (published between 1994 and 1998) focusing on the effectiveness of the USA-based intervention 'Move to Opportunity', which combines financial support with relocation out of poor neighbourhoods. There were no evaluations with a control group in the grey literature. Table 9 outlines the quantity and quality of identified evidence.

Table 9: Quantity and quality of identified evidence– adolescents living in socio-economically deprived areas

	Systematic review: Good quality	Systematic review: Poor quality	Randomised Controlled Trials	Grey literature
Number	1	2	1	0

All three systematic reviews were intervention driven (Brunton et al, 2015; Farahmand et al, 2012; Lucas et al, 2008) in that two examined the effectiveness of any community intervention either targeting mental health (Farahmand et al, 2012) or involving community engagement (Brunton et al, 2015). Lucas et al's (2008) review focussed specifically on the effectiveness of providing monetary assistance to deprived families. Table 10 provides information on the findings from the good quality review.

Table 10: Good quality systematic reviews– adolescents living in socio-economically deprived areas

Good quality systematic reviews identified n = 1			
Authors	**Interventions searched for**	**Evidence of impacts on mental health, wellbeing or happiness**	**Limitations**
Lucas et al (2008)	Practical support	No evidence available*	n/a

**This systematic review did not identify any studies with outcomes pertaining to mental health, wellbeing or happiness.*

Overall Findings

Provision of Practical Support Services

Financial Assistance: One good quality systematic review on the effectiveness of providing direct monetary assistance to economically deprived families did not identify any studies reporting on mental health or wellbeing (Lucas et al, 2008). The search strategy and inclusion criteria were comprehensive, with child mental health as a specific outcome measure. This means if there had been relevant studies, these would have been captured in the review.

Neighbourhood intervention: One poor quality review evaluated the impact of community engagement interventions on individuals in deprived areas (Brunton et al, 2015). Although the authors identified three studies with outcomes of self-esteem, these were not reported nor synthesised.

Relocation out of Low SES Neighbourhoods (Move-to-Opportunity): There is evidence from a large USA-based RCT indicating that relocating deprived families into more affluent neighbourhoods, and providing financial assistance, can have a beneficial impact on some adolescents' mental health (Osypuk et al., 2012a, Osypuk et al., 2012b, Nguyen et al., 2012, Nguyen et al., 2013). However, the effect was only reported for girls, with some indication that mental health deteriorated among adolescent boys.

Psychological interventions

Mental Health interventions: In a poor quality review Farahmand et al (2012) examined the effectiveness of any community mental health interventions promoting any positive outcome amongst low income urban youths. The interventions identified included family therapy, peer mentoring, arts programmes and providing parenting skills training, and all were USA-based. Although the authors report identifying some studies with mental health outcomes, the review did not report which studies were included in the synthesis, or sufficient detail to allow an assessment of the quantity or quality of data relevant to those aged 10-24 years or to mental health and wellbeing outcomes.

Key messages

- There is insufficient evidence to identify interventions which clearly benefit the mental health of adolescents living in socio-economically deprived areas.
- There is some suggestion that moving from a socio-economically deprived area to an affluent area benefits mental health for some adolescents.

3.3.5 Vulnerable Group: Unemployed adolescents

Background

Based on 2015/16 figures, among Scottish 16-24 year olds, 34% of the total population were economically inactive (neither in employment or unemployed - because in education, a family carer, sick, etc.) and 15% of the economically active population were unemployed (Scottish Government, 2016b). The official measure of NEET (Not in Education, Employment or Training) in Scotland is based on those aged 16-19; in 2014, 8.4% of this age group were NEET (Scottish Government, 2015c, Scottish Government, 2015e).

Unemployment is most likely among those with low educational achievements/ability, those from more deprived backgrounds and those with a history of childhood behavioural problems (Gregg, 2001). Most studies find that in late adolescence and early adulthood, health inequalities are wider by reference to own labour market position (i.e. whether employed, unemployed, in education, etc.) than to background socio-economic status (Sweeting et al., 2016). There is a large literature on the relationship between unemployment and poor mental health in young people (Viner et al., 2012); the association arises due to the strong causal effect of unemployment on mental health combined with weaker mental health selection effects into unemployment (Huurre et al., 2005, Paul and Moser, 2009). There is also evidence that unemployment has a 'scarring' effect, both in terms of its impact on the likelihood of future unemployment (Gregg, 2001) and on well-being: compared with those in work, life satisfaction is lower among both those *currently* unemployed and those with higher levels of *past* unemployment (Clark et al., 2001).

Identified Evidence

We identified no reviews which addressed non-clinical interventions to improve mental health, wellbeing or happiness amongst unemployed adolescents. This absence of information on interventions on these outcomes was further reflected in the lack of both RCTs and evaluations with a control group in the grey literature. Table 11 summarises this lack of reviews and studies on unemployed adolescents.

Table 11: Quantity and quality of identified evidence– unemployed adolescents

	Systematic review: Good quality	Systematic review: Poor quality	Randomised Controlled Trials	Grey literature
Number	0	0	0	0

The fact that we were not able to identify any interventions which had been evaluated for their potential impact on mental health, wellbeing or happiness amongst unemployed adolescents does not necessarily mean that there are no interventions for this group that do benefit these outcomes. It is possible that interventions have been primarily designed and/or evaluated with a focus on reducing unemployment, and increasing employability and not evaluated for impacts on mental health and wellbeing.

Key message

- There is insufficient evidence to identify interventions which benefit the mental health of unemployed adolescents.

3.3.6 Vulnerable Group: Out of school or excluded adolescents

Background
In 2014/15, average Scottish school attendance (primary and secondary) was 93.7%, with 4.3% authorised and 2.0% unauthorised absences (1.3% unexplained absences, including truancy). Absences are greater among secondary compared with primary pupils, those with additional support needs and those from the most deprived areas. Children and young people can be excluded from Scottish schools if allowing them to continue attendance is considered seriously detrimental to order, discipline or the educational wellbeing of other pupils. School exclusions have fallen over the past ten years; in 2014/15 the rate was 27.2 per 1,000 pupils. Rates of exclusions are higher among males than females, those with additional support needs (69/1,000 in 2014/15) compared with those without (16/1,000) and those in the most deprived areas (52/1,000) compared with those in the least deprived (8/1,000) (Scottish Government, 2015e).

Disengagement from school is mainly due to negative experiences in respect of relationships (e.g. experience of victimisation or not getting on with teachers) or academic aspects (e.g. not doing well or feeling stressed) and is associated with mental health problems and substance use (Bond et al., 2007). Truancy is predictive of maladjustment, low achievement, school dropout, substance abuse, delinquency, and teenage pregnancy and, in the longer-term, violent and offending behaviour, marital and occupational instability (Henry, 2007). Young people who complete school have better life-chances, being more likely to continue in education and enter higher-status, better paid occupations (Archambault et al., 2009). At every age, adults with higher levels of educational achievement have fewer health risk factors, better health and lower mortality rates (Marmot et al., 2010, Lynch and von Hippel, 2016).

Identified Evidence
We identified no reviews which addressed non-clinical interventions to improve the mental health, wellbeing or happiness amongst young people who are excluded or out of school. This absence of information on interventions on these outcomes was further reflected in the lack of both RCTs and evaluations with a control group in the grey literature. Table 12 highlights the lack of reviews and studies on out of school or excluded adolescents.

Table 12: Quantity and quality of identified evidence– out of school or excluded adolescents

	Systematic review: Good quality	Systematic review: Poor quality	Randomised Controlled Trials	Grey literature
Number	0	0	0	0

Although we did not identify any interventions which had been evaluated for their potential impact on mental health, wellbeing or happiness amongst out-of-school adolescents, this does not necessarily mean there are no interventions for this group that do improve these outcomes. Interventions may have been primarily designed and/or evaluated with a focus on improving access to education, and not evaluated for impacts on mental health and wellbeing.

Key message

- There is insufficient evidence to identify interventions which benefit the mental health of out-of-school and excluded adolescents.

3.3.7 Vulnerable Group: Teenage parents

Background

Although teenage pregnancy refers to conceptions that take place between the ages of 13 and 19, the main policy focus is on reducing pregnancy among young women aged under 16 years (Scottish Government, 2008). Scotland has a higher rate of teenage pregnancy than most other western European countries, despite recent declines. In 2014, rates were 34.1 per 1,000 women in the under 20 age group and 4.2 among under 16s (NHS Information Services Division, 2016).

Teenage pregnancy is associated with social disadvantage, being five times as likely in the most, compared with the least deprived areas of Scotland (NHS Information Services Division, 2016), and more likely among young women with low academic engagement, who perceive themselves as having few employment options and/or are socially isolated (Rowlands, 2010). There is some evidence of increased mental health problems and, in the much longer term, higher mortality rates among teenage mothers, which can be largely explained by social, behavioural and environmental factors; there is almost no evidence of the impact of teenage fatherhood on health (Paranjothy et al., 2009). Children of teenage mothers are more likely to experience poor health (including increased infant and child mortality) and a range of other adverse economic, psychosocial, educational outcomes, including, for daughters, becoming teenage mothers themselves, so continuing a cycle of disadvantage (Rowlands, 2010). However, some argue that teenage pregnancy is not a public health problem and that such labels are the result of cultural context (Lawlor et al., 2001).

Identified Evidence

We identified two good quality systematic reviews which searched for evidence of mental health impacts of interventions focussing on teenage parents, published in 2011 and 2012 (Barlow et al., 2011, Lachance et al., 2012). We found no evaluations with a control group in the grey literature, but we identified seven RCTs which were not represented in these reviews. Table 13 outlines the quality and quantity of identified evidence.

Table 13: Quantity and quality of identified evidence– teenage parents

	Systematic review: Good quality	Systematic review: Poor quality	Randomised Controlled Trials	Grey literature
Number	2	0	7	0

One review was intervention driven, focussing on any individual or group parenting programme which addressed parental mental health, knowledge, competency and relationship with the child (Barlow et al, 2011). The other was population driven, in that the authors considered any intervention aimed at pregnant or parenting adolescents in the USA (Lachance et al, 2012). Table 14 provides further information on these two good quality reviews.

Table 14: Good quality systematic reviews– teenage parents

Good quality systematic reviews identified n = 2			
Authors	**Interventions searched for**	**Evidence of impacts on mental health, wellbeing or happiness**	**Limitations**
Barlow et al (2011)	Parenting programmes	No evidence available*.	n/a
Lachance et al (2012)	Any	No evidence available*.	n/a

**This systematic review did not identify any studies with outcomes pertaining to mental health, wellbeing or happiness.*

Overall Findings

Provision of Practical Support Services

Various Practical support services: One good quality systematic review (Lachance et al, 2012) searched for any intervention for adolescent parents in the USA. The authors identified a number of practical support services including home visiting, case management, parenting education, support groups and clinical care provision. Although the review considered any outcome, none of the 14 included studies addressed mental health, wellbeing or happiness but instead focussed on rapid repeat pregnancy, educational progress and the infant's health.

Parenting programmes: One good quality systematic review (Barlow et al, 2011) searched for any individual or group parenting programme and reported their outcomes. All of the eight included studies addressed mental health impacts in clinical adolescent parents, and therefore were not relevant to the present review.

Two related papers reported on one USA-based RCT (Barlow et al., 2013, Barlow et al., 2015) of a structured parenting intervention for teenage mothers (Family Spirit). The authors report that maternal depressive symptoms decreased at one and at three year follow up since the intervention. This programme had been specifically designed for the most deprived and underserved populations in the USA, with home visits starting during late pregnancy and completing 36 months postpartum.

Home Visiting: Six RCTs of the impact of home visiting on the mental health and wellbeing of teenage mothers were identified**.** Findings varied across the studies. In the studies from the USA (n=4) which assessed depressive symptoms there was little or no change (Barlow et al., 2015, Barnet et al., 2007, Samankasikorn et al., 2016, Black et al., 2006). One study from Chile reported improvement in depressive symptoms (Aracena et al., 2009). Small reductions in stress were reported in the four studies which assessed this. Thus, some beneficial impacts were reported in respect of: a USA-based home visiting service tailored to individual families (Healthy Families Massachusetts) (Jacobs et al., 2016); home visits delivered as part of a wider intensive programme in the USA (Resource Mothers Program) which included bi-weekly sessions on social support, role modelling, health promotion and referrals during the pregnancy and up to one year post-partum (Samankasikorn et al., 2016); a Family Spirit parenting intervention delivered using monthly home visit up to three years post-partum (Barlow et al., 2015); and monthly home visits over 12 months during pregnancy and after birth in Chile (Aracena et al., 2009). In contrast, no impact was found for two other USA-based RCTs focusing on: home visits post-partum, up to a maximum of 19 (Black et al., 2006); and intensive community-based home visiting programmes combined with mentoring and case management, starting during pregnancy with continuing for the first year post-partum (Barnet et al., 2007).

Psychological interventions

Interpersonal therapy: One USA-based RCT examined the impact of a specific interpersonal therapy intervention (REACH) which consisted of five sessions lasting one hour each (Phipps et al., 2013). Components include one to one and group therapy, role play and homework. This intervention reduced post-partum symptoms of depression in the intervention group (adolescent mothers) when compared with controls who had not received this intervention.

Key messages

- There is insufficient evidence to identify interventions which clearly benefit the mental health of teenage parents.
- There is limited evidence to suggest that parenting programmes and interpersonal therapy may benefit mental health among teenage parents.
- The evidence on home visiting is conflicting, reporting both positive and no impacts on the mental health of teenage parents.

3.3.8 Vulnerable Group: Young Carers

Background

Young carers provide care and support to family, friends or neighbours with physical/mental health or substance misuse problems. The hidden or taken-for-granted nature of caregiving means they can be difficult to identify, but estimates suggest there were around 29,000 young carers in Scotland in 2012/13, representing 4% of 4-15 year olds, with 2011 Census data showing that around 75% of this age group provided care for up 20 hours a week, 10% for 20-34 hours and 13% for more than 35 hours. Females, older children, those from more deprived areas and those living with a lone parent are more likely to be carers (Scottish Government, 2015d).

There is evidence that young carers experience restricted lives (both excluding themselves and being excluded by others) with impacts on educational attendance and achievement and job opportunities and increased risk of poor mental and physical health and experience of victimisation. However, outcomes depend on the nature of their caring responsibilities (e.g. there is evidence of poor well-being, social impairments and substance abuse problems in children of parents with alcohol addiction) and on the availability of additional family support, with Scottish studies showing that caregiving can enhance understandings of disability, family relationships, maturity and practical skills (Banks et al., 2001). Young carers' awareness of others' expectations and potential stigmatisation may lead to them keeping their caring role secret (Rose and Cohen, 2010). Young adult carers report similar experiences, generally combined with an increasing number of other demands on their time, resulting from education, work or personal relationships (Becker and Becker, 2008). There has been almost no research on how early caregiving may affect adult development (Shifren, 2008).

Identified Evidence

We identified no reviews which addressed non-clinical interventions to improve the mental health, wellbeing or happiness amongst young people who are main carers. This absence of information on interventions on these outcomes was further reflected in the lack of RCTs and evaluations with a control group in the grey literature. Table 15 summarises the lack of information on evidence.

Table 15: Quantity and quality of identified evidence– young carers

	Systematic review: Good quality	Systematic review: Poor quality	Randomised Controlled Trials	Grey literature
Number	0	0	0	0

As noted in similar earlier sections, the fact that we did not identify any interventions which had been evaluated for their potential impact on mental health, wellbeing or happiness amongst this vulnerable group does not necessarily mean that there are not interventions for young carers that do improve these outcomes. Policy and research have only shifted attention to young carers as a vulnerable group of adolescents relatively recently, so reducing the likelihood of relevant RCTs and/or systematic reviews.

Key message

- There is insufficient evidence to identify interventions which benefit the mental health of young carers.

3.3.9 Vulnerable Group: Adolescents from ethnic minority groups

Background

Scotland's ethnic minority populations include Pakistanis, Chinese, Indians, Africans, migrants from countries such as Poland and Latvia that joined the EU in 2004 and Gypsies/Travellers. In 2011, minority ethnic populations made up 4% of the total Scottish population, double that of 2001. The younger age profile of the ethnic minority population means they form a larger proportion of children and young people: the 2012 Scottish school pupil census found 89.5% pupils were white Scottish/white other British, the largest other ethnic backgrounds being Asian (Indian, Pakistani, Bangladeshi, Chinese, other – 3.3%), white other (3.2%), mixed (1.0%) and African (0.6%) (Scottish Government, 2013b).

It is important to note that the ethnic minority population includes a wide range of groups and experiences. For example, in 2011/12, Chinese pupils had by far the best academic attainment, followed by Asian other, mixed, Indian and Pakistani pupils, with white UK, white other, black and other pupils doing worst; consistent with this, in 2010/11 a larger proportion of school leavers from minority backgrounds entered higher education than their white peers (Scottish Government, 2013b). A review of literature and datasets on ethnicity and poverty in Scotland identified a number of key issues including: lack of good quality, affordable housing; barriers to employment (high levels of unemployment and educational qualifications not matching occupational type in certain groups); and racial harassment (Netto et al., 2011). The proportion of people from ethnic minority groups in prison is somewhat higher than the proportion in the overall Scottish population (Scottish Government, 2013b). Overall, minority ethnic groups have lower mortality than the general population, although some have specific health problems (e.g. higher rates of heart disease and diabetes among South Asians), and gypsies/travellers have some of the worst health outcomes in Scotland (NHS Health Scotland, 2015). Among younger people, there are only minimal ethnic group differences in self perceived health status (MECOPP Carer's Centre, date unknown), and white groups tend to report higher rates of smoking, drinking and lower fruit and vegetable consumption than other ethnic groups (Scottish Government, 2013b).

Identified Evidence

We identified one good quality systematic review (Hodge et al., 2010) and one RCT, but no evaluations with a control group in the grey literature. Table 16 provides the quality and quantity of identified evidence.

Table 16: Quantity and quality of identified evidence– adolescents from ethnic minority groups

	Systematic review: Good quality	Systematic review: Poor quality	Randomised Controlled Trials	Grey literature
Number	1	0	1	0

This review was intervention driven, searching for any intervention described as culturally sensitive. Culturally sensitive interventions are defined as any intervention in which a target population's norms, values and beliefs are incorporated into the structure, content and delivery of the intervention. Table 17 provides further information on this good quality systematic review.

Table 17: Good quality systematic reviews– adolescents from ethnic minority groups

Good quality systematic reviews identified n = 1			
Authors	**Interventions searched for**	**Evidence of impacts on mental health, wellbeing or happiness**	**Limitations**
Hodge et al (2010)	Culturally sensitive	No evidence available*.	n/a

**This systematic review did not identify any studies with outcomes pertaining to mental health, wellbeing or happiness.*

Culturally sensitive: Hodge et al.'s (2010) good quality review had a broad search strategy and inclusion criteria, searching for studies up to 2009, with a focus on any intervention described as culturally sensitive. The review included 21 studies; none of these assessed mental health impacts on non-clinical populations.

A further RCT conducted in the Netherlands reported on the effectiveness of a multi-component empowerment programme (POWER) which consisted of a culturally sensitive group course for young people, and involved families and the wider community (Goossens et al., 2016). The aim was to instil a sense of mastery, which is linked to increased hope for the future, prosocial behaviour and communication. There was no evidence of POWER impacting on sense of mastery.

Key message

- There is insufficient evidence to identify interventions which benefit the mental health of adolescents from ethnic minority groups.

3.3.10 Vulnerable Group: Refugee or asylum seeking adolescents

Background

In the UK, a refugee is someone whose application for asylum (on the basis of a need for protection) has been accepted by the government; 'asylum seekers' are those whom the government has not yet recognised as a refugee. The social and economic rights of refugees are the same as any UK citizen (Scottish Refugee Council, 2016). A 2013 Scottish Government report contextualises numbers of refugees and asylum seekers against the total population of 5.3 million, suggesting 'latest figures' of around 20,000 refugees and 2,400 asylum seekers, including around 250 unaccompanied young people (Scottish Government, 2013a). International politics impact on refugee and asylum-seeker numbers: in late 2015 Scotland committed to housing 2,000 Syrian refugees and by May 2016 had accepted over 600, more than any other part of the UK (Addley and Pidd, 2016).

The experience, including pre-flight (social upheaval, disrupted education, threats to safety), flight (separation from family, transition experience, reliance on others to fulfil basic needs) and resettlement (adapting to new cultures) stages is associated with high levels of stress. While many studies highlight the negative impact on the mental health of young refugees, some of these young people show exceptional resilience (Lustig et al., 2004). Most research on the well-being of this group has been conducted outside the UK, however a UK study found uncertainties around immigration status and inability to exercise rights and freedoms were significant concerns for young refugees and asylum-seekers, but they dealt with this by focusing on education and work, and had a strong sense of responsibility to achieve (McCarthy and Marks, 2010). A study of the needs and strengths of unaccompanied asylum-seeking children and young people in Scotland identified a primary need to be recognised as *children*, with educational, housing, health, dietary and medical, as well as legal needs (Hopkins and Hill, 2010).

Identified Evidence

We identified one good quality systematic review (Tyrer and Fazel, 2014), no RCTs and no evaluations with a control group in the grey literature. Table 18 summarises the quality and quantity of evidence identified.

Table 18: Quantity and quality of identified evidence– refugee or asylum seeking adolescents

	Systematic review: Good quality	Systematic review: Poor quality	Randomised Controlled Trials	Grey literature
Number	1	0	0	0

This review was intervention driven, searching for any mental health intervention for refugee and asylum seeking children. Table 19 provides further information on this good quality review.

Table 19: Good quality systematic reviews– refugee or asylum seeking adolescents

Good quality systematic reviews identified n = 1			
Authors	**Interventions searched for**	**Evidence of impacts on mental health, wellbeing or happiness**	**Limitations**
Tyrer et al (2014)	Psychological	Improvements in post-traumatic stress symptoms.	Limited applicability: only 1 out of 21 studies focused on mental health.

Overall Findings

Psychological interventions

Mental Health interventions: Tyrer et al.'s (2010) good quality review covered a diverse range of interventions and outcomes. The search strategy and inclusion criteria were broad, and therefore any published evaluations of interventions aiming to address the mental health among this group would have been identified. Only one of the 21 included studies assessed impacts on mental health in refugee adolescents in the community. That study, conducted in Germany, found that a range of creative arts techniques decreased post-traumatic stress, depression and anxiety symptoms in refugee and asylum seeking young people.

Key message

- There is insufficient evidence to identify interventions which benefit the mental health of asylum or refuge seeking adolescents.

3.3.11 Vulnerable Group: adolescents who have experienced sexual abuse

Background
In Scotland in 2014/15, the number of recorded sexual offences against children aged under 16 years was 3,475, representing a rate of 3.8 per 1,000 children. However, statistics on numbers of sexually abused children and young people are based on police-recorded crimes, and so an inaccurate reflection of the actual number of offences committed, with recent increases throughout the UK potentially resulting from greater public awareness and changes in policing rather than increased incidence. An NSPCC study in 2011 found 11.3% of UK 18-24 year olds reported having experienced contact sexual abuse while under age 18 (Bentley et al., 2016). International reviews show a much higher prevalence of sexual abuse among females than males, older children, those with disabilities (particularly those reducing a child's perceived credibility) and those not living with both parents (Putnam, 2003, Pereda et al., 2009).

A systematic review of the impact of child sexual abuse on health concluded that it increased risk of psychotic symptomatology, emotional disorders, personality disorders, low self-esteem, suicidal and self-harming behaviours, anger, substance abuse, sexual dysfunction and risky sexual behaviours, relationship problems and becoming a future perpetrator or victim of sexual abuse (Maniglio, 2009). There have been more studies in respect of long-term impacts compared with those in childhood or adolescence, but among younger people there is now also emerging evidence of associations between experience of sexual abuse and emotional disorders and sexualized behaviours (particularly among younger children and those abused at younger ages) (Putnam, 2003).

Identified Evidence
We identified four systematic reviews of interventions among adolescents who had experienced sexual abuse, published between 2008 and 2015. Two reviews were good quality (Macdonald et al., 2013, Wethington et al., 2008) and two poor quality (Lentini and Knox, 2015, Silverman et al., 2008). We found one RCT; there were no evaluations with a control group in the grey literature. Table 20 summarises the quantity and quality of evidence identified.

Table 20: Quantity and quality of identified evidence– adolescents who have experienced sexual abuse

	Systematic review: Good quality	Systematic review: Poor quality	Randomised Controlled Trials	Grey literature
Number	2	2	1	0

All reviews were intervention driven. MacDonald et al (2012), Silverman et al (2008) and Wethington et al (2008) considered psychological interventions for sexually abused young people, while Lentini et al (2015) focussed on the effectiveness of equine facilitated psychotherapy. Table 21 portrays further details on the two good quality systematic reviews.

Overall Findings

Psychological interventions
Cognitive Behavioural Therapy: Two good quality reviews reported that CBT could lead to improved mental health for adolescents who had experienced sexual abuse. One good quality review had a broad search strategy and inclusion criteria, with a focus on any behavioural or CBT intervention aimed at sexually abused children from 0-18 years (MacDonald et al, 2012). Although the evidence

Table 21: Good quality systematic reviews– adolescents who have experienced sexual abuse

Good quality systematic reviews identified n = 2			
Authors	**Interventions searched for**	**Evidence of impacts on mental health, wellbeing or happiness**	**Limitations**
MacDonald et al (2012)	Psychological	Unclear overall impact.	Limited applicability: 5 out of 10 included studies related to clinical population.
Wethington et al (2008)	Psychological	Improved mental health and wellbeing.	Limited applicability: only 6 out of 30 included studies focused on sexually abused adolescents.

suggests that CBT reduces symptoms of depression, anxiety and post-traumatic stress, all included studies were synthesised as a single group. This means that the conclusions are based on young children as well as those with clinical disorders. However, Wethington et al (2008) support these conclusions in their good quality systematic review, reporting that individual and group CBT improved mental health and wellbeing. Individual CBT, in particular, had the greatest impact on improving post-traumatic stress and anxiety in sexually abused adolescents.

One poor quality review searched for any psychological intervention aimed at young people exposed to trauma. Five out of the 21 included studies addressed sexually abused adolescents (Silverman et al, 2008). Based on these studies, individual trauma focussed CBT improved mental health and anxiety symptoms when compared with an alternative therapy (client centred therapy), while family trauma focussed CBT achieved better mental health outcomes when compared to untreated waiting list controls but not when compared to an alternative intervention. The same review reported that sexual abuse specific CBT had no impact on anxiety when compared to an alternative intervention. The authors did not describe this intervention in any detail.

Equine-facilitated psychotherapy: One poor quality review assessed the effectiveness of any equine facilitated psychotherapy (Lentini et al, 2015). Two out of 47 included studies, reported on mental health outcomes, and reported that activities with horses (both riding and more general), can improve depression, anxiety and trauma symptoms in sexually abused adolescents.

Family therapy: We identified one USA-based RCT (Danielson et al., 2012) which assessed a specific trauma focussed intervention 'Risk Reduction through Family Therapy' (RRFT). This is an integrative approach to targeting various symptoms of trauma-exposed adolescents. The programme has a number of components such as psychoeducation, coping, substance abuse etc., and is delivered within a family setting as well as in one to one sessions with the young person. The authors report greater improvements in symptoms of depression and post-traumatic stress in the family therapy group when compared to a different intervention. However, caution is required as the two intervention samples were significantly different at baseline despite randomisation, suggesting that the study was at High Risk of Bias.

Key messages

- There is insufficient evidence to identify interventions which clearly benefit the mental health and wellbeing of adolescents who have experienced sexual abuse.
- There is some evidence to suggest that CBT, individual or group, can lead to reduced stress and anxiety among adolescents who have experienced sexual abuse.

3.3.12 Vulnerable Group: Adolescents who have been exposed to domestic violence or intimate partner violence [1]

Background

Incidents of domestic abuse recorded by the police in Scotland remained stable, at around 60,000 annually between 2011/12 and 2014/15. Rates are highest in more deprived, densely populated city authorities such as Dundee and Glasgow. The vast majority of victims are females, with a male perpetrator (80% in 2014/15), but the proportion of incidents with a male victim and a female perpetrator is increasing (Scottish Government, 2015b). Information on numbers of children and young people exposed to domestic violence is sparse, but studies in both the UK and Australia suggest around a quarter of young adults have witnessed violence between their parents at least once (Humphreys et al., 2008, Bentley et al., 2016).

Children exposed to domestic violence or intimate partner violence are not disconnected 'silent witnesses' (Holt et al., 2008). There is evidence that most children whose caregiver is being abused are aware of it; these children may themselves be directly abused/injured by being caught up in violent incidents or separately abused/physically punished by the perpetrator or the over-stressed adult victim (Humphreys et al., 2008). Children witnessing domestic violence have significantly more frequent behavioural and emotional problems, and do less well at school than those not in abusive environments (Humphreys et al., 2008). There is some evidence of gender differences, with males more likely to become disobedient and aggressive/violent and females to become anxious or depressed; females affected by domestic violence are also more likely to be abused by their partner in adulthood (Royal College of Psychiatrists, 2014).

Identified Evidence

We identified one poor quality systematic review (Hackett et al., 2016) and one RCT. There were no evaluations with a control group in the grey literature. Table 22 summarises the quality and quantity of identified evidence.

Table 22: Quantity and quality of identified evidence– adolescents who have experienced or witnessed domestic violence

	Systematic review: Good quality	Systematic review: Poor quality	Randomised Controlled Trials	Grey literature
Number	0	1	1	0

The systematic review was intervention driven, searching for any mental health interventions for adolescents who have been exposed to domestic violence.

[1] Note – the fairly recent and gender-free term 'intimate partner violence' has come into use to highlight that violence is can occur outwith marital relationships and that witnessing or experiencing violence in any intimate relationship can have adverse consequences.

Overall Findings

Psychological interventions

Mental health interventions: One poor quality review searched for any mental health intervention aimed at women victims of domestic violence and their children (Hackett et al., 2016). Included interventions were diverse, ranging from advocacy, empowerment programmes, play therapy to CBT. While the authors indicate that there are positive intervention effects on children's self-concept and psychological adjustment, the identified studies were poorly presented and synthesised. It was not possible to ascertain the number of included studies related to adolescents.

Cognitive Behavioural Therapy: One USA-based RCT of trauma focussed CBT reported improved symptoms of anxiety and post-traumatic stress disorder in a sample of children and adolescents exposed to domestic violence when compared to controls (Cohen et al., 2011).

Key message

- There is insufficient evidence to identify which interventions benefit the mental health of adolescents exposed to intimate partner violence.

3.3.13 Vulnerable Group: ‘At risk’ adolescents

Background
As noted in our methods, our search identified some reviews describing a mix of vulnerable adolescents, referred to as ‘at risk’. Where possible, we isolated findings relevant to our specific vulnerable populations. However, this was not possible for two reviews, described here.

Identified Evidence
We identified two good quality systematic reviews of interventions targeting ‘at risk’ adolescents and children (Littell et al., 2005, Zlotnick et al., 2012) published between 2005 and 2012. We identified no RCTs and no evaluations with a control group in the grey literature. Table 23 displays the quantity and quality of identified evidence.

Table 23: Quantity and quality of identified evidence– ‘at risk’ adolescents

	Systematic review: Good quality	Systematic review: Poor quality	Randomised Controlled Trials	Grey literature
Number	2	0	0	0

One systematic review was intervention driven (Littell et al, 2005) aiming to assess the impacts of Multisystemic Therapy on ‘at risk’ young people, the other was population driven, searching for any intervention for homeless and foster care children and families (Zlotnick et al, 2012). Table 24 provides further information on these two reviews.

Table 24: Good quality systematic reviews– ‘at risk’ adolescents

Good quality systematic reviews identified n = 2			
Authors	**Interventions searched for**	**Evidence of impacts on mental health, wellbeing or happiness**	**Limitations**
Littell et al (2005)	Psychological	No evidence available*.	n/a
Zlotnick et al (2012)	Any	No evidence available*.	n/a

**This systematic review did not identify any studies with outcomes pertaining to mental health, wellbeing or happiness.*

Overall Findings

Provision of Practical Support Services and Psychological Interventions Combined
Mental health and case management: One good quality systematic review reported on a range of interventions, which the authors categorised as either ‘mental health’ (e.g. Treatment Foster Care and Parent-Child Interaction Therapy) or ‘case management’ (e.g. family support services, home visits and shared parenting programmes) in nature (Zlotnick et al, 2012). The former included diverse interventions such as a ‘Lifebooks’ intervention, Treatment Foster Care and Parent-Child Interaction Therapy, while the latter included family support services, home visits and shared parenting programmes. Although 43 studies were identified, none of these addressed mental health outcomes in adolescents. Instead, studies reported on access to services, reductions in problem behaviour, increasing placement stability or improving the relationship between care giver and young person.

Psychological interventions
Multisystemic Therapy: One good quality systematic review assessed the effects of multisystemic therapy on ‘at risk’ young people (Littell et al, 2005) in terms of out-of-home living arrangements, crime and delinquency, and behavioural and psychosocial problems. None of the eight included studies addressed mental health outcomes in non-clinical adolescents. Instead, studies reported on

delinquency, school attendance, drug use and psychiatric symptoms in clinical samples of young people with maladaptive behaviour.

Key message

- There is insufficient evidence to identify interventions which benefit mental health of 'at risk' young people.

4 DISCUSSION

This systematic review aimed to establish what is known about the mental health and wellbeing impacts of non-clinical interventions targeted at vulnerable adolescents. The population was defined in terms of a list of statuses associated with vulnerability (e.g. adolescents who have been looked after, are homeless, young carers, etc). Following comprehensive searches, we identified 32 systematic reviews and 16 RCTs. No relevant evaluations were identified from the grey literature. More than two-thirds (n=22/32) of the identified systematic reviews were well conducted and the review conclusions prioritised evidence from these reviews. Interventions identified were diverse but fell broadly into two categories: provision of practical support, or psychological. There were reports of positive impacts of Cognitive Behavioural Therapy (CBT) on the mental health and wellbeing of looked after adolescents, young offenders, homeless adolescents and young people who have been sexually abused. However, the benefits were not consistently reported for all groups or circumstances. This may be explained by the diverse range of interventions, outcomes and contexts covered in the identified studies. Overall there is insufficient evidence to identify practical support or psychological interventions which clearly benefit the mental health or wellbeing of vulnerable adolescents.

4.1 Key findings for included vulnerable groups

There was insufficient evidence to identify interventions which clearly benefit the mental health of any of the vulnerable groups included in this review. However, a small body of evidence was identified which reported some evidence on impacts on mental health for some groups. The findings for these groups are:

Adolescents who are or have been "looked after" or in foster care

- This was the group for which most evidence was identified, in respect of a wide range of practical support and psychological interventions. However, the findings are conflicting, meaning that it is unclear whether or not these interventions are beneficial or harmful for mental health.
- There is some, very limited, evidence that mentoring, either peer or natural (i.e. via an unrelated, older person), may benefit wellbeing and mental health for looked after adolescents.

Homeless adolescents

- Practical support services, in particular independent living and homelessness support interventions, and psychological interventions, in particular cognitive behavioural therapy (CBT), or a package combining both practical support and psychological interventions, can benefit the mental health of homeless young people.

Young offenders

- There is some evidence to suggest that CBT can improve the mental health of young offenders.

Adolescents who have been sexually abused

- There is some evidence to suggest that CBT, individual or group, can lead to reduced stress and anxiety among adolescents who have experienced sexual abuse.

Teenage parents

- There is limited evidence to suggest that psychological interventions such as parenting skills and inter-personal therapy may lead to improved mental health.
- It is unclear whether home visiting benefits the mental health of teenage parents.

There is insufficient evidence on the mental health impacts of practical support or psychological interventions targeting the following groups: *asylum seekers or refugees; ethnic minorities; adolescents exposed to domestic or inter-partner violence; or adolescents living in socio-economically deprived neighbourhoods.* For these groups, evidence was limited to a single study or a good quality review which did not identify any relevant studies (an empty review) assessing mental health impacts of interventions.

No systematic reviews, RCTs, or grey literature reporting evaluations of mental health impacts were identified for the following groups: *unemployed*; *out of school or excluded*; and *young carers*. Very little is known about the impacts of interventions on mental health, happiness or wellbeing of interventions in these groups.

4.2 Strengths and limitations of this review

This review used a systematic method to produce a transparent review of evidence relevant to its primary question. Comprehensive searches provide confidence in the review's ability to identify relevant available reviews, RCTs, and evaluations in the grey literature. The reliability of our conclusions is strengthened by our approach which prioritised well conducted reviews. In addition, consultation with our Advisory Groups confirmed that the identified reviews covered the main interventions in this area. However, there are a number of limitations to this review. The review question was broad and required literature searching based on outcome terms with no limits on intervention terms. The diversity of the literature identified limited the feasibility of a detailed synthesis. This approach inevitably limits the review to providing a map of the types of interventions which have been evaluated for mental health impacts rather than a comprehensive review of the effectiveness or comparative effectiveness of specific interventions. Due to the breadth of the review, Non-Randomised Studies from peer review literature were not included, and there is a risk that valuable evidence may have been overlooked. In addition, the review focussed only on interventions aimed at the included vulnerable groups. In reality, it may be that evidence on the impacts of mainstream interventions will also be relevant to these groups.

There are further limitations in the included evidence. Within the well conducted reviews, very little relevant evidence was identified; over one third (n=9/22) of the well conducted reviews were empty (no relevant studies were identified), serving to establish that no research with a focus on mental health, happiness or wellbeing has been conducted. The findings of reviews were also limited by issues of relevance. In the well conducted reviews which *did* identify studies, fewer than half the studies identified related to our review question. In addition, the literature did not enable our review to draw conclusions about the effects of specific interventions. While studies of interventions were identified, these were highly diverse with respect to the nature of the intervention and context in which the intervention was delivered, as well as the methods and time-points of mental health outcome assessment. The limited evidence available also prevented the review from addressing the secondary questions about components of promising interventions, as details of intervention components were rarely reported.

A further important issue is the possibility of bias in the types of interventions that have been evaluated. The review may, therefore, over-emphasise findings for interventions which have been evaluated often, particularly CBT which was the most frequently assessed mental health intervention in this review. This may be partly due to the current popularity of this intervention.

4.3 Policy and practice implications

The lack of evidence identified means this review is unable to provide clear intervention models for policy makers or practitioners to follow. It also suggests the need for much greater attention to the wellbeing of the most vulnerable groups of young people in our population.

As we note, the fact that we identified little or no high quality evidence in respect of some groups is most likely because those interventions which have been conducted have focused on practice outcomes, such as increasing employability among unemployed young people or improving access to education among those excluded from school, rather than on mental health, happiness or wellbeing. It might also be the case that most mental health interventions with vulnerable groups of young people have had a clinical focus, addressing it in terms of diagnosed psychiatric disorders and/or substance abuse (which our review specifically excluded) rather than from a broader or more salutogenic perspective. If either suggestion is true, then this would suggest policy makers and practitioners should be thinking more holistically, and routinely considering (mental) health, happiness and wellbeing as key outcomes in interventions with vulnerable children and young people. It is crucial such impacts are assessed prior to implementation of any intervention.

4.4 Research implications

This review establishes the dearth of research which has assessed the mental health impacts of interventions for specific vulnerable adolescent groups. Future evaluations to address this evidence gap may be useful. However, it may be more efficient to first systematically review evidence from non-randomised evaluations, including qualitative research, and also to draw on evidence of interventions delivered within the mainstream. Inclusion of both these evidence sources was beyond the scope or resources of this review, but may contain valuable evidence which could usefully inform development of interventions among vulnerable groups.

Future reviews would benefit from focussing on specific interventions. This would facilitate more specific searches and conclusions. In addition, inclusion of grey or unpublished literature may not be valuable as we did not identify any relevant evaluations within this source.

4.5 Conclusions

There is insufficient evidence to point to promising interventions which clearly benefit the mental health and wellbeing of vulnerable adolescent groups. There is some evidence to suggest that psychological interventions, including CBT, may be beneficial, in particular for young offenders, and adolescents who have been sexually abused or who are homeless. However, the broad scope of this review prevents drawing conclusions about specific interventions. Rather this review provides a map of the best available evidence and the nature of evaluations which have been evaluated. Further synthesis of evidence on specific interventions and allowing for more detailed examination of non-randomised and qualitative studies may help shed light on promising interventions for specific groups.

5 REFERENCES

ADDLEY, E. & PIDD, H. 2016. *Scotland has taken in more than a third of all UK's Syrian refugees* [Online]. Available: https://www.theguardian.com/world/2016/may/27/scotland-welcomes-third-of-uk-syrian-refugees-resettlement [Accessed 12/05/2016.

ALTENA, A. M., BRILLESLIJPER-KATER, S. N. & WOLF, J. L. 2010. Effective interventions for homeless youth: a systematic review. *American Journal of Preventive Medicine,* 38**,** 637-45.

ARACENA, M., KRAUSE, M., PÉREZ, C., MÉNDEZ, M. J., SALVATIERRA, L., SOTO, M., PANTOJA, T., NAVARRO, S., SALINAS, A., FARAH, C. & ALTIMIR, C. 2009. A cost-effectiveness evaluation of a home visit program for adolescent mothers. *Journal of Health Psychology,* 14**,** 878-887.

ARCHAMBAULT, I., JANOSZ, M., MORIZOT, J. & PAGANI, L. 2009. Adolescent behavioral, affective, and cognitive engagement in school: Relationship to dropout. *Journal of School Health,* 79**,** 408-415.

ARMELIUS, B.-Å. & ANDREASSEN TORE, H. 2007. Cognitive-behavioral treatment for antisocial behavior in youth in residential treatment. *Cochrane Database of Systematic Reviews*.

ARNETT, J. J. 2000. Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist,* 55**,** 469.

BANKS, P., COGAN, N., DEELEY, S., HILL, M., RIDDELL, S. & TISDALL, K. 2001. Seeing the invisible children and young people affected by disability. *Disability & Society,* 16**,** 797-814.

BARLOW, A., MULLANY, B., NEAULT, N., COMPTON, S., CARTER, A., HASTINGS, R., BILLY, T., COHO-MESCAL, V., LORENZO, S. & WALKUP, J. T. 2013. Effect of a paraprofessional home-visiting intervention on American Indian teen mothers' and infants' behavioral risks: a randomized controlled trial. *American Journal of Psychiatry,* 170**,** 83-93.

BARLOW, A., MULLANY, B., NEAULT, N., GOKLISH, N., BILLY, T., HASTINGS, R., LORENZO, S., KEE, C., LAKE, K., REDMOND, C., CARTER, A. & WALKUP, J. T. 2015. Paraprofessional-delivered home-visiting intervention for American Indian teen mothers and children: 3-year outcomes from a randomized controlled trial. *American Journal of Psychiatry,* 172**,** 154-162.

BARLOW, J., SMAILAGIC, N., BENNETT, C., HUBAND, N., JONES, H. & COREN, E. 2011. Individual and group based parenting programmes for improving psychosocial outcomes for teenage parents and their children. *Cochrane Database of Systematic Reviews*.

BARNET, B., LIU, J., DEVOE, M., ALPEROVITZ-BICHELL, K. & DUGGAN, A. K. 2007. Home visiting for adolescent mothers: effects on parenting, maternal life course, and primary care linkage. *Annuals of Family Medicine,* 5**,** 224-32.

BECKER, F. & BECKER, S. 2008. *Young adult carers in the UK: experiences, needs and services for carers aged 16-24,* London, Princess Royal Trust for Carers.

BENTLEY, H., O'HAGAN, O., RAFF, A. & BHATTI, I. 2016. How safe are our children? London: NSPCC.

BLACK, M. M., BENTLEY, M. E., PAPAS, M. A., OBERLANDER, S., TETI, L. O., MCNARY, S., LE, K. & O'CONNELL, M. 2006. Delaying second births among adolescent mothers: a randomized, controlled trial of a home-based mentoring program. *Pediatrics,* 118**,** e1087-99.

BOND, L., BUTLER, H., THOMAS, L., CARLIN, J., GLOVER, S., BOWES, G. & PATTON, G. 2007. Social and school connectedness in early secondary school as predictors of late teenage substance use, mental health, and academic outcomes. *Journal of Adolescent Health,* 40**,** 357. e9-357. e18.

BRUNTON, G., CAIRD, J., STOKES, G., STANSFIELD, S., KNEALE, D., RICHARDSON, M. & THOMAS, J. 2015. Review 1: Community engagement for health via coalitions, collaborations and partnerships: a systematic review. London: University College London. Institute of Education. EPPI Centre.

CENTRE FOR REVIEWS AND DISSEMINATION. 2002. *Effectiveness Matters.The database of Abstracts of Reviews of Effects (DARE).* [Online]. York: University of York. Available: http://eprints.whiterose.ac.uk/1149/1/crd_em62.pdf [Accessed 9/8/2016.

CHITSABESAN, P., KROLL, L., BAILEY, S., KENNING, C., SNEIDER, S., MACDONALD, W. & THEODOSIOU, L. 2006. Mental health needs of young offenders in custody and in the community. *The British Journal of Psychiatry,* 188**,** 534-540.

CLARK, A., GEORGELLIS, Y. & SANFEY, P. 2001. Scarring: The psychological impact of past unemployment. *Economica,* 68**,** 221-241.

COHEN, J. A., MANNARINO, A. P. & IYENGAR, S. 2011. Community treatment of posttraumatic stress disorder for children exposed to intimate partner violence: a randomized controlled trial. *Archives of Pediatrics and Adolescent Medicine,* 165**,** 16-21.

COREN, E., HOSSAIN, R., PARDO, J. P., VERAS, M. M., CHAKRABORTY, K., HARRIS, H. & MARTIN, A. J. 2013. Interventions for promoting reintegration and reducing harmful behaviour and lifestyles in street-connected children and young people. *Evidence Based Child Health,* 8**,** 1140-272.

CURRIE, C., VAN DER SLUIJS, W., WHITEHEAD, R., CURRIE, D., RHODES, G., NEVILLE, F. & INCHLEY, J. 2015. HBSC 2014 Survey in Scotland National Report. St Andrews, UK: University of St Andrews.

DANIELSON, C. K., MCCART, M. R., WALSH, K., DE ARELLANO, M. A., WHITE, D. & RESNICK, H. S. 2012. Reducing Substance Use Risk and Mental Health Problems Among Sexually Assaulted Adolescents: A Pilot Randomized Controlled Trial. *Journal of Family Psychology,* 26**,** 628-635.

DAWSON, A. & JACKSON, D. 2013. The primary health care service experiences and needs of homeless youth: A narrative synthesis of current evidence. *Contemporary Nurse,* 44**,** 62-75.

DAYKIN, N., DE VIGGIANI, N., PILKINGTON, P. & MORIARTY, Y. 2013. Music making for health, well-being and behaviour change in youth justice settings: a systematic review. *Health Promotion International,* 28**,** 197-210.

DIXON, J. & STEIN, M. 2005. *Leaving care: Throughcare and aftercare in Scotland,* London, UK, Jessica Kingsley Publishers.

DONKOH, C., UNDERHILL, K. & MONTGOMERY, P. 2006. Independent living programmes for improving outcomes for young people leaving the care system. *Cochrane Database of Systematic Reviews,* 3**,** CD005558.

EDIDIN, J. P., GANIM, Z., HUNTER, S. J. & KARNIK, N. S. 2012. The mental and physical health of homeless youth: a literature review. *Child Psychiatry & Human Development,* 43**,** 354-375.

ELLAWAY, A., BENZEVAL, M., GREEN, M., LEYLAND, A. & MACINTYRE, S. 2012. "Getting sicker quicker": Does living in a more deprived neighbourhood mean your health deteriorates faster? *Health & Place,* 18**,** 132-137.

EVERSON-HOCK, E., JONES, R., GUILLAUME, L., CLAPTON, J., DUENAS, A., GOYDER, E., CHILCOTT, J., COOKE, J., PAYNE, N., SHEPPARD, L. & SWANN, C. 2011. Supporting the transition of looked-after young people to independent living: A systematic review of interventions and adult outcomes. *Child Care Health and Development,* 37**,** 767-779.

FARAHMAND, F. K., DUFFY, S. N., TAILOR, M. A., DUBOIS, D. L., LYON, A. L., GRANT, K. E., ZARLINSKI, J. C., MASINI, O., ZANDER, K. J. & NATHANSON, A. M. 2012. Community-based mental health and behavioral programs for low-income urban youth: A meta-analytic review. *Clinical Psychology Science and Practice,* 19**,** 195-215.

FITZPATRICK, S., PAWSON, H., BRAMLEY, G. & WILCOX, S. 2011. The homelessness monitor: Tracking the impacts of policy and economic change in England. London, UK: Crisis.

FLASKERUD, J. H. & WINSLOW, B. J. 1998. Conceptualizing vulnerable populations health-related research. *Nursing Research,* 47**,** 69-78.

FORD, T., VOSTANIS, P., MELTZER, H. & GOODMAN, R. 2007. Psychiatric disorder among British children looked after by local authorities: comparison with children living in private households. *The British Journal of Psychiatry,* 190**,** 319-325.

GOOSSENS, F. X., ONRUST, S. A., MONSHOUWER, K. & OROBIO DE CASTRO, B. 2016. Effectiveness of an empowerment program for adolescent second generation migrants: A cluster randomized controlled trial. *Children and Youth Services Review,* 64**,** 128-135.

GRAHAM, L., FISCHBACHER, C. M., STOCKTON, D., FRASER, A., FLEMING, M. & GREIG, K. 2015. Understanding extreme mortality among prisoners: a national cohort study in Scotland using data linkage. *The European Journal of Public Health,* 25**,** 879-885.

GREEN, H., MCGINNITY, Á., MELTZER, H., FORD, T. & GOODMAN, R. 2005. Mental health of children and young people in Great Britain, 2004. Basingstoke: Palgrave Macmillan.

GREGG, P. 2001. The impact of youth unemployment on adult unemployment in the NCDS. *The Economic Journal,* 111**,** 626-653.

HACKETT, S., MCWHIRTER, P. T. & LESHER, S. 2016. The Therapeutic Efficacy of Domestic Violence Victim Interventions. *Trauma Violence and Abuse,* 17**,** 123-32.

HAGELL, A., COLEMAN, J. & BROOKS, F. 2015. Key Data on Adolescence 2015. London Association for Young People's Health.

HAIGHT, W., BLACK, J. & SHERIDAN, K. 2010. A mental health intervention for rural, foster children from methamphetamine-involved families: experimental assessment with qualitative elaboration. *Children and Youth Services Review,* 32**,** 1446-1457.

HANNON, C., WOOD, C. & BAZALGETTE, L. 2010. *In loco parentis,* London, DEMOS.

HARRINGTON, R., BAILEY, S., CHITSABESAN, P., KROLL, L., MACDONALD, W., SNEIDER, S., KENNING, C., TAYLOR, G., BYFORD, S. & BARRETT, B. 2005. Mental health needs and effectiveness of provision for young offenders in custody and in the community. *Youth Justice Board for England and Wales*.

HENRY, K. L. 2007. Who's skipping school: Characteristics of truants in 8th and 10th grade. *Journal of School Health,* 77**,** 29-35.

HODGE, D. R., JACKSON, K. F. & VAUGHN, M. G. 2010. Culturally sensitive interventions and health and behavioral health youth outcomes: A meta-analytic review. *Social Work in Health Care,* 49**,** 401-423.

HOLT, S., BUCKLEY, H. & WHELAN, S. 2008. The impact of exposure to domestic violence on children and young people: A review of the literature. *Child Abuse & Neglect,* 32**,** 797-810.

HOPKINS, P. & HILL, M. 2010. The needs and strengths of unaccompanied asylum-seeking children and young people in Scotland. *Child & Family Social Work,* 15**,** 399-408.

HUMPHREYS, C., HOUGHTON, C. & ELLIS, J. 2008. *Literature review: Better outcomes for children and young people experiencing domestic abuse: Directions for good practice,* Edinburgh, Scottish Government.

HUURRE, T., RAHKONEN, O., KOMULAINEN, E. & ARO, H. 2005. Socioeconomic status as a cause and consequence of psychosomatic symptoms from adolescence to adulthood. *Social Psychiatry and Psychiatric Epidemiology,* 40**,** 580-587.

JACOBS, F., EASTERBROOKS, A., GOLDBERG, J., MISTRY, J., BUMGARNER, E., RASKIN, M., FOSSE, N. & FAUTH, R. 2016. Improving Adolescent Parenting: Results From a Randomized Controlled Trial of a Home Visiting Program for Young Families. *American Journal of Public Health,* 106**,** 342-349.

JEE, S. H., COUDERC, J. P., SWANSON, D., GALLEGOS, A., HILLIARD, C., BLUMKIN, A., CUNNINGHAM, K. & HEINERT, S. 2015. A pilot randomized trial teaching mindfulness-based stress reduction to traumatized youth in foster care. *Complementary Therapies in Clinical Practice,* 21**,** 201-9.

JONES, R., EVERSON-HOCK, E., GUILLAUME, L., CLAPTON, J., GOYDER, E., CHILCOTT, J., PAYNE, N., DUENAS, A., SHEPPARD, L. & SWANN, C. 2012. The effectiveness of interventions aimed at improving access to health and mental health services for looked-after children and young people: a systematic review. *Families Relationships and Societies,* 1**,** 71-85.

KINNER, S. A., DEGENHARDT, L., COFFEY, C., SAWYER, S., HEARPS, S. & PATTON, G. 2014. Complex health needs in the youth justice system: a survey of community-based and custodial offenders. *Journal of Adolescent Health,* 54**,** 521-526.

KROLL, L., ROTHWELL, J., BRADLEY, D., SHAH, P., BAILEY, S. & HARRINGTON, R. 2002. Mental health needs of boys in secure care for serious or persistent offending: a prospective, longitudinal study. *The Lancet,* 359**,** 1975-1979.

LACHANCE, C. R., BURRUS, B. B. & SCOTT, A. R. 2012. Building an evidence base to inform interventions for pregnant and parenting adolescents: a call for rigorous evaluation. *American Journal of Public Health,* 102**,** 1826-1832.

LARKIN, M. 2009. *Vulnerable groups in health and social care,* London, Sage.

LAWLOR, D., SHAW, M. & JOHNS, S. 2001. Teenage pregnancy is not a public health problem. *BMJ,* 323**,** 1428.

LENTINI, J. A. & KNOX, M. S. 2015. Equine-Facilitated Psychotherapy With Children and Adolescents: An Update and Literature Review. *Journal of Creativity in Mental Health,* 10**,** 278-305.

LEVE, L. D., HAROLD, G. T., CHAMBERLAIN, P., LANDSVERK, J. A., FISHER, P. A. & VOSTANIS, P. 2012. Practitioner review: Children in foster care--vulnerabilities and evidence-based interventions that promote resilience processes. *Journal of Child Psychology and Psychiatry,* 53**,** 1197-1211.

LIGHTOWLER, C., ORR, D. & VASWANI, N. 2014. *Youth Justice in Scotland: Fixed in the Past or Fit for the Future?,* Glasgow, Centre for Youth & Criminal Justice.

LITTELL, J. H., POPA, M. & FORSYTHE, B. 2005. Multisystemic Therapy for social, emotional, and behavioral problems in youth aged 10-17. *Cochrane Database of Systematic Reviews***,** CD004797.

LUBANS, D. R., PLOTNIKOFF, R. C. & LUBANS, N. J. 2012. A systematic review of the impact of physical activity programmes on social and emotional well-being in at-risk youth. *Child and Adolescent Mental Health,* 17**,** 2-13.

LUCAS, P., MCINTOSH, K., PETTICREW, M., ROBERTS HELEN, M. & SHIELL, A. 2008. Financial benefits for child health and well-being in low income or socially disadvantaged families in developed world countries. *Cochrane Database of Systematic Reviews*.

LUSTIG, S. L., KIA-KEATING, M., KNIGHT, W. G., GELTMAN, P., ELLIS, H., KINZIE, J. D., KEANE, T. & SAXE, G. N. 2004. Review of child and adolescent refugee mental health. *Journal of the American Academy of Child & Adolescent Psychiatry,* 43**,** 24-36.

LYNCH, J. L. & VON HIPPEL, P. T. 2016. An education gradient in health, a health gradient in education, or a confounded gradient in both? *Social Science & Medicine,* 154**,** 18-27.

MACDONALD, G., HIGGINS, J. & RAMCHANDANI, P. 2013. Cognitive-behavioural interventions for children who have been sexually abused: a systematic review. *Cochrane Database of Systematic Reviews***,** 111.

MANIGLIO, R. 2009. The impact of child sexual abuse on health: A systematic review of reviews. *Clinical Psychology Review,* 29**,** 647-657.

MARMOT, M., ALLEN, J., GOLDBLATT, P., BOYCE, T., MCNEISH, D., GRADY, M. & GEDDES, I. 2010. Fair society, healthy lives: Strategic review of health inequalities in England post-2010. The Marmot Review. London, UK.

MCCARTHY, C. & MARKS, D. F. 2010. Exploring the health and well-being of refugee and asylum seeking children. *Journal of Health Psychology,* 15**,** 586-595.

MCCARTNEY, G. 2011. Illustrating health inequalities in Glasgow. *Journal of Epidemiology and Community Health,* 65**,** 94-94.

MECOPP CARER'S CENTRE. date unknown. *The Health of Scotland's Black and Minority Ethnic Communities* [Online]. Available: http://www.mecopp.org.uk/files/documents/MECOPP%20publications/Health%20of%20Scotlands%20BME%20communities%20briefing%20sheet%202.pdf [Accessed 12/08/2016.

MICHIE, S., VAN STRALEN, M. M. & WEST, R. 2011. The behaviour change wheel: a new method for characterising and designing behaviour change interventions. *Implementation Science,* 6**,** 1.

MONTGOMERY, P., DONKOH, C. & UNDERHILL, K. 2006. Independent living programs for young people leaving the care system: the state of the evidence. *Children and Youth Services Review,* 28**,** 1435-1448.

MORAN, P. 2009. Neglect: research evidence to inform practice. London: Action for Children.

MORRISON, D. S. 2009. Homelessness as an independent risk factor for mortality: results from a retrospective cohort study. *International Journal of Epidemiology*, dyp160.

NETTO, G., SOSENKO, F. & BRAMLEY, G. 2011. *Poverty and ethnicity in Scotland: Review of the literature and datasets,* York, Joseph Rowntree Foundation.

NGUYEN, Q. C., SCHMIDT, N., GLYMOUR, M. M., REHKOPF, D. & OSYPUK, T. L. 2012. Did adolescents in higher ses families differentially benefit from a housing mobility intervention? *45th Annual Society for Epidemiology Research Meeting.* Minneapolis, MN.

NGUYEN, Q. C., SCHMIDT, N. M., GLYMOUR, M. M., REHKOPF, D. H. & OSYPUK, T. L. 2013. Were the mental health benefits of a housing mobility intervention larger for adolescents in higher socioeconomic status families? *Health and Place,* 23, 79-88.

NHS HEALTH SCOTLAND. 2015. *Health issues and access to services (of minority ethnic groups)* [Online]. Available: http://www.healthscotland.com/equalities/race/acessingservices.aspx [Accessed 12/08/2016.

NHS INFORMATION SERVICES DIVISION. 2016. *Teenage Pregnancy: year of conception ending 31 December 2014* [Online]. Available: https://isdscotland.scot.nhs.uk/Health-Topics/Sexual-Health/Publications/2016-07-05/2016-07-05-TeenPreg-Report.pdf [Accessed 11/08/2016.

NYAMATHI, A., KENNEDY, B., BRANSON, C., SALEM, B., KHALILIFARD, F., MARFISEE, M., GETZOFF, D. & LEAKE, B. 2013. Impact of nursing intervention on improving HIV, hepatitis knowledge and mental health among homeless young adults. *Community Mental Health Journal,* 49, 178-84.

OSGOOD, D. W. 2005. *On your own without a net: The transition to adulthood for vulnerable populations,* Chicago, University of Chicago Press.

OSYPUK, T. L., SCHMIDT, N. M., BATES, L. M., TCHETGEN-TCHETGEN, E. J., EARLS, F. J. & GLYMOUR, M. M. 2012a. Gender and crime victimization modify neighborhood effects on adolescent mental health. *Pediatrics,* 130, 472-481.

OSYPUK, T. L., TCHETGEN, E. J. T., ACEVEDO-GARCIA, D., EARLS, F. J., LINCOLN, A., SCHMIDT, N. M. & GLYMOUR, M. M. 2012b. Differential mental health effects of neighborhood relocation among youth in vulnerable families: Results from a randomized trial. *Archives of General Psychiatry,* 69, 1284-1294.

PARANJOTHY, S., BROUGHTON, H., ADAPPA, R. & FONE, D. 2009. Teenage pregnancy: who suffers? *Archives of Disease in Childhood,* 94, 239-245.

PATEL, V., FLISHER, A. J., HETRICK, S. & MCGORRY, P. 2007. Mental health of young people: a global public-health challenge. *The Lancet,* 369, 1302-1313.

PAUL, K. I. & MOSER, K. 2009. Unemployment impairs mental health: Meta-analyses. *Journal of Vocational Behavior,* 74, 264-282.

PEREDA, N., GUILERA, G., FORNS, M. & GÓMEZ-BENITO, J. 2009. The international epidemiology of child sexual abuse: A continuation of Finkelhor (1994). *Child Abuse & Neglect,* 33, 331-342.

PHIPPS, M. G., RAKER, C. A., WARE, C. F. & ZLOTNICK, C. 2013. Randomized controlled trial to prevent postpartum depression in adolescent mothers. *American Journal of Obstetrics and Gynecology,* 208, 192.e1-6.

POVERTY ALLIANCE. 2012. *Rural Poverty: EPIC Briefing 14* [Online]. Available: http://www.povertyalliance.org/userfiles/files/briefings/EPIC_BriefingNo14.pdf [Accessed 13/08/2016.

PUTNAM, F. W. 2003. Ten-year research update review: Child sexual abuse. *Journal of the American Academy of Child & Adolescent Psychiatry,* 42, 269-278.

QUILGARS, D., JOHNSEN, S. & PLEACE, N. 2008. Youth homelessness in the UK. *York, UK: Joseph Rowntree Foundation*.

ROSE, H. D. & COHEN, K. 2010. The experiences of young carers: A meta-synthesis of qualitative findings. *Journal of Youth Studies,* 13, 473-487.

ROWLANDS, S. 2010. Social predictors of repeat adolescent pregnancy and focussed strategies. *Best Practice & Research Clinical Obstetrics & Gynaecology,* 24, 605-616.

ROYAL COLLEGE OF PSYCHIATRISTS. 2014. *Domestic violence and abuse - its effects on children: the impact on children and adolescents: information for parents, carers and anyone who works with young people* [Online]. Available: http://www.rcpsych.ac.uk/healthadvice/parentsandyouthinfo/parentscarers/domesticviolence.aspx [Accessed 12/08/2016.

RUBIN, D. M., O'REILLY, A. L., LUAN, X. & LOCALIO, A. R. 2007. The impact of placement stability on behavioral well-being for children in foster care. *Pediatrics,* 119**,** 336-344.

RUTHERFORD, L., HINCHLIFFE, S. & SHARP, C. 2013. The Scottish Health Survey 2012 Main Report. 2012 ed.

SAMANKASIKORN, W., PIERCE, B., ST IVANY, A., GWON, S. H., SCHMINKEY, D. & BULLOCK, L. 2016. Effect of Home Visiting with Pregnant Teens on Maternal Health. *American Journal of Maternal Child Nursing,* 41**,** 162-7.

SANSONE, R. A., SONGER, D. A. & MILLER, K. A. 2005. Childhood abuse, mental healthcare utilization, self-harm behavior, and multiple psychiatric diagnoses among inpatients with and without a borderline diagnosis. *Comprehensive Psychiatry,* 46**,** 117-120.

SCOTTISH GOVERNMENT. 2008. *Respect and Responsibility: Delivering improvements in sexual health outcomes 2008-2011* [Online]. Edinburgh, UK. Available: http://www.gov.scot/Resource/Doc/924/0079236.pdf [Accessed 11/8/2016.

SCOTTISH GOVERNMENT 2010a. Equally Well Review 2010: Report by the Ministerial Task Force on implementing Equally Well, the Early Years Framework and Achieving Our Potential. Edinburgh, UK: Scottish Government

SCOTTISH GOVERNMENT 2010b. The National Guidance for Child Protection in Scotland. Edinburgh, UK.

SCOTTISH GOVERNMENT 2012. Scottish Index of Multiple Deprivation 2012. Edinburgh, UK: Scottish Government.

SCOTTISH GOVERNMENT 2013a. New Scots: Integrating Refugees in Scotland's Communities 2014 – 2017. Edinburgh, UK.

SCOTTISH GOVERNMENT 2013b. Scottish Government Equality Outcomes: Ethnicity Evidence Review. Edinburgh, UK: Scottish Government Social Research.

SCOTTISH GOVERNMENT 2013c. Supporting Young People's Health & Wellbeing. A Summary of Scottish Government Policy. Edinburgh, UK: Scottish Government.

SCOTTISH GOVERNMENT. 2015a. *Children's Social Work Statistics Scotland 2013/14* [Online]. Edinburgh. UK. Available: http://www.gov.scot/Publications/2015/03/4375 [Accessed 12/08/2016.

SCOTTISH GOVERNMENT. 2015b. *Domestic Abuse Recorded by the Police in Scotland, 2013-14 & 2014-15* [Online]. Edinburgh, UK. Available: http://www.gov.scot/Publications/2015/10/8859 [Accessed 12/08/2016.

SCOTTISH GOVERNMENT. 2015c. *Local Area Labour Markets in Scotland: Statistics from the Annual Population Survey* [Online]. Edinburgh, UK. Available: http://www.gov.scot/Publications/2015/05/3466.

SCOTTISH GOVERNMENT 2015d. Scotland's carers. *In:* SCOTTISH GOVERNMENT (ed.). Edinburgh, UK.

SCOTTISH GOVERNMENT. 2015e. *Summary statistics for schools in Scotland* [Online]. Edinburgh, UK. Available: http://www.gov.scot/Publications/2015/12/7925 [Accessed 11/08/2016.

SCOTTISH GOVERNMENT. 2015f. *Youth Homelessness Analysis 2014-15* [Online]. Edinburgh, UK. Available: http://www.gov.scot/Topics/Statistics/Browse/Housing-Regeneration/RefTables/adhoc-analysis/youthhomeless201415 [Accessed 9/08/2016.

SCOTTISH GOVERNMENT. 2016a. *Children's Social Work Statistics Scotland 2014/15* [Online]. Edinburgh, UK: Scottish Government. Available: http://www.gov.scot/Publications/2016/03/5133/0 [Accessed 12/08/2016.

SCOTTISH GOVERNMENT. 2016b. *Labour Market Brief* [Online]. Edinburgh, UK. Available: http://www.gov.scot/Topics/Statistics/Browse/Labour-Market/AnalyticalPapers/LM-Brief-Jul [Accessed 9/8/2016.

SCOTTISH GOVERNMENT 2016c. Scottish Crime and Justice Survey 2014/15 Main Findings. Edinburgh, UK.

SCOTTISH PRISON SERVICE 2015. Prisoner Survey 2015. Edinburgh, UK: Scottish Prison Service

SCOTTISH REFUGEE COUNCIL. 2016. *Facts and figures* [Online]. Glasgow, UK. Available: http://www.scottishrefugeecouncil.org.uk/media/facts_and_figures.

SHEA, B. J., HAMEL, C., WELLS, G. A., BOUTER, L. M., KRISTJANSSON, E., GRIMSHAW, J., HENRY, D. A. & BOERS, M. 2009. AMSTAR is a reliable and valid measurement tool to assess the methodological quality of systematic reviews. *Journal of Clinical Epidemiology,* 62**,** 1013-1020.

SHELTER SCOTLAND. 2016. *Housing and homelessness statistics* [Online]. Available: http://scotland.shelter.org.uk/housing_policy/key_statistics/homelessness_facts_and_research.

SHIFREN, K. 2008. Early caregiving: Perceived parental relations and current social support. *Journal of Adult Development,* 15**,** 160-168.

SILVERMAN, W. K., ORTIZ, C. D., VISWESVARAN, C., BURNS, B. J., KOLKO, D. J., PUTNAM, F. W. & AMAYA-JACKSON, L. 2008. Evidence-based psychosocial treatments for children and adolescents exposed to traumatic events. *Journal of Clinical Child and Adolescent Psychology* 37**,** 156-83.

SKIVINGTON, K., VOJT, G., THOMSON, H., FENTON, C., CAMPBELL, M. & SWEETING, H. 2016. Systematic literature review of interventions to improve health, happiness and wellbeing in the transition from adolescence to adulthood. Systematic review protocol. Glasgow, UK: MRC/CSO Public and Health Sciences Unit.

SLESNICK, N., DASHORA, P., LETCHER, A., ERDEM, G. & SEROVICH, J. 2009. A review of services and interventions for runaway and homeless youth: Moving forward. *Children and Youth Services Review,* 31**,** 732-742.

STEIN, M. 2006. Research review: Young people leaving care. *Child & Family Social Work,* 11**,** 273-279.

STEWART, S., LESCHIED, A., DUNNEN, W., ZALMANOWITZ, S. & BAIDEN, P. 2013. Treating Mental Health Disorders for Children in Child Welfare Care: Evaluating the Outcome Literature. *Child and Youth Care Forum,* 42**,** 131-154.

SWEETING, H., GREEN, M., BENZEVAL, M. & WEST, P. 2016. The emergence of health inequalities in early adulthood: evidence on timing and mechanisms from a West of Scotland cohort. *BMC Public Health,* 16**,** 1.

SWEETING, H., WEST, P., YOUNG, R. & DER, G. 2010. Can we explain increases in young people's psychological distress over time? *Social Science & Medicine,* 71**,** 1819-1830.

TAUSSIG, H. N. & CULHANE, S. E. 2010. Impact of a mentoring and skills group program on mental health outcomes for maltreated children in foster care. *Archives of Pediatrics and Adolescent Medicine,* 164**,** 739-46.

THOMAS, Y., GRAY, M. A. & MCGINTY, S. 2012. An exploration of subjective wellbeing among people experiencing homelessness: A strengths-based approach. *Social work in Health Care,* 51**,** 780-797.

THOMPSON, A. E., GREESON, J. K. P. & BRUNSINK, A. M. 2016. Natural mentoring among older youth in and aging out of foster care: a systematic review. *Children and Youth Services Review,* 61**,** 40-50.

TOWNSEND, E., WALKER, D.-M., SARGEANT, S., VOSTANIS, P., HAWTON, K., STOCKER, O. & SITHOLE, J. 2010. Systematic Review and Meta-Analysis of Interventions Relevant for Young Offenders with Mood Disorders, Anxiety Disorders, or Self-Harm. *Journal of Adolescence,* 33**,** 9-20.

TURNBULL, J., MUCKLE, W. & MASTERS, C. 2007. Homelessness and health. *Canadian Medical Association Journal,* 177**,** 1065-1066.

TURNER, W. & MACDONALD, G. 2011. Treatment foster care for improving outcomes in children and young people: a systematic review. *Research on Social Work Practice,* 21**,** 501-527.

TURNER, W., MACDONALD, G. M. & DENNIS, J. A. 2007. Cognitive-behavioural training interventions for assisting foster carers in the management of difficult behaviour. *Cochrane Database of Systematic Reviews***,** CD003760.

TYRER, R. A. & FAZEL, M. 2014. School and community-based interventions for refugee and asylum seeking children: a systematic review.[Erratum appears in PLoS One. 2014;9(5):e97977]. *PLoS One,* 9**,** e89359.

VAN DER STOUWE, T., ASSCHER, J. J., STAMS, G. J. J. M., DEKOVIC, M. & VAN DER LAAN, P. H. 2014. The effectiveness of multisystemic therapy (MST): A meta-analysis. *Clinical Psychology Review,* 34**,** 468-481.

VINER, R. M., OZER, E. M., DENNY, S., MARMOT, M., RESNICK, M., FATUSI, A. & CURRIE, C. 2012. Adolescence and the social determinants of health. *The Lancet,* 379**,** 1641-1652.

VINER, R. M., ROSS, D., HARDY, R., KUH, D., POWER, C., JOHNSON, A., WELLINGS, K., MCCAMBRIDGE, J., COLE, T. J. & KELLY, Y. 2015. Life course epidemiology: recognising the importance of adolescence. *Journal of Epidemiology and Community Health***,** jech-2014-205300.

WARD, H., HOLMES, L., SOPER, J. & OLSEN, R. 2008. *Costs and consequences of placing children in care,* London, Jessica Kingsley Publishers.

WEISZ, J. R., SANDLER, I. N., DURLAK, J. A. & ANTON, B. S. 2005. Promoting and protecting youth mental health through evidence-based prevention and treatment. *American Psychologist,* 60**,** 628.

WEST, P. 1997. Health inequalities in the early years: is there equalisation in youth? *Social Science & Medicine,* 44**,** 833-858.

WETHINGTON, H. R., HAHN, R. A., FUQUA-WHITLEY, D. S., SIPE, T. A., CROSBY, A. E., JOHNSON, R. L., LIBERMAN, A. M., MOSCICKI, E., PRICE, L. N., TUMA, F. K., KALRA, G., CHATTOPADHYAY, S. K. & TASK FORCE ON COMMUNITY PREVENTIVE SERVICES 2008. The effectiveness of interventions to reduce psychological harm from traumatic events among children and adolescents: a systematic review. *American Journal of Preventive Medicine,* 35**,** 287-313.

WHITEFORD, H. A., DEGENHARDT, L., REHM, J., BAXTER, A. J., FERRARI, A. J., ERSKINE, H. E., CHARLSON, F. J., NORMAN, R. E., FLAXMAN, A. D. & JOHNS, N. 2013. Global burden of disease attributable to mental and substance use disorders: findings from the Global Burden of Disease Study 2010. *The Lancet,* 382**,** 1575-1586.

WILSON, M., KELLOCK, C., ADAMS, D. & LANDSBERG, J. 2015. The Scottish Health Survey topic report – mental health and well-being. Edinburgh, UK.

YOUNG, R., VAN BEINUM, M., SWEETING, H. & WEST, P. 2007. Young people who self-harm. *The British Journal of Psychiatry,* 191**,** 44-49.

ZLOTNICK, C., TAM, T. & ZERGER, S. 2012. Common needs but divergent interventions for U.S. homeless and foster care children: results from a systematic review. *Health and Social Care in the Community,* 20**,** 449-476.

6 APPENDICES

6.1 Searches of bibliographic databases

6.2 AMSTAR quality assessment, and amended items

6.3 AMSTAR quality assessment results for included systematic reviews

6.4 PRISMA statement

6.5 Flow diagrams of screening & inclusion (Figure 1, Figure 2, Figure 3)

6.5.1 Flow diagram: Systematic Reviews (Figure 1)

6.5.2 Flow diagram: Randomised Controlled Trials (Figure 2)

6.5.3 Flow diagram: grey literature (Figure 3)

6.6 List of excluded systematic reviews

6.7 List of excluded randomised controlled trials

6.8 Detailed data extraction for included systematic reviews

6.9 Summary table with characteristics & findings from included systematic reviews

6.10 Summary table with characteristics & findings of included randomised controlled trials

6.1 Searches of bibliographic databases

Search diary adolescent review RCTs 8.6.16

Medline 8.6.16

1 exp Adolescent Behavior/
2 exp Adolescent/
3 exp Psychology, Adolescent/
4 exp Young Adult/
5 exp Child/
6 ("Adolescent transition*" or "adult-onset trajectories" or child* or girl* or boy* or "early adult*" or "emerging adult*" or "Young Adult" or "Young people" or "Young person" or "youth phase of the lifecourse" or "youth transition*" or Adolesce* or Juvenile or Teen* or Youth*).tw.
7 1 or 2 or 3 or 4 or 5 or 6
8 exp African Americans/
9 exp African Continental Ancestry Group/
10 exp American Native Continental Ancestry Group/
11 exp Asian Continental Ancestry Group/
12 exp Child Abuse, Sexual/
13 exp Domestic Violence/
14 exp Oceanic Ancestry Group/
15 exp Poverty areas/
16 exp Pregnancy in Adolescence/
17 exp Pregnancy, Unwanted/
18 exp Residence Characteristics/
19 exp Sex Offenses/
20 exp Sexually Transmitted Diseases/
21 exp Unemployment/
22 exp Vulnerable Populations/
23 ("area based" or "Children of Teenage parent*" or "deprived area*" or "Domestic abuse" or "Domestic violence" or "Emotional abuse" or "emotional neglect" or "excluded from school" or "exclusion from school" or "home-leaving pattern*" or "home leaving pattern*" or "intimate partner violence" or "Kinship Care*" or "local area*" or "Not in Education, Employment or Training" or "Out-of-school" or "Out of school" or "physical abuse" or "physical neglect" or "sexual abuse" or "Sexual exploitation" or "Teenage parent*" or "teenage mother*" or "Unwanted Pregnancy" or "Young carer*" or "Young-carer*" or Ethnic* or IPV or neighbourhood* or neighborhood* or NEET* or Runaway* or Unemploy*).tw.
24 exp Anxiety Disorders/
25 exp Anxiety/
26 exp Depression/
27 exp Happiness/
28 exp Mental Disorders/
29 exp Mental Health/
30 exp Mood Disorders/
31 exp Quality of Life/
32 ("life satisfaction" or "mental health" or "mental wellness" or "quality of life" or "quality-of-life" or "self esteem" or "self-esteem" or "self harm" or "self-determination" or "self-harm*" or "sense of belonging" or "sense of coherence" or "well being" or "well-being" or anxiety or anxious or depress* or happiness or happier or happy or impulsive* or optimis* or resilien* or wellbeing).tw.
33 24 or 25 or 26 or 27 or 28 or 29 or 30 or 31 or 32
34 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23

35 7 and 33 and 34
36 (randomized controlled trial or controlled clinical trial).pt. or randomized.ab. or placebo.ab. or clinical trials as topic.hw. or randomly.ab. or trial.ti.
37 exp animals/ not humans.sh.
38 36 not 37
39 35 and 38
40 limit 39 to (english language and yr="2005 -Current")

Embase 15.6.16

1 exp adolescent behavior/
2 adolescent/
3 exp child psychology/
4 exp young adult/
5 child/
6 ("Adolescent transition*" or "adult-onset trajectories" or child* or girl* or boy* or "early adult*" or "emerging adult*" or "Young Adult" or "Young people" or "Young person" or "youth phase of the lifecourse" or "youth transition*" or Adolesce* or Juvenile or Teen* or Youth*).tw.
7 1 or 2 or 3 or 4 or 5 or 6
8 exp African American/
9 exp Black person/
10 exp American Indian/
11 exp child sexual abuse/
12 exp domestic violence/
13 exp Oceanic ancestry group/
14 exp adolescent pregnancy/
15 exp neighborhood/
16 exp unwanted pregnancy/
17 exp sexual crime/
18 exp sexually transmitted disease/
19 exp unemployment/
20 exp vulnerable population/
21 ("area based" or "Children of Teenage parent*" or "deprived area*" or "Domestic abuse" or "Domestic violence" or "Emotional abuse" or "emotional neglect" or "excluded from school" or "exclusion from school" or "home-leaving pattern*" or "home leaving pattern*" or "intimate partner violence" or "Kinship Care*" or "local area*" or "Not in Education, Employment or Training" or "Out-of-school" or "Out of school" or "physical abuse" or "physical neglect" or "sexual abuse" or "Sexual exploitation" or "Teenage parent*" or "teenage mother*" or "Unwanted Pregnancy" or "Young carer*" or "Young-carer*" or Ethnic* or IPV or neighbourhood* or neighborhood* or NEET* or Runaway* or Unemploy*).tw.
22 exp anxiety disorder/
23 exp anxiety/
24 exp depression/
25 exp happiness/
26 exp mental disease/
27 exp mental disease/
28 exp mental health/
29 exp mood disorder/
30 exp "quality of life"/
31 ("life satisfaction" or "mental health" or "mental wellness" or "quality of life" or "quality-of-life" or "self esteem" or "self-esteem" or "self harm" or "self-determination" or "self-harm*" or

"sense of belonging" or "sense of coherence" or "well being" or "well-being" or anxiety or anxious or depress* or happiness or happier or happy or impulsive* or optimis* or resilien* or wellbeing).tw.
32 random:.tw. or placebo:.mp. or double-blind:.tw.
33 21 and 31 and 32
34 limit 33 to (english language and yr="2005 -Current")

Psychinfo 15.6.16
VIA EBSCO

S1 DE "Adolescent Mothers"
S2 DE "Adolescent Development"
S3 DE "Child Abuse"
S4 DE "Child Neglect"
S5 "Adolescent transition*" OR "adult-onset trajectories" OR child* OR girl* OR boy* OR "early adult*" OR "emerging adult*" OR "Young Adult" OR "Young people" OR "Young person" OR "youth phase of the lifecourse" OR "youth transition*"
S6 Adolesce* OR Juvenile OR Teen* OR Youth*
S7 S1 OR S2 OR S3 OR S4 OR S5 OR S6
S8 "area based" OR "Children of Teenage parent*" OR "deprived area*" OR "Domestic abuse" OR "Domestic violence" OR "Emotional abuse" OR "emotional neglect" OR "excluded from school" OR "exclusion from school" OR "home-leaving pattern*" OR "home leaving pattern*" OR "intimate partner violence" 21,833
S9 "Kinship Care*" OR "local area*" OR ("Not in Education, Employment or Training") OR "Out-of-school" OR "Out of school" OR "physical abuse" OR "physical neglect" OR "sexual abuse" OR "Sexual exploitation" OR "Teenage parent*" OR "teenage mother*" OR "Unwanted Pregnancy"
S10 "Young carer*" OR "Young-carer*" OR Ethnic* OR IPV OR neighbourhood* OR neighborhood* OR NEET* OR Runaway* OR Unemploy*
S11 S8 OR S9 OR S10
S12 DE "Anxiety Disorders"
S13 DE "Anxiety"
S14 DE "Major Depression"
S15 DE "Happiness"
S16 DE "Affective Disorders"
S17 DE "Quality of Life"
S18 "life satisfaction" OR "mental health" OR "mental wellness" OR "quality of life" OR "quality-of-life" OR "self esteem" OR "self-esteem" OR "self harm" OR "self-determination" OR "self-harm*" OR "sense of belonging" OR "sense of coherence"
S19 "well being" OR "well-being" OR anxiety OR anxious OR depress* OR happiness OR happier OR happy OR impulsive* OR optimis* OR resilien* OR wellbeing
S20 S12 OR S13 OR S14 OR S15 OR S16 OR S17 OR S18 OR S19
S21 S7 AND S11 AND S20
S22 DE "Clinical Trials"
S23 randomized OR randomised OR "Double-Blind*" OR "Double Blind*" OR Placebo*
S24 S22 OR S23
S25 S21 AND S24
S21 AND S24
Limiters - Publication Year: 2005-2016

Psycharticles 20.6.16

S1. DE "Adolescent Mothers" OR DE "Adolescent Development" OR DE "Child Abuse" OR DE "Child Neglect" OR ("Adolescent transition*" OR "adult-onset trajectories" OR child* OR girl* OR boy* OR "early adult*" OR "emerging adult*" OR "Young Adult" OR "Young people" OR "Young person" OR "youth phase of the lifecourse" OR "youth transition*") OR (Adolesce* OR Juvenile OR Teen* OR Youth*)
S2. "area based" OR "Children of Teenage parent*" OR "deprived area*" OR "Domestic abuse" OR "Domestic violence" OR "Emotional abuse" OR "emotional neglect" OR "excluded from school" OR "exclusion from school" OR "home-leaving pattern*" OR "home leaving pattern*" OR "intimate partner violence" 21,833 S9 "Kinship Care*" OR "local area*" OR ("Not in Education, Employment or Training") OR "Out-of-school" OR "Out of school" OR "physical abuse" OR "physical neglect" OR "sexual abuse" OR "Sexual explo ...
S3. DE "Anxiety Disorders" OR DE "Anxiety" OR DE "Major Depression" OR DE "Happiness" OR "Affective Disorders" OR DE "Affective Disorders" OR ("life satisfaction" OR "mental health" OR "mental wellness" OR "quality of life" OR "quality-of-life" OR "self esteem" OR "self-esteem" OR "self harm" OR "self-determination" OR "self-harm*" OR "sense of belonging" OR "sense of coherence") OR (S19 "well being" OR "well-being" OR anxiety OR anxious OR depress* OR happiness OR happier OR happy OR impulsive* ...
S4. DE "Clinical Trials" OR (randomized OR randomised OR "Double-Blind*" OR "Double Blind*" OR Placebo*)
S5. S1 AND S2 AND S3 AND S4
RESTRICT S5 TO 2005-CURRENT

Socindex 20.6.16
S1. SU Adolescent OR SU Young Adult OR SU SCHOOL children OR SU Childhood OR SU CHILDREN OR (("Adolescent transition*" or "adult-onset trajectories" or child* or girl* or boy* or "early adult*" or "emerging adult*" or "Young Adult" or "Young people" or "Young person" or "youth phase of the lifecourse" or "youth transition*" or Adolesce* or Juvenile or Teen* or Youth*))
S2. SU African Americans
S3. SU Child Abuse, Sexual
S4. SU Poverty areas
S5. SU Pregnancy, Unwanted
S6. Sex Offenses
S7. SU Sexually Transmitted Diseases
S8. SU Unemployment
S9. TX ("area based" or "Children of Teenage parent*" or "deprived area*" or "Domestic abuse" or "Domestic violence" or "Emotional abuse" or "emotional neglect" or "excluded from school" or "exclusion from school" or "home-leaving pattern*" or "home leaving pattern*" or "intimate partner violence" or "Kinship Care*" or "local area*" or "Not in Education, Employment or Training" or "Out-of-school" or "Out of school" or "physical abuse" or "physical neglect" or "sexual abuse" or "Sexual exploitation" or "Teenage parent*" or "teenage mother*" or "Unwanted Pregnancy" or "Young carer*" or "Young-carer*" or Ethnic* or IPV or neighbourhood* or neighborhood* or NEET* or Runaway* or Unemploy*) Show Less
Search modes - Boolean/Phrase
S10. S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8 OR S9
S11. SU Anxiety Disorders
S12. SU Anxiety
S13. SU Depression
S14. Happiness
S15. SU Happiness
S16. SU Mental Health
S17. Quality of Life

S18. TX ("life satisfaction" or "mental health" or "mental wellness" or "quality of life" or "quality-of-life" or "self esteem" or "self-esteem" or "self harm" or "self-determination" or "self-harm*" or "sense of belonging" or "sense of coherence" or "well being" or "well-being" or anxiety or anxious or depress* or happiness or happier or happy or impulsive* or optimis* or resilien* or wellbeing
S19. S11 OR S12 OR S13 OR S14 OR S15 OR S16 OR S17 OR S18
S20. TX randomized OR TX randomised OR TX "Double-Blind*" OR TX "Double Blind*" OR TX Placebo*
S21. randomized controlled trials
S22. SU randomized controlled trials
S23. S21 OR S22
S24 . S1 AND S10 AND S19 AND S23
S25. S1 AND S10 AND S19 AND S23
Limiters - Date of Publication: 20050101-20161231

Child Development & Adolescent Studies 20.6.16

S1. SU Adolescent OR SU Young Adult OR SU SCHOOL children OR SU Childhood OR SU CHILDREN OR (("Adolescent transition*" or "adult-onset trajectories" or child* or girl* or boy* or "early adult*" or "emerging adult*" or "Young Adult" or "Young people" or "Young person" or "youth phase of the lifecourse" or "youth transition*" or Adolesce* or Juvenile or Teen* or Youth*))
S2. SU African Americans
S3. SU Child Abuse, Sexual
S4. SU Poverty areas
S5. SU Pregnancy, Unwanted
S6. Sex Offenses
S7. SU Sexually Transmitted Diseases
S8. SU Unemployment
S9. TX ("area based" or "Children of Teenage parent*" or "deprived area*" or "Domestic abuse" or "Domestic violence" or "Emotional abuse" or "emotional neglect" or "excluded from school" or "exclusion from school" or "home-leaving pattern*" or "home leaving pattern*" or "intimate partner violence" or "Kinship Care*" or "local area*" or "Not in Education, Employment or Training" or "Out-of-school" or "Out of school" or "physical abuse" or "physical neglect" or "sexual abuse" or "Sexual exploitation" or "Teenage parent*" or "teenage mother*" or "Unwanted Pregnancy" or "Young carer*" or "Young-carer*" or Ethnic* or IPV or neighbourhood* or neighborhood* or NEET* or Runaway* or Unemploy*)
S10. S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8 OR S9
S11. SU Anxiety Disorders
S12. SU Anxiety
S13. SU Depression
S14. Happiness
S15. SU Happiness
S16. SU Mental Health
S17. Quality of Life
S18. TX ("life satisfaction" or "mental health" or "mental wellness" or "quality of life" or "quality-of-life" or "self esteem" or "self-esteem" or "self harm" or "self-determination" or "self-harm*" or "sense of belonging" or "sense of coherence" or "well being" or "well-being" or anxiety or anxious or depress* or happiness or happier or happy or impulsive* or optimis* or resilien* or wellbeing
S19. S11 OR S12 OR S13 OR S14 OR S15 OR S16 OR S17 OR S18
S20. SU trial
S21. TX randomized OR TX randomised OR TX "Double-Blind*" OR TX "Double Blind*" OR TX Placebo*

S22. S20 OR S21
S23. S1 AND S10 AND S19 AND S22
S24. S1 AND S10 AND S19 AND S22
Limiters - Publication Date: 20050101-20161231

ERIC 20.6.16

S4. SU randomized controlled trials OR TX (randomized OR TX randomised OR TX "Double-Blind*" OR TX "Double Blind*" OR TX Placebo*)
S1. SU Adolescent OR SU Young Adult OR SU SCHOOL children OR SU Childhood OR SU CHILDREN OR (("Adolescent transition*" or "adult-onset trajectories" or child* or girl* or boy* or "early adult*" or "emerging adult*" or "Young Adult" or "Young people" or "Young person" or "youth phase of the lifecourse" or "youth transition*" or Adolesce* or Juvenile or Teen* or Youth*))
S2. SU Asians OR SU blacks OR SU ethnic OR SU Criminals OR TX ("area based" or "Children of Teenage parent*" or "deprived area*" or "Domestic abuse" or "Domestic violence" or "Emotional abuse" or "emotional neglect" or "excluded from school" or "exclusion from school" or "home-leaving pattern*" or "home leaving pattern*" or "intimate partner violence" or "Kinship Care*" or "local area*" or "Not in Education, Employment or Training" or "Out-of-school" or "Out of school" or "physical abuse" or " "physical neglect" or "sexual abuse" or "Sexual exploitation" or "Teenage parent*" or "teenage mother*" or "Unwanted Pregnancy" or "Young carer*" or "Young-carer*" or Ethnic* or IPV or neighbourhood* or neighborhood* or NEET* or Runaway* or Unemploy*)
S4. SU randomized controlled trials OR TX (randomized OR TX randomised OR TX "Double-Blind*" OR TX "Double Blind*" OR TX Placebo*)
S5. S1 AND S2 AND S3 AND S4
Limiters - Date Published: 20050101-20151231

SCIE 20.6.16

"life satisfaction" or "mental health" or "mental wellness" or "quality of life" or "quality-of-life" or "self esteem" or "self-esteem" or "self harm" or "self-determination" or "self-harm*" or "sense of belonging" or "sense of coherence" or "well being" or "well-being" or anxiety or anxious or depress* or happiness or happier or happy or impulsive* or optimis* or resilien* or wellbeing

And

"Adolescent transition*" or "adult-onset trajectories" or child* or girl* or boy* or "early adult*" or "emerging adult*" or "Young Adult" or "Young people" or "Young person" or "youth phase of the lifecourse" or "youth transition*" or Adolesce* or Juvenile or Teen* or Youth*

And

randomized OR randomised OR "Double-Blind*" OR "Double Blind*" OR Placebo

Restrict to 2005 – current

6.2 AMSTAR quality assessment, and amended items

AMSTAR	Amended AMSTAR
1. Was an 'a priori' design provided? The research question and inclusion criteria should be established before the conduct of the review.	Omitted (Inspection of reviews showed that this was rarely addressed, and therefore ratings would have indicated a floor effect.)
	1. Was a comprehensive literature search performed? More than one electronic databases should be searched.
2. Was there duplicate study selection and data extraction? There should be at least two independent data extractors and a consensus procedure for disagreements should be in place.	2. Inclusion Criteria (at least 3 out of 5 PICOS)? Which PICOS criteria were met?
3. Was a comprehensive literature search performed? At least two electronic sources should be searched. The report must include years and databases used (e.g., Central, EMBASE, and MEDLINE). Key words and/or MESH terms must be stated and where feasible the search strategy should be provided. All searches should be supplemented by consulting current contents, reviews, textbooks, specialised registers, or experts in the particular field of study, and by reviewing the references in the studies found.	3. Was there duplicate study selection?
4. Was the status of publication (i.e. grey literature) used as an inclusion criterion? The authors should state that they searched for reports regardless of their publication type. The authors should state whether or not they excluded any reports (from the systematic review), based on their publication status, language etc.	4. Did the review search for grey literature? Did the authors search for grey literature?
	5. Did the review include grey literature? Did the authors refer to and include grey literature in synthesis of findings?
5. Was a list of studies (included and excluded) provided? A list of included and excluded studies should be provided.	6. Was a list of excluded studies provided?
6. Were the characteristics of the included studies provided? In an aggregated from such as a table, data from the original studies should be provided on the participants, interventions and outcomes. The ranges of characteristics in all the studies analysed, e.g. age, race, sex, relevant socioeconomic data, disease status, duration, severity, or other diseases should be reported.	7. Were the characteristics of the included studies provided? In an aggregated from such as a table, data from the original studies should be provided on the participants, interventions and outcomes. The ranges of characteristics in all the studies analysed, e.g. age, race, sex, relevant socioeconomic data, disease status, duration, severity, or other diseases should be reported.
	8. List the specific characteristics. Did the authors present information on participants, interventions and outcomes? List relevant P/I/O.
7. Was the scientific quality of the included studies assessed and documented? 'A priori' methods of assessment should be provided	9. Was the scientific quality of the included studies assessed and documented?

(e.g., for effectiveness studies if the author(s) chose to include only randomised, double-blind, placebo controlled studies, or allocation concealment as inclusion criteria); for other types of studies alternative items will be relevant.	
8. Was the scientific quality of the included studies used appropriately in formulating conclusions? The results of the methodological rigor and scientific quality should be considered in the analysis and the conclusions of the review, and explicitly stated in formulating recommendations.	10. Was the scientific quality of the included studies used appropriately in formulating conclusions?
9. Were the methods used to combined the findings of the studies appropriate? For the pooled results, a test should be done to ensure the studies were combinable, to assess their homogeneity (i.e., chi-squared test for homogeneity, I2). If heterogeneity exists a random effects model should be used and/or the clinical appropriateness of combining should be taken into consideration (i.e., is it sensible to combine?).	Omitted (Too subjective, and requiring expert statistical knowledge).
10. Was the likelihood of publication bias assessed? An assessment of publication bias should include a combination of graphical aids (e.g., funnel plot, other available tests) and/or statistical tests (e.g., Egger regression test, Hedges-Olken).	Omitted (typically not conducted; the research team considered this irrelevant to this mapping systematic review).
11. Was the conflict of interest included? Potential sources of support should be clearly acknowledged in both the systematic review and the included studies.	11. Was the conflict of interest included?

6.3 AMSTAR quality assessment results for included systematic reviews

Author	**Year**	**AMSTAR Q1***	AMSTAR Q2		AMSTAR Q3	AMSTAR Q4	AMSTAR Q5	AMSTAR Q6	AMSTAR Q7	**AMSTAR Q8***	**AMSTAR Q9***	**AMSTAR Q10***	AMSTAR Q11	BETTER QUALITY
		Comprehensive lit search?	**Inclusion criteria (at least 3 out of the PICOS)**	**Which PICOS criteria were met?**	**Duplicate selection?**	**Did the review search the grey literature?**	**Did the review include grey literature in the analysis?**	**Was a list of excluded studies provided?**	**Study characteristics provided?**	**Range of study characteristics?**	**Scientific quality assessed or documented?**	**Scientific quality used in formulating conclusions?**	**Conflict of interest included?**	**Good quality review?**
		1/>1/No/Can't answer/NA	**Yes/No/NA/Can't answer**	**First letter only**	**Yes/No/NA/Can't answer**	**Yes/No/NA/Can't answer**	**Yes/No/NA/Can't answer**	**Yes/No/NA/Can't answer**	**Yes/No/NA/Can't answer**	**P/I/O**	**Yes/No/NA/Can't answer**	**Yes/No/NA/Can't answer**	**Yes/No/NA/Can't answer**	**Yes/No**
VULNERABLE POPULATION: LOOKED AFTER AND CARE LEAVER														
Armelius	2007	>1	yes	PICOS	yes	yes	yes	yes	yes	PIO	yes	yes	yes	yes
Everson-Hock	2011	>1	yes	PICOS	yes	yes	can't answer	no	yes	PIO	yes	yes	yes	yes
Jones	2012	>1	yes	PIO	yes	yes	no	no	yes	PIO	yes	yes	yes	yes
Montgomery	2006	>1	yes	PIO	yes	yes	can't answer	yes	yes	PIO	yes	yes	yes	yes
Stewart	2012	>1	yes	PIS	can't answer	yes	yes	no	yes	PIO	yes	yes	yes	yes
Turner	2007	>1	yes	PICOS	yes	yes	yes	yes	yes	PIO	yes	yes	yes	yes
Turner	2011	>1	yes	PIOS	yes	yes	no	yes	no	PIO	yes	yes	yes	yes
Donkoh	2006	>1	yes	PIOS	yes	yes	no	yes	n/a	n/a	n/a	n/a	yes	no
Leve	2012	1	Yes	PICS	no	no	n/a	no	yes	PIO	no	no	yes	no
Thompson	2016	>1	yes	PIS	yes	yes	yes	no	yes	PIO	no	no	no	no
VULNERABLE POPULATION: HOMELESS														
Altena	2010	>1	Yes	PICS	yes	yes	yes	no	yes	PIO	yes	yes	yes	yes
Coren	2013	>1	yes	PICOS	yes	yes	no	yes	yes	PIO	yes	yes	yes	yes
Slesnick	2009	>1	yes	PIO	can't answer	yes	yes	no	yes	PIO	yes	yes	yes	yes

Dawson	2013	**>1**	**yes**	**PIO**	**can't answer**	**no**	**no**	**no**	**yes**	**PI**	**yes**	**no**	**no**	**no**
VULNERABLE POPULATION: YOUNG OFFENDERS														
Daykin	2013	**>1**	**yes**	**PIO**	**can't answer**	**yes**	**can't answer**	**no**	**yes**	**PIO**	**yes**	**yes**	**yes**	**yes**
Lubans	2012	**>1**	**yes**	**PIO**	**yes**	**no**	**no**	**no**	**yes**	**PIO**	**yes**	**yes**	**yes**	**yes**
Townsend	2010	**>1**	**yes**	**PIOS**	**yes**	**yes**	**yes**	**no**	**yes**	**PIO**	**yes**	**yes**	**yes**	**yes**
Van der Stouwe	2014	**>1**	**yes**	**PIO**	**can't answer**	**yes**	**yes**	**no**	**no**	**no**	**yes**	**yes**	**no**	**no**
VULNERABLE POPULATION: ADOLESCENTS LIVING IN SOCIO-ECONOMICALLY DEPRIVED AREAS														
Lucas	2008	**>1**	**yes**	**PIOS**	**yes**	**yes**	**no**	**yes**	**yes**	**PIO**	**yes**	**yes**	**yes**	**yes**
Brunton	2015	**>1**	**yes**	**PICOS**	**yes**	**yes**	**yes**	**yes**	**yes**	**IO**	**yes**	**yes**	**yes**	**no**
Farahmand	2012	**1**	**yes**	**PIO**	**yes**	**yes**	**yes**	**no**	**yes**	**PIO**	**no**	**no**	**yes**	**no**
VULNERABLE POPULATION: TEENAGE PARENTS														
Barlow	2011	**>1**	**yes**	**PICOS**	**yes**	**no**	**no**	**yes**	**yes**	**PIO**	**yes**	**yes**	**yes**	**yes**
Lachance	2012	**>1**	**Yes**	**PIS**	**yes**	**no**	**no**	**no**	**yes**	**PIO**	**yes**	**yes**	**yes**	**yes**
VULNERABLE POPULATION: ADOLESCENTS FROM ETHNIC MINORITIES														
Hodge	2010	**>1**	**yes**	**PIO**	**yes**	**yes**	**can't answer**	**no**	**yes**	**PIO**	**yes**	**yes**	**no**	**yes**
VULNERABLE POPULAITON: ASYLUM OR REFUGE SEEKING ADOLESCENTS														
Tyrer	2014	**>1**	**yes**	**PIO**	**yes**	**yes**	**yes**	**no**	**yes**	**PIO**	**yes**	**yes**	**yes**	**yes**
VULNERABLE POPULATION: ADOLESCENTS WHO HAVE EXPERIENCED SEXUAL ABUSE														
MacDonald	2013	**>1**	**Yes**	**PICOS**	**yes**	**yes**	**yes**	**yes**	**yes**	**PIO**	**yes**	**yes**	**no**	**yes**
Wethington	2008	**>1**	**yes**	**PICOS**	**yes**	**yes**	**yes**	**no**	**yes**	**PIO**	**yes**	**yes**	**yes**	**yes**
Lentini	2015	**>1**	**yes**	**PIO**	**can't answer**	**yes**	**yes**	**no**	**yes**	**PIO**	**no**	**yes**	**no**	**no**
Silverman	2008	**>1**	**YES**	**PICS**	**Can't answer**	**yes**	**no**	**yes**	**no**	**PI**	**yes**	**yes**	**yes**	**no**
VULNERABLE POPULATION: ADOLESCENTS WHO HAVE BEEN EXPOSED TO INTIMATE PARTNER VIOLENCE														
Hackett	2016	**>1**	**yes**	**PIO**	**can't answer**	**no**	**no**	**no**	**yes**	**IO**	**no**	**n/a**	**yes**	**no**
VULNERABLE POPULATION: AT RISK														
Littell	2005	**>1**	**yes**	**PICOS**	**yes**	**yes**	**yes**	**yes**	**yes**	**PIO**	**yes**	**yes**	**yes**	**yes**
Zlotnick	2012	**>1**	**yes**	**PIO**	**yes**	**no**	**no**	**no**	**yes**	**PIO**	**yes**	**yes**	**no**	**yes**

P=population, I=intervention, C=comparison, O=outcome, S=study design

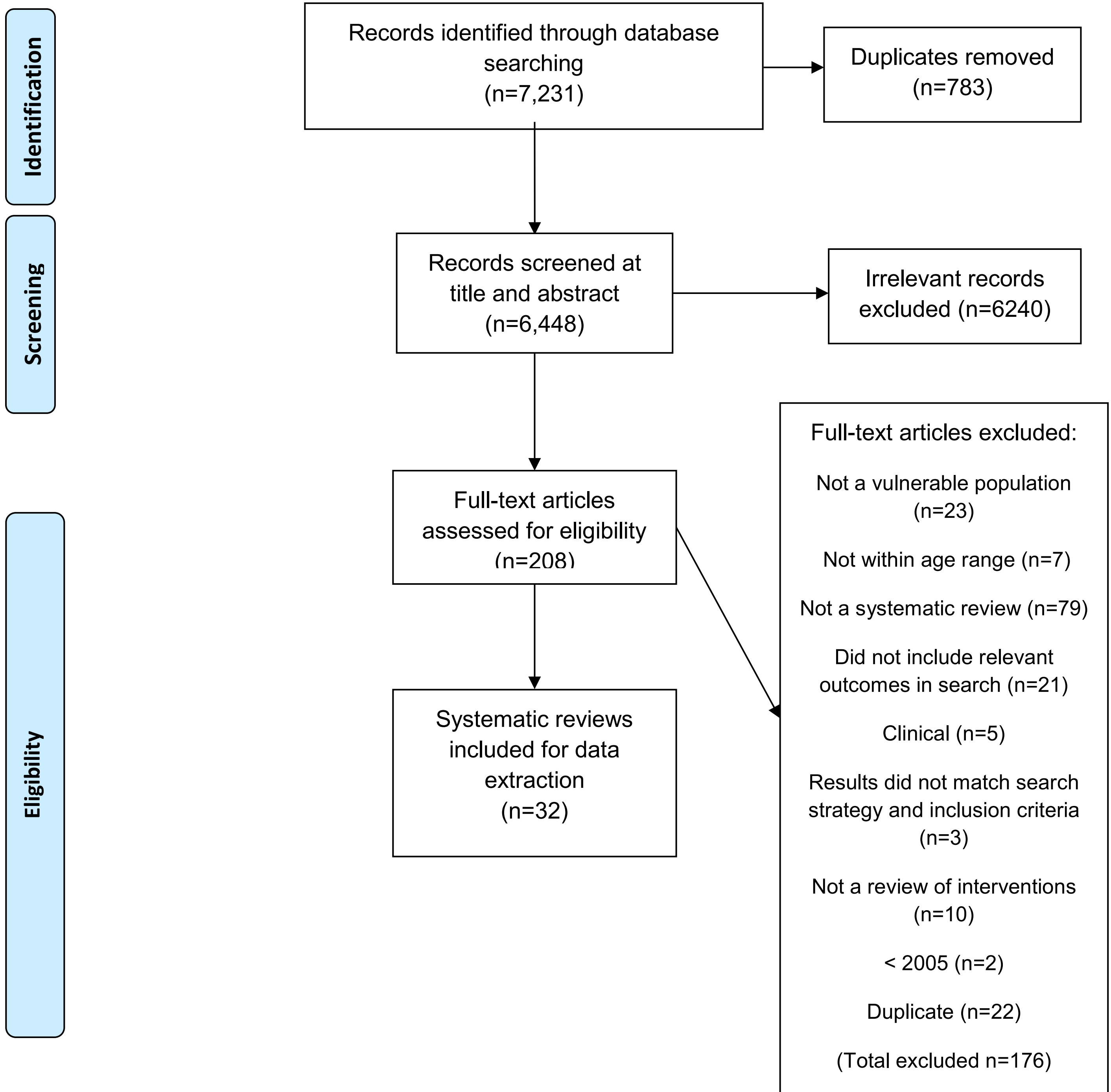
6.4 PRISMA statement

Section/Topic	#	Checklist item	Reported Page #
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	Front page
ABSTRACT			
Structured Summary	2	Provide a structured summary including, as applicable,: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; limitations; conclusions and implications of key findings; systematic review registration number.	Page 5
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	Page 7
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	Page 9
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	Page 10
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	Page 11
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	Page 13
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	Page 60
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	Page 13
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	Page 14
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	Page 11
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	Page 13
Synthesis of results	13	State the principal summary measures (e.g., risk ratio, difference in means).	n/a
Summary measures	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis.	n/a
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	n/a
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	n/a
RESULTS			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	Page 15
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	Page 117
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome-level assessment (see Item 12).	Page 64
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group and (b) effect estimates and confidence intervals, ideally with a forest plot.	n/a
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	n/a
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	n/a
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	n/a

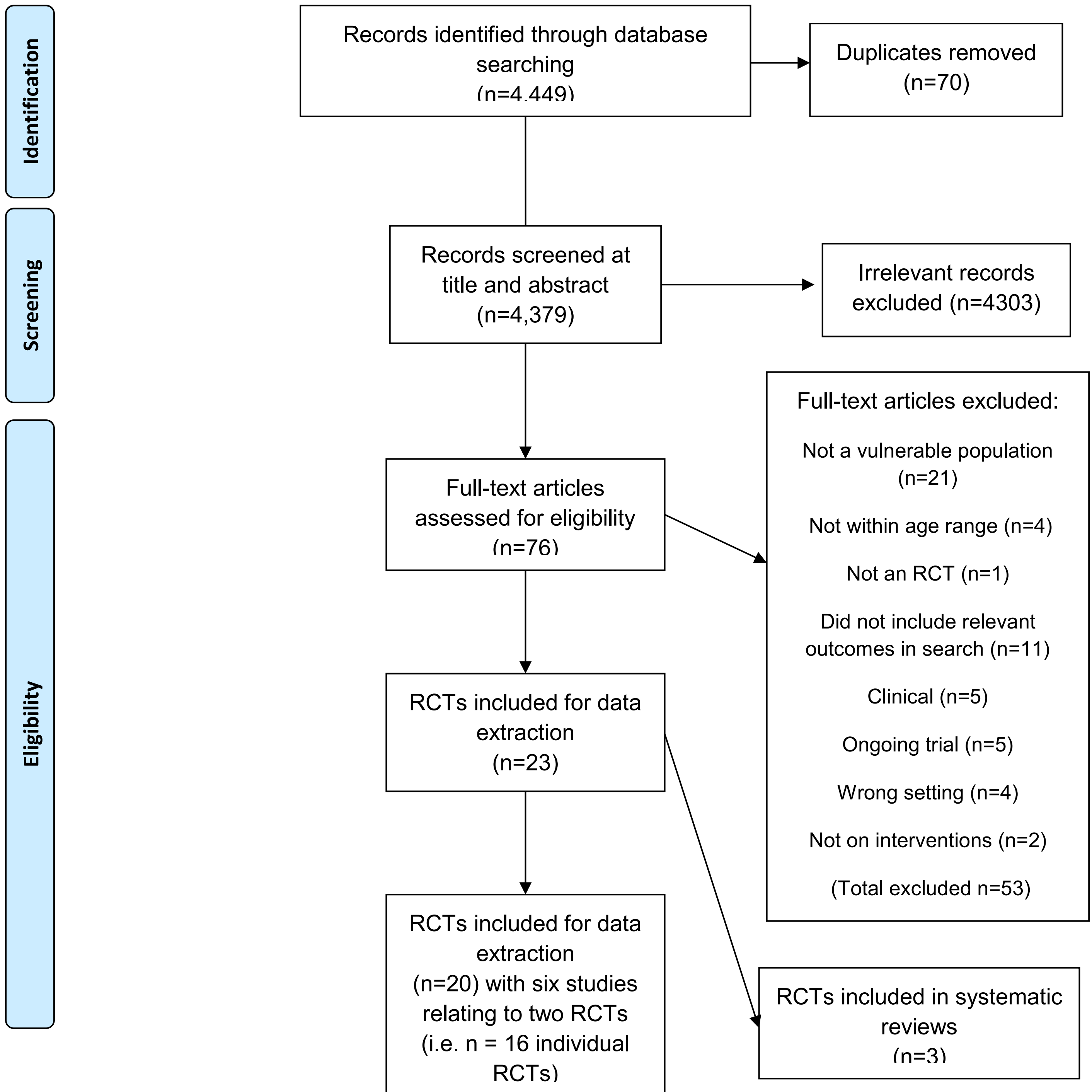
DISCUSSION			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., health care providers, users, and policy makers).	Page 44
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review level (e.g., incomplete retrieval of identified research, reporting bias).	Page 45
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	Page 46
FUNDING			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	Page 4

6.5 Flow diagrams of screening & inclusion (Figure 1, Figure 2, Figure 3)

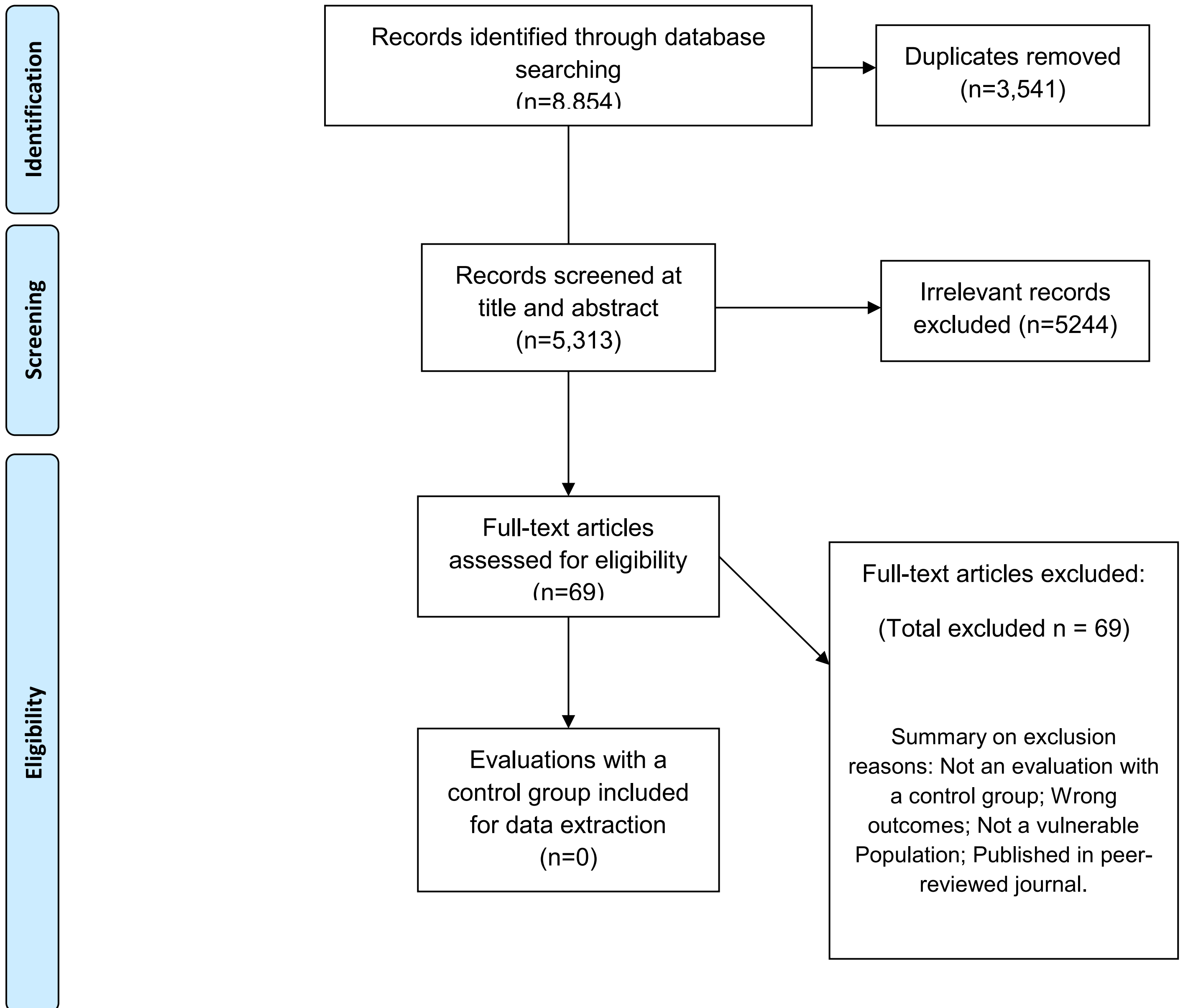
6.5.1 Flow diagram: Systematic Reviews (Figure 1)



6.5.2 Flow diagram: Randomised Controlled Trials (Figure 2)



6.5.3 Flow diagram: grey literature (Figure 3)



6.6 List of systematic reviews excluded at full text screening

1.	Statham, J., *Effective services to support children in special circumstances.* Child: Care, Health & Development, 2004. 30(6): p. 589-598.	Published < 2005
2.	Coren, E., J. Barlow, and S. Stewart-Brown, *The effectiveness of individual and group-based parenting programmes in improving outcomes for teenage mothers and their children: a systematic review.* Journal of Adolescence 2003. 26(1): p. 79-103.	Published < 2005
3.	Flynn, A.B., et al., *Primary Care Interventions to Prevent or Treat Traumatic Stress in Childhood: A Systematic Review.* Academic Pediatrics 2015. 15(5): p. 480-492.	Clinical
4.	Macdonald, G.M. and W. Turner, *Treatment Foster Care for improving outcomes in children and young people.* Cochrane Database of Systematic Reviews2008. (1) (CD005649).	Clinical
5.	Ziviani, J., et al., *Effectiveness of support services for children and young people with challenging behaviours related to or secondary to disability, who are in out-of-home care: A systematic review.* Children Youth Services Review 2012. 34(4): p. 758-770.	Clinical
6.	Parker, B. and W. Turner *Psychoanalytic/psychodynamic psychotherapy for children and adolescents who have been sexually abused.* Cochrane Database of Systematic Reviews2013. DOI: 10.1002/14651858.CD008162.pub2.	Clinical
7.	Weisz, J.R., A. Jensen-Doss, and K.M. Hawley, *Evidence-based youth psychotherapies versus usual clinical care: a meta-analysis of direct comparisons.* American Psychologist 2006. 61(7): p. 671-689.	Clinical
8.	Abrams, L.S., et al., *Juvenile Reentry and Aftercare Interventions: Is Mentoring a Promising Direction?* Journal Evidence Based Social Work 2014. 11(4): p. 404-422.	Duplicate
9.	Azzopardi, P.S., et al., *The quality of health research for young Indigenous Australians: systematic review.* Medical Journal of Australia 2013. 199(1): p. 57-63.	Duplicate
10.	Barlow, J., et al., *Individual and group based parenting programmes for improving psychosocial outcomes for teenage parents and their children.* Cochrane Database 2011. 3: p. CD002964.	Duplicate
11.	Connolly, J. and L. Joly, *Outreach with street-involved youth: A quantitative and qualitative review of the literature.* Clin Psy Review 2012. 32(6): p. 524-534.	Duplicate
12.	Coren, E., et al., *Interventions for promoting reintegration and reducing harmful behaviour and lifestyles in street-connected children and young people.* Evidence-Based Child Health: A Cochrane Review Journal, 2013. 8(4): p. 1140-1272.	Duplicate
13.	Coren, E., et al., *Interventions for promoting reintegration and reducing harmful behaviour and lifestyles in street-connected children and young people.* Cochrane Database of Systematic Reviews 2013. 2: p. CD009823.	Duplicate
14.	Everson-Hock, E.S., et al., *Supporting the transition of looked-after young people to independent living: a systematic review of interventions and adult outcomes.* Child: care, health and development, 2011. 37(6): p. 767-779.	Duplicate
15.	Jones, R. and a. et, *Review E3: the effectiveness of interventions aimed at improving access to health and mental health services for looked after children and young people.* 2008, London: National Institute for Health and Clinical Excellence. 78p., bibliog.	Duplicate
16.	Livingstone, N., G. Macdonald, and N. Carr, *Restorative justice conferencing for reducing recidivism in young offenders (aged 7 to 21).* Cochrane Database 2013. 2: p. CD008898.	Duplicate
17.	Lubans, D.R., R.C. Plotnikoff, and N.J. Lubans, *Review: A systematic review of the impact of physical activity programmes on social and emotional well-being in at-risk youth.* Child and Adolescent Mental Health, 2012. 17(1): p. 2-13.	Duplicate
18.	Macdonald, G., et al., *Cognitive-behavioural interventions for children who have been sexually abused.* Cochrane Database 2012. 5: p. CD001930.	Duplicate
19.	Macdonald, G., et al. *Cognitive-behavioural interventions for children who have been sexually abused.* Cochrane Database 2012. DOI: 10.1002/14651858.CD001930.pub3.	Duplicate
20.	Macdonald, G. and W. Turner, *Treatment Foster Care for Improving Outcomes in Children and Young People.* Cochrane Database 2008.	Duplicate
21.	Oliver, E.J., et al., *Should we 'hug a hoodie'? Protocol for a systematic review and meta-analysis of interventions with young people not in employment, education or training (so-called NEETs).* Systematic Reviews 2014. 3 (1) (73).	Duplicate

22.	Parker, B. and W. Turner, *Psychoanalytic/psychodynamic psychotherapy for children and adolescents who have been sexually abused.* Cochrane Database 2013. 7: p. CD008162.	Duplicate
23.	Peltonen, K. and R.-L. Punamaki, *Preventive interventions among children exposed to trauma of armed conflict: A literature review.* Aggressive Behavior 2010. 36(2): p. 95-116.	Duplicate
24.	Sanchez-Meca, J., A.I. Rosa-Alcazar, and C. Lopez-Soler, *"The psychological treatment of sexual abuse in children and adolescents: A meta-analysis": Int Jnl Clin Health Psych.* 2011. 11(2): p.	Duplicate
25.	Tyrer, R.A. and M. Fazel, *School and Community-Based Interventions for Refugee and Asylum Seeking Children: A Systematic Review.* PLoS ONE, 2014. 9(2): p. e89359.	Duplicate
26.	Zlotnick, C., T. Tam, and S. Zerger, *Common needs but divergent interventions for U.S. homeless and foster care children: results from a systematic review.* Health & Social Care in the Community 2012. p. 449-476.	Duplicate
27.	Parker, B. and W. Turner, *Psychoanalytic/Psychodynamic Psychotherapy for Sexually Abused Children and Adolescents: A Systematic Review.* Research on Social Work Practice 2014. 24(4): p. 389-399.	Duplicate
28.	Macdonald, G.M., J.P.T. Higgins, and P. Ramchandani, *Cognitive-behavioural interventions for children who have been sexually abused.* Cochrane Database 2006. (4) (CD001930).	Duplicate
29.	Leenarts, L.E., et al., *Evidence-based treatments for children with trauma-related psychopathology as a result of childhood maltreatment: A systematic review.* European Child & Adolescent Psychiatry 2013. 22(5): p. 269-283.	Duplicate
30.	Dickson, K. and a. et, *Improving the emotional and behavioural health of looked-after children and young people (LACYP): research review 2.* 2009, London: Centre for Excellence and Outcomes in Children and Young People's Services. 116p., bibliog.	Not a systematic review
31.	Bakermans-Kranenburg, M.J., M.H. Van Ijzendoorn, and F. Juffer, *Earlier is better: A meta-analysis of 70 years of intervention improving cognitive development in institutionalized children.* Monographs Society for Research Child Development 2008. 73(3): p. 279-293.	Not a systematic review
32.	Bambra, C.L., et al., *Tackling inequalities in obesity: a protocol for a systematic review of the effectiveness of public health interventions at reducing socioeconomic inequalities in obesity amongst children.* Systems Review 2012. 1: p. 16.	Not a systematic review
33.	Barrie, L. and P. Mendes, *The experiences of unaccompanied asylum-seeking children in and leaving the out-of-home care system in the UK and Australia: A critical review of the literature.* International Social Work 2011. 54(4): p. 485-503.	Not a systematic review
34.	Barth, R.P., et al., *Evidence-based practice for youth in supervised out-of-home care: a framework for development, definition, and evaluation.* Journal of Evidence based Social Work 2011. 8(5): p. 501-28.	Not a systematic review
35.	Carr, A., *The evidence base for family therapy and systemic interventions for child-focused problems.* Journal for Family Therapy 2014. 36(2): p. 107-157.	Not a systematic review
36.	Chung, R.J. and A. English, *Commercial sexual exploitation and sex trafficking of adolescents.* Current Opinion in Pediatrics, 2015. 27(4): p. 427-33.	Not a systematic review
37.	Dorsey, S., E.C. Briggs, and B.A. Woods, *Cognitive-behavioral treatment for posttraumatic stress disorder in children and adolescents.* Child & Adol Psych Clinics North America 2011. 20(2): p. 255-69.	Not a systematic review
38.	Dwyer, R.G. and E.J. Letourneau, *Juveniles who sexually offend: recommending a treatment program and level of care.* Child & Adol Psych Clinics North America 2011. 20(3): p. 413-29.	Not a systematic review
39.	Ehntholt, K.A. and W. Yule, *Practitioner review: assessment and treatment of refugee children and adolescents who have experienced war-related trauma.* Jnt Child Psych Allied Disciplines 2006. 47(12): p. 1197-210.	Not a systematic review
40.	Foy, D.W., I.K. Ritchie, and A.H. Conway, *Trauma exposure, posttraumatic stress, and comorbidities in female adolescent offenders: findings and implications from recent studies.* European Journal of Psychotraumatology 2012. 3.	Not a systematic review
41.	Grossman, J.B. and M.J. Bulle, *Review of what youth programs do to increase the connectedness of youth with adults.* Journal of Adolescent Health 2006. 39(6): p. 788-99.	Not a systematic review

42.	Henggeler, S.W. and A.J. Sheidow, *Empirically supported family-based treatments for conduct disorder and delinquency in adolescents.* Journal of Marital & Family Therapy 2012. 38(1): p. 30-58.	Not a systematic review
43.	Hodgkinson, S., et al., *Addressing the mental health needs of pregnant and parenting adolescents.* Pediatrics 2014. 133(1): p. 114-22.	Not a systematic review
44.	Horwitz, S.M., et al., *Improving the mental health of children in child welfare through the implementation of evidence-based parenting interventions.* Administration & Policy in Mental Health 2010. 37(1-2): p. 27-39.	Not a systematic review
45.	Isakson, B.L., J.P. Legerski, and C.M. Layne, *Adapting and Implementing Evidence-Based Interventions for Trauma-Exposed Refugee Youth and Families.* Journal Contemporary Psychotherapy 2015. 45(4): p. 245-253.	Not a systematic review
46.	Karnik, N.S., *New interventions for treatment of vulnerable youth.* Child and Adolescent Mental Health 2011. 16: p. 26.	Not a systematic review
47.	Karnik, N.S. and H. Steiner, *Evidence for interventions for young offenders.* Child and Adolescent Mental Health 2007. 12(4): p. 154-159.	Not a systematic review
48.	Kessler, R.C., et al., *Associations of housing mobility interventions for children in high-poverty neighborhoods with subsequent mental disorders during adolescence.* JAMA 2014. 311(9): p. 937-947.	Not a systematic review
49.	Kumpfer, K.L., *Why are there no effective child abuse prevention parenting interventions?* Substance Use and Misuse 2008. 43(8-9): p. 1262-1265.	Not a systematic review
50.	Lalor, K. and R. McElvaney, *Child sexual abuse, links to later sexual exploitation/high-risk sexual behavior, and prevention/treatment programs.* Trauma Violence and Abuse 2010. 11(4): p. 159-177.	Not a systematic review
51.	Lambie, I. and I. Randell, *The impact of incarceration on juvenile offenders.* Clinical Psychology Review 2013. 33(3): p. 448-59.	Not a systematic review
52.	Landmark, B., et al., *Effects of sexological therapy for sex offenders. A systematic review.* Journal of Sexual Medicine 2013. 10: p. 315.	Not a systematic review
53.	Lawson, D.M., D. Davis, and S. Brandon, *Treating complex trauma: Critical interventions with adults who experienced ongoing trauma in childhood.* Psychotherapy 2013. 50(3): p. 331-335.	Not a systematic review
54.	Lessing, J.E., *Primary care provider interventions for the delayed disclosure of adolescent sexual assault.* Journal of Pediatric Health Care 2005. 19(1): p. 17-24.	Not a systematic review
55.	Lochman, J.E., et al., *Three Year Follow-Up of Coping Power Intervention Effects: Evidence of Neighborhood Moderation?* Prevention Science 2013. 14(4): p. 364-376.	Not a systematic review
56.	Locke, B.D., et al., *The center for collegiate mental health: studying college student mental health through an innovative research infrastructure that brings science and practice together.* Harvard Review Psychiatry 2012. 20(4): p. 233-45.	Not a systematic review
57.	Logsdon, C., et al., *Acceptability, feasibility and initial efficacy of AWEB based intervention to improve attitudes toward postpartum depression in adolescent mothers.* Archive Womens Mental Health 2013. 16: p. S63-S64.	Not a systematic review
58.	Logsdon, M.C. and S. Gennaro, *Bioecological model for guiding social support research and interventions with pregnant adolescents.* Issues in Mental Health Nursing 2005. 26(3): p. 327-39.	Not a systematic review
59.	Lopez, P. and P.J. Allen, *Addressing the health needs of adolescents transitioning out of foster care.* Pediatric nursing. 33(4): p. 345-55.	Not a systematic review
60.	MacArthur, G., et al. *Individual-, family-, and school-level interventions for preventing multiple risk behaviours in individuals aged 8 to 25 years*. Cochrane Database 2012. DOI: 10.1002/14651858.CD009927.	Not a systematic review

61.	MacMillan, H.L. and C.N. Wathen, *Children's exposure to intimate partner violence.* Child & Adol Psychiatric Clinica North America 2014. 23(2): p. 295-308, viii.	Not a systematic review
62.	MacMillan, H.L., et al., *Interventions to prevent child maltreatment and associated impairment.* The Lancet 2009. 373(9659): p. 250-266.	Not a systematic review
63.	Malin, H.M., F.M. Saleh, and A.J. Grudzinskas, *Recent research related to juvenile sex offending: Findings and directions for further research.* Current Psychiatry Reports 2014. 16(4).	Not a systematic review
64.	Mayer, L.M. and E. Thursby, *Adolescent parents and their children: a multifaceted approach to prevention of adverse childhood experiences (ACE).* Journal of Prevention & Intervention in the Community 2012. 40(4): p. 304-12.	Not a systematic review
65.	McKinney, C., et al., *Children's exposure to domestic violence: Striving toward an ecological framework for interventions.* Journal of Emotional Abuse 2006. 6(1): p. 1-23.	Not a systematic review
66.	Mechling, B.M., *The experiences of youth serving as caregivers for mentally ill parents: a background review of the literature. Journal of Psychosocial Nursing & Mental Health Services*2011. 49(3): p. 28-33.	Not a systematic review
67.	Moffitt, T.E., *Childhood exposure to violence and lifelong health: Clinical intervention science and stress-biology research join forces.* Development and Psychopathology 2013. 25(4 PART 2): p. 1619-1634.	Not a systematic review
68.	Oliver, E.J., et al., *Should we 'hug a hoodie'? Protocol for a systematic review and meta-analysis of interventions with young people not in employment, education or training (so-called NEETs).* Systematic Reviews, 2014. 3(1): p. 1-7.	Not a systematic review
69.	Pacione, L., T. Measham, and C. Rousseau, *Refugee children: Mental health and effective interventions.* Current Psychiatric Reports 2013. 15 (2) (341).	Not a systematic review
70.	Racusin, R., et al., *Psychosocial treatment of children in foster care: a review.* Community Mental Health Journal 2005. 41(2): p. 199-221.	Not a systematic review
71.	Ruedinger, E. and J.E. Cox, *Adolescent childbearing: consequences and interventions.* Current Opinion in Pediatrics 2012. 24(4): p. 446-52.	Not a systematic review
72.	Schilling, S. and C.W. Christian, *Child physical abuse and neglect.* Child & Adolescent Psychiatric Clinics 2014. 23(2): p. 309-19, ix.	Not a systematic review
73.	Shinn, M., et al., *Longitudinal Impact of a Family Critical Time Intervention on Children in High-Risk Families Experiencing Homelessness: A Randomized Trial.* Am J Community Psychol, 2015. 56(3-4): p. 205-16.	Not a systematic review
74.	Stanley, F.J., D.A. Scott, and M. O'Donnell, *Interventions to halt child abuse in aboriginal communities.* Medical Journal of Australia 2007. 187(8): p. 472.	Not a systematic review
75.	Sukhodolsky, D.G. and V. Ruchkin, *Evidence-based psychosocial treatments in the juvenile justice system.* Child & Adol Psychiat Clinics North America 2006. 15(2): p. 501-16, x.	Not a systematic review
76.	Trueland, J., *The Rolls-Royce of family intervention.* Nursing Standard 2013. 27(40): p. 16-18.	Not a systematic review
77.	Turner, D.C., *Animal-assisted interventions for children and adolescents: What animals mean to them, why and when AAIs work, and who should be involved.* European Child and Adolescent Psychiatry 2011. 20: p. S24.	Not a systematic review
78.	Tyrer, R.A. and M. Fazel, *Correction: School and community-based interventions for refugee and asylum seeking children: A systematic review (PLoS ONE (2014) 9, 2 (e89359) DOI: 10.1371/journal.pone.0089359).* 2014. 9 (5) (e97977).	Not a systematic review
79.	Ward, E. and D. Ashley, *The new imperative: reducing adolescent-related violence by building resilient adolescents.* Journal of Adolescent Health 2013. 52(2 Suppl 2): p. S43-5.	Not a systematic review

80.	Wathen, C.N. and H.L. MacMillan, *Children's exposure to intimate partner violence: Impacts and interventions.* Paediatrics and Child Health 2013. 18(8): p. 419-422.	Not a systematic review
81.	Worley, K.B., J.K. Church, and J.C. Clemmons, *Parents of adolescents who have committed sexual offenses: characteristics, challenges, and interventions.* Clinical Child Psychology and Psychiatry 2012. 17(3): p. 433-448.	Not a systematic review
82.	Newbigging, K. and N. Thomas, *Good practice in social care for refugee and asylum-seeking children.* Child Abuse Review 2011. 20(5): p. 374-390.	Not a systematic review
83.	Osgood, D.W., E.M. Foster, and M.E. Courtney, *Vulnerable populations and the transition to adulthood.* Future of Children 2010. 20(1): p. 209-29.	Not a systematic review
84.	Pinzon, J.L., et al., *Care of adolescent parents and their children.* Pediatrics 2012. 130(6): p. e1743-56.	Not a systematic review
85.	Tourigny, M. and M. Hebert, *Comparison of open versus closed group interventions for sexually abused adolescent girls.* Violence and Victims 2007. 22(3): p. 334-349.	Not a systematic review
86.	Gardner, F., et al., *Family therapy for children who have been physically abused.* Cochrane database 2009. (2) (CD007827).	Not a systematic review
87.	Gavine, A., S. MacGillivray, and J. Williams Damien *Universal community-based social development interventions for preventing community violence by young people 12 to 18 years of age*. Cochrane Database 2014. DOI: 10.1002/14651858.CD011258.	Not a systematic review
88.	Greenberg, M.T., *Promoting resilience in children and youth: preventive interventions and their interface with neuroscience.* Annuls of the New York Academy of Science 2006. 1094: p. 139-50.	Not a systematic review
89.	Greenwood, P., *Prevention and intervention programs for juvenile offenders.* Future of Children 2008. 18(2): p. 185-210.	Not a systematic review
90.	Grip, K.K., et al., *Children exposed to intimate partner violence and the reported effects of psychosocial interventions.* Violence and Victims 2013. 28(4): p. 635-655.	Not a systematic review
91.	Harpaz-Rotem, I., *Review of Helping Adolescents at Risk: Prevention of Multiple Problem Behavior.* Community Mental Health Journal 2005. 41(5): p. 623-624.	Not a systematic review
92.	Herbers, J.E. and J.J. Cutuli, *Programs for homeless children and youth: A critical review of evidence.* Current Practices and Future Directions 2014: p. 187-207.	Not a systematic review
93.	Higgins, D.J., H. Australian Institute of, and Welfare, *Community Development Approaches to Safety and Wellbeing of Indigenous Children. A Resource Sheet Produced for the Closing the Gap Clearinghouse*. 2010, Australian Institute of Health and Welfare.	Not a systematic review
94.	Hoffman, R., *Review of Comprehensive mental health practice with sex offenders and their families.* The Family Journal 2007. 15(3): p. 306-307.	Not a systematic review
95.	Grabbe, L., S.T. Nguy, and M.K. Higgins, *Spirituality development for homeless youth: A mindfulness meditation feasibility pilot.* Journal of Child and Family Studies, 2012. 21(6): p. 925-937.	Not a systematic review
96.	Krabbenborg, M.A.M., et al., *A Cluster Randomized Controlled Trial Testing the Effectiveness of Houvast A Strengths-Based Intervention for Homeless Young Adults.* Research on Social Work Practice, 2015: p. 1049731515622263.	Not a systematic review
97.	Barlow, J., et al. *Psychological interventions to prevent recurrence of emotional abuse of children by their parents*. Cochrane database 2013. DOI: 10.1002/14651858.CD010725.	Not a systematic review
98.	Molina, B.S., *High risk adolescent and young adult populations: consumption and consequences.* Recent Developments in Alcoholism 2005. 17: p. 49-65.	Not a systematic review

99.	Shlonsky, A., et al. *Family Group Decision Making for children at risk of abuse and neglect*. Cochrane database 2009. DOI: 10.1002/14651858.CD007984.	Not a systematic review
100.	Sneddon, H., M. Ferriter, and A. Bowser Avery *Cognitive-behavioural therapy (CBT) interventions for young people aged 10 to 18 who sexually offend*. Cochrane Database 2012. DOI: 10.1002/14651858.CD009829.	Not a systematic review
101.	Webb, P., *Review of Juvenile Delinquency: Prevention, Assessment, and Intervention.* Youth Violence and Juvenile Justice 2007. 5(2): p. 211-214.	Not a systematic review
102.	Stewart, M., L. Reutter, and N. Letourneau, *Support intervention for homeless youths.* Canadian Journal of Nursing Research 2007. 39(3): p. 203-207.	Not a systematic review
103.	Marriott, C., C. Hamilton-Giachritsis, and C. Harrop, *Factors Promoting Resilience Following Childhood Sexual Abuse: A Structured, Narrative Review of the Literature.* Child Abuse Review 2014. 23(1): p. 17-34.	Not a systematic review
104.	Landsverk, J.A., et al., *Psychosocial interventions for children and adolescents in foster care: review of research literature.* Child Welfare 2009. 88(1): p. 49-69.	Not a systematic review
105.	Thummathai, K., et al., *Internet-based depression prevention in adolescents: A systematic review protocol.* JBI database of Systematic Reviews 2013. 11(6): p. 197-206.	Not a systematic review
106.	Huey Jr, S.J. and A.J. Polo, *Evidence-Based Psychosocial Treatments for Ethnic Minority Youth*. Journal of Clinical Child and Adolescent Psychology 2008. 37(1): p. 262-301.	Not a systematic review
107.	Miranda, J., et al., *State of the science on psychosocial interventions for ethnic minorities.* Annual Review of Clinical Psychology 2005. 1: p. 113-42.	Not a systematic review
108.	Sholl, D.A., *Early intervention in youth mental health.* 2008. 188(8): p. 492.	Not a systematic review
109.	Ahmead, M. and P. Bower, *The effectiveness of self help technologies for emotional problems in adolescents: a systematic review.* Child and Adolescent Psychiatry and Mental Health 2008. 2(20).	Not included vulnerable population
110.	Apesoa-Varano, E.C., et al., *Multi-Cultural Caregiving and Caregiver Interventions: A Look Back and a Call for Future Action.* Generations 2015. 39(4): p. 39-48.	Not included vulnerable population
111.	Carney, T. and B. Myers, *Effectiveness of early interventions for substance-using adolescents: findings from a systematic review and meta-analysis*. Substance Abuse Treatment Prevention and Policy 2012. 7: p. 25.	Not included vulnerable population
112.	Dura-Vila, G. and M. Hodes, *Ethnic Factors in Mental Health Service Utilisation among People with Intellectual Disability in High-Income Countries: Systematic Review.* Journal of Intellectual Disability Research 2012. 56(9): p. 827-842.	Not included vulnerable population
113.	Fisher, H., P. Montgomery, and F. Gardner *Opportunities provision for preventing youth gang involvement for children and young people (7-16)*. Cochrane Database 2008. DOI: 10.1002/14651858.CD007002.pub2.	Not included vulnerable population
114.	Goldston, D.B., et al., *Cultural considerations in adolescent suicide prevention and psychosocial treatment*. American Psychologist 2008. 63(1): p. 14-31.	Not included vulnerable population
115.	Krueger, S.J. and C.R. Glass, *Integrative psychotherapy for children and adolescents: A practice-oriented literature review.* Journal of Psychotherapy Integration 2013. 23(4): p. 331-344.	Not included vulnerable population
116.	Kuykendall, L., L. Tay, and V. Ng, *Leisure engagement and subjective well-being: A meta-analysis.* Psychological Bulletin 2015. 141(2): p. 364-403.	Not included vulnerable population
117.	Larun, L., et al. *Exercise in prevention and treatment of anxiety and depression among children and young people*. Cochrane Database 2006. DOI: 10.1002/14651858.CD004691.pub2.	Not a vulnerable population

118.	Morton, M.H. and P. Montgomery, *Youth empowerment programs for improving adolescents' self-efficacy and self-esteem a systematic review.* Research on Social Work Practice 2013. 23(1): p. 22-33.	Not included vulnerable population
119.	Templeton, L., R. Velleman, and C. Russell, *Psychological interventions with families of alcohol misusers: A systematic review.* Addiction Research and Therapy 2010. 18(6): p. 616-648.	Not included vulnerable population
120.	Tennant, R. and a. et, *A systematic review of reviews of interventions to promote mental health and prevent mental health and prevent mental health problems in children and young people.* Journal of Public Mental Health 2007. 6(1): p. 25-32.	Not included vulnerable population
121.	Thapar, A. and a. et, *Managing and preventing depression in adolescents.* BMJ 2010(30.1.10): p. 254-258.	Not included vulnerable population
122.	Oliver, S. and a. et, *Young people and mental health: novel methods for systematic review of research on barriers and facilitators.* Health Education Research 2008. 23(5): p. 770-790.	Not included vulnerable population
123.	Painter, K. and M. Scannapieco, *Part I: a review of the literature on multisystemic treatment within an evidence-based framework: implications for working with culturally diverse families and children.* Journal Family Social Work 2009. 12(1): p. 73-92.	Not included vulnerable population
124.	Kerr, L. and J. Cossar, *Attachment Interventions with Foster and Adoptive Parents: A Systematic Review.* Child Abuse Review 2014. 23(6): p. 426-439.	Not included vulnerable population
125.	Everson-Hock, E., et al., *The effectiveness of training and support for carers and other professionals on the physical and emotional health and well-being of looked-after children and young people: A systematic review.* 2012. 38(2): p. 162-174.	Not included vulnerable population
126.	Merry Sally, N., et al. *Psychological and educational interventions for preventing depression in children and adolescents*. Cochrane Database 2011. DOI: 10.1002/14651858.CD003380.pub3.	Not included vulnerable population
127.	Arbesman, M., S. Bazyk, and S.M. Nochajski, *Systematic review of occupational therapy and mental health promotion, prevention, and intervention for children and youth.* American Journal of Occupational Therapy, 2013. 67(6): p. e120-30.	Not included vulnerable population
128.	Fisher, H., F. Gardner, and P. Montgomery *Cognitive-behavioural interventions for preventing youth gang involvement for children and young people (7-16).* Cochrane Database 2008. DOI: 10.1002/14651858.CD007008.pub2.	Not included vulnerable population
129.	Peltonen, K. and R.L. Punamaki, *Preventive interventions among children exposed to trauma of armed conflict: A literature review.* Aggressive Behavior 2010. 36(2): p. 95-116.	Not included vulnerable population
130.	Welsh, J., et al., *Promoting equity in the mental wellbeing of children and young people: a scoping review.* Health Promotion International 2015. 30 Suppl 2: p. ii36-76.	Not included vulnerable population
131.	Townshend, K., et al., *The effectiveness of Mindful Parenting programs in promoting parents' and children's wellbeing: A systematic review protocol.* JBI Database of Systematic Reviews 2014. 12(11): p. 184-196.	Not included vulnerable population
132.	Golzari, M., S.J. Hunt, and A. Anoshiravani, *The health status of youth in juvenile detention facilities.* Journal of Adolescent Health 2006. 38(6): p. 776-82.	Not interventions
133.	Jackson, K.F., *Building cultural competence: A systematic evaluation of the effectiveness of culturally sensitive interventions with ethnic minority youth.* Children and Youth Services Review 2009. 31(11): p. 1192-1198.	Not interventions
134.	Jouriles, E.N., et al., *Child abuse in the context of domestic violence: prevalence, explanations, and practice implications.* Violence & Victims 2008. 23(2): p. 221-35.	Not interventions
135.	Pabon, M.C., *Ethnic identity development in Latino youth: A meta analysis of the research.* Dissertations Abstracts International 2011. 71(9-A): p. 3381.	Not interventions
136.	Vyncke, V., et al., *Does neighbourhood social capital aid in levelling the social gradient in the health and well-being of children and adolescents? A literature review.* BMC Public Health 2013. 13: p. 65.	Not interventions
137.	Gary, F.A., M. Baker, and D.M. Grandbois, *Perspectives on suicide prevention among American Indian and Alaska native children and adolescents: a call for help.* Online Journal of Issues in Nursing 2005. 10(2): p. 6.	Not interventions

138.	Holt, S., H. Buckley, and S. Whelan, *The impact of exposure to domestic violence on children and young people: a review of the literature.* Child Abuse2008. 32(8): p. 797-810.	Not interventions
139.	MacDonald, J.P., et al., *A review of protective factors and causal mechanisms that enhance the mental health of Indigenous Circumpolar youth.* 2013. 72: p. 21775.	Not interventions
140.	Sanchez-Meca, J., A.I. Rosa-Alcazar, and C. Lopez-Soler, *The psychological treatment of sexual abuse in children and adolescents: A meta-analysis.* International Journal Clinical and Health Psychology 2011. 11(1): p. 67-93.	Not interventions
141.	Lapalme, J., Bisset, S. & Potvin, L. , *Role of context in evaluating neighbourhood interventions promoting positive youth development: a narrative systematic review. International Journal of Public Health* 2014. 59: p. 31-42.	Not interventions
142.	Day, A. and A. Francisco, *Social and emotional wellbeing in Indigenous Australians: identifying promising interventions.* Aus & NZ Jnl Pub Health 2013. 37(4): p. 350-355.	Not within age range
143.	MacBeth, A., et al., *Mellow parenting: Systematic review and meta-analysis of an intervention to promote sensitive parenting.* Developmental Medicine & Child Neurology 2015. 57(12): p. 1119-1128.	Not within age range
144.	Morrison, J., et al., *Systematic review of parenting interventions in European countries aiming to reduce social inequalities in children's health and development.* BMC Public Health 2014. 14: p. 1040.	Not within age range
145.	Murray, K.E., G.R. Davidson, and R.D. Schweitzer, *Review of refugee mental health interventions following resettlement: best practices and recommendations.* American Journal of Orthopsychiatry 2010. 80(4): p. 576-85.	Not within age range
146.	Rivas, C., et al., *Advocacy interventions to reduce or eliminate violence and promote the physical and psychosocial well-being of women who experience intimate partner abuse.* Cochrane Database 2015. 12: p. CD005043.	Not within age range
147.	Batastini, A.B., et al., *Telepsychological services with criminal justice and substance abuse clients: A systematic review and meta-analysis.* Psychological Serv 2016. 13(1): p. 20-30.	Not within age range
148.	Fraser, J.G., et al., *A comparative effectiveness review of parenting and trauma-focused interventions for children exposed to maltreatment.* Journal of developmental & Behavioral Pediatrics 2013. 34(5): p. 353-68.	Not within age range
149.	Allin, H., C.N. Wathen, and H. MacMillan, *Treatment of child neglect: A systematic review.* Canadian Journal of Psychiatry 2005. 50(8): p. 497-504.	Results did not match search strategy and inclusion criteria
150.	Williams, L. and Z. Mumtaz, *Being alive well? Power-knowledge as a countervailing force to the realization of mental well-being for Canada's aboriginal young people.* International Journal of Mental Health Promotion 2008. 10(4): p. 21-31.	Results did not match search strategy and inclusion criteria
151.	Miffitt, L.A., *State of the science: group therapy interventions for sexually abused children.* Archives of Psychiatric Nursing 2014. 28(3): p. 174-179.	Results did not match search strategy and inclusion criteria
152.	Abadilla, C., *My mind my body my world: The development and evaluation of a biopsychosocial approach to sexual education for adolescent girls in residential treatment.* AIDS & Behavior 2015. 75(11-A(E)).	Thesis/ Dissertation
153.	Trask, E.V., *Efficacy of treatments for sexually abused children: A meta-analysis.* Dissertations Abstracts International 2009. 69(8-B): p. 5062.	Thesis/ Dissertation
154.	Cunha, L.M., *The efficacy of therapeutic interventions for adolescent maltreatment victims: A meta-analysis.* Dissertations Abstracts International 2008. 69(3-B): p. 1948.	Thesis/ Dissertation
155.	Flack, J., *Incarceration prevention for adolescent males impacted by parental incarceration and foster care.* Dissertations Abstracts International 2013. 73(7-B(E)):	Thesis/ Dissertation
156.	Ager, A., et al., *What Strategies Are Appropriate for Monitoring Children outside of*	Excluded

	Family Care and Evaluating the Impact of the Programs Intended to Serve Them? Child Abuse and Neglect 2012. 36(10): p. 732-742.	outcomes
157.	Azzopardi, P., et al., *The quality of health research for young indigenous australians: Informing health priority, intervention and future research need.* 2013. 48: p. 74.	Excluded outcomes
158.	Barlow, J., et al. *Individual and group-based parenting programmes for the treatment of physical child abuse and neglect*. 2006. DOI: 10.1002/14651858.CD005463.pub2.	Excluded outcomes
159.	Beelmann, A. and F. Losel, *Child social skills training in developmental crime prevention: effects on antisocial behavior and social competence.* 2006. 18(3): p. 603-10.	Excluded outcomes
160.	Cardoza, V.J., et al., *Sexual Health Behavior Interventions for U.S. Latino Adolescents: A Systematic Review of the Literature.* 2012. 25(2): p. 136-149.	Excluded outcomes
161.	Howarth, E., et al., *The Effectiveness of Targeted Interventions for Children Exposed to Domestic Violence: Measuring Success in Ways that Matter to Children, Parents and Professionals.* 2015. 24(4): p. 297-310.	Excluded outcomes
162.	Jackson, K.F., D.R. Hodge, and M.G. Vaughn, *A meta-analysis of culturally sensitive interventions designed to reduce high-risk behaviors among African American youth.* 2010. 36(3): p. 163-173.	Excluded outcomes
163.	Koehler, J., et al., *A systematic review and meta-analysis on the effects of young offender treatment programs in Europe.* 2013. 9(1): p. 19-43.	Excluded outcomes
164.	Leenarts, L., et al., *Evidence-based treatments for children with trauma-related psychopathology as a result of childhood maltreatment: a systematic review.* 2013. 22(5): p. 269-283.	Excluded outcomes
165.	Livingstone, N., G. Macdonald, and N. Carr *Restorative justice conferencing for reducing recidivism in young offenders (aged 7 to 21)*. 2013. DOI: 10.1002/14651858.CD008898.pub2.	Excluded outcomes
166.	Mathews, B., et al. *Child protection training for professionals to improve reporting of child abuse and neglect*. Cochrane 2015. DOI: 10.1002/14651858.CD011775.	Excluded outcomes
167.	Tolan, P., et al., *Mentoring Interventions to Affect Juvenile Delinquency and Associated Problems: A Systematic Review. Campbell Systematic Reviews 2013:10*. 2013, Campbell Collaboration.	Excluded outcomes
168.	Toumbourou, J.W., et al., *Mental health promotion and socio-economic disadvantage: lessons from substance abuse, violence and crime prevention and child health.* Health Promotion Journal of Australia 2007. 18(3): p. 184-90.	Excluded outcomes
169.	Paavilainen, E. and A. Flinck, *National Clinical Nursing Guideline for Identifying and Intervening in Child Maltreatment within the Family in Finland.* 2013. 22(3): p. 209-220.	Excluded outcomes
170.	Schwalbe, C.S., et al., *A meta-analysis of experimental studies of diversion programs for juvenile offenders.* Clinical Psychology Review 2012. 32(1): p. 26-33.	Excluded outcomes
171.	Harden, A., et al., *Teenage pregnancy and social disadvantage: systematic review integrating controlled trials and qualitative studies.* BMJ, 2009. 339.	Excluded outcomes
172.	Connolly, J.A. and L.E. Joly, *Outreach with street-involved youth: a quantitative and qualitative review of the literature.* Clinical Psychology Review 2012. 32(6): p. 524-34.	Excluded outcomes
173.	Lustig, S.L. and L. Tennakoon, *Testimonials, narratives, stories, and drawings: child refugees as witnesses.* Child Adol Psych Clinics North America 2008. 17(3): p. 569-84, viii.	Excluded outcomes
174.	Abrams, L.S., et al., *Juvenile Reentry and Aftercare Interventions: Is Mentoring a Promising Direction?* Jnl Evidence-based Social Work 2014. 11(4): p. 404-422.	Excluded outcomes
175.	Boothby, N., et al., *What are the most effective early response strategies and interventions to assess and address the immediate needs of children outside of family care?* Child Abuse & Neglect 2012. 36(10): p. 711-721.	Excluded outcomes
176.	Meade, C.S. and J.R. Ickovics, *Systematic review of sexual risk among pregnant and mothering teens in the USA: Pregnancy as an opportunity for integrated prevention of STD and repeat pregnancy.* Social Science & Medicine 2005. 60(4): p. 661-678.	Excluded outcomes

6.7 List of randomised controlled trials excluded at full text screening

	Citation	Reason
1.	Cohen JA, Mannarino AP, Perel JM, Staron V. A pilot randomized controlled trial of combined trauma-focused CBT and sertraline for childhood PTSD symptoms. Jnl Amer Acad Child Adol Psych 2007;46(7):811-9.	Clinical
2.	Swenson CC, Schaeffer CM, Henggeler SW, Faldowski R. Multisystemic Therapy for Child Abuse and Neglect: A Randomized Effectiveness Trial. 2010;24(4):497-507.	Clinical
3.	Madigan S, Vaillancourt K, McKibbon A, Benoit D. Trauma and traumatic loss in pregnant adolescents: the impact of Trauma-Focused Cognitive Behavior Therapy on maternal unresolved states of mind and Posttraumatic Stress Disorder. Attachment & Human Development 2015;17(2):175-98.	Clinical
4.	Ruf M, Schauer M, Neuner F, Catani C, Schauer E, Elbert T. Narrative exposure therapy for 7- to 16-year-olds: A randomized controlled trial with traumatized refugee children. Journal Traumatic Stress 2010;23(4):437-45.	Clinical
5.	Westermark PK, Hansson K, Olsson M. Multidimensional treatment foster care (MTFC): results from an independent replication. Family Therapy 2011;33(1):20-41.	Clinical
6.	Lecroy CW. Building an effective primary prevention program for adolescent girls: empirically based design and evaluation. Brief Treatment & Crisis Intervention 2005;5(1):75-84.	Not included vulnerable population
7.	Lynch FL, Dickerson JF, Garber J, Clarke GN, Weersing VR, Beardslee WR, et al. Cost-effectiveness of a cognitive behavioral intervention to prevent depression in at-risk teens. Journal of Mental Health Policy and Economics 2011;14:S19.	Not included vulnerable population
8.	Miners A, Phillips A, Kreif N, Rodger A, Speakman A, Fisher M, et al. Health-related quality-of-life of people with HIV in the era of combination antiretroviral treatment: A cross-sectional comparison with the general population. The Lancet 2014;1(1):e32-e40.	Not included vulnerable population
9.	Osypuk TL, Glymour MM, Tchetgen Tchetgen E, Lincoln A, Acevedo-Garcia D, Earls F. Mental health effects of a housing mobility program by vulnerable subgroups: Who benefits from moves to low-poverty neighborhoods? 2011;173:S51.	Not included vulnerable population
10.	Rosselló J, Bernal G, Rivera-Medina C. Individual and group CBT and IPT for Puerto Rican adolescents with depressive symptoms. Cultural Diversity and Ethnic Minority Psychology 2008;14(3):234-45.	Not included vulnerable population
11.	Semple RJ. Mindfulness-Based Cognitive Therapy for children: A randomized group psychotherapy trial developed to enhance attention and reduce anxiety. ProQuest Information 2006;66:5105-.	Not included vulnerable population
12.	Tandon SD, Mendelson T, Perry D, Kemp K, Leis J. Preventing perinatal depression among low-income home visiting clients. Archives of Women's Mental Health 2011;14:S51-S2.	Not included vulnerable population
13.	Bonell C, Maisey R, Speight S, Purdon S, Keogh P, Wollny I, et al. Randomized controlled trial of 'teens and toddlers': A teenage pregnancy prevention intervention combining youth development and voluntary service in a nursery. Journal of Adolescence 2013;36(5):859-70.	Not included vulnerable population
14.	Henderson CE, Rowe CL, Dakof GA, Hawes SW, Liddle HA. Parenting practices as mediators of treatment effects in an early-intervention trial of multidimensional family therapy. 2009;35(4):220-6.	Not included vulnerable population
15.	Henderson CE, Dakof GA, Greenbaum PE, Liddle HA. Effectiveness of multidimensional family therapy with higher severity substance-abusing adolescents: Report from two randomized controlled trials. 2010;78(6):885-97.	Not included vulnerable population
16.	Hyun MS, Nam KA, Kim MA. Randomized controlled trial of a cognitive-behavioral therapy for at-risk Korean male adolescents. 2010;24(3):202-11.	Not included vulnerable population
17.	Carrion VG, Kletter H, Weems CF, Berry RR, Rettger JP. Cue-Centered Treatment for Youth Exposed to Interpersonal Violence: A Randomized Controlled Trial. Journal of Traumatic Stress 2013;26(6):654-62.	Not included vulnerable population
18.	Castellanos N, Conrod P. Brief interventions targeting personality risk factors for adolescent substance misuse reduce depression, panic and risk-taking behaviours.	Not included vulnerable

	2006;15(6):645-58.	population
19.	Dodge KA, McCourt SN. Translating models of antisocial behavioral development into efficacious intervention policy to prevent adolescent violence. Developmental Psychobiiology 2010;52(3):277-85.	Not included vulnerable population
20.	Frederick KE, Hatz JI, Lanning B. Not just horsing around: the impact of equine-assisted learning on levels of hope and depression in at-risk adolescents. Community Mental Health Journal 2015;51(7):809-17.	Not included vulnerable population
21.	Gewirtz AH, DeGarmo DS, Lee S, Morrell N, August G. Two-year outcomes of the Early Risers prevention trial with formerly homeless families residing in supportive housing. Journal of Family Psychology 2015;29(2):242-52.	Not included vulnerable population
22.	Semple RJ, Lee J, Rosa D, Miller LF. A randomized trial of mindfulness-based cognitive therapy for children: Promoting mindful attention to enhance social-emotional resiliency in children. Journal of Child & Family Studies 2010;19(2):218-29.	Not included vulnerable population
23.	Appelqvist-Schmidlechner K, et a. Effects of a psycho-social support programme for young men - randomised trial of the Time Out! Getting Life Back on track programme. International Journal Mental Health Promotion 2010;12(3):14-24.	Not included vulnerable population
24.	Moran Etter E. Longitudinal effects of improving inter-parental relationships in low-income couples: Child outcomes. ProQuest Information 2014;75.	Not included vulnerable population
25.	Semple R, Lee J, Rosa D, Miller L. A Randomized Trial of Mindfulness-Based Cognitive Therapy for Children: Promoting Mindful Attention to Enhance Social-Emotional Resiliency in Children. Journal of Child & Family Studies 2010;19(2):218-29.	Not included vulnerable population
26.	Tandon SD, Perry DF, Mendelson T, Kemp K, Leis JA. Preventing perinatal depression in low-income home visiting clients: A randomized controlled trial. Journal of Consulting and Clinical Psychology 2011;79(5):707-12.	Not included vulnerable population
27.	Kmett Danielson C, McCart MR, de Arellano MA, Macdonald A, Doherty LS, Resnick HS. Risk reduction for substance use and trauma-related psychopathology in adolescent sexual assault victims: findings from an open trial. 2010;15(3):261-8.	Not an RCT
28.	Taussig HN, Culhane SE. Emotional Maltreatment and Psychosocial Functioning in Preadolescent Youth Placed in Out-of-Home Care. Journal of Aggression Maltreatment & Trauma 2010;19(1):52-74.	Not interventions
29.	Bos K, Zeanah CH, Fox NA, Drury SS, McLaughlin KA, Nelson CA. Psychiatric outcomes in young children with a history of institutionalization. 2011;19(1):15-24.	Not interventions
30.	Meston CM, Lorenz TA, Stephenson KR. Effects of expressive writing on sexual dysfunction, depression, and PTSD in women with a history of childhood sexual abuse: Results from a randomized clinical trial. 2013;10(9):2177-89.	Not within age range
31.	Samuels J, et a. Time-limited case management for homeless mothers with mental health problems: effects on maternal mental health. 2015;6(4):515-39.	Not within age range
32.	Price JM, Roesch S, Walsh NE, Landsverk J. Effects of the KEEP Foster Parent Intervention on Child and Sibling Behavior Problems and Parental Stress During a Randomized Implementation Trial. 2015;16(5):685-95.	Not within age range
33.	Small LA, et a. Meeting the complex needs of urban youth and their families through the 4Rs 2Ss Family Strengthening Program: the "Real World" meets evidence-informed care. 2015;25(4):433-45.	Not within age range
34.	van Rosmalen-Nooijens KA, Prins JB, Vergeer M, Wong SH, Lagro-Janssen AL. "Young people, adult worries": RCT of an internet-based self-support method "Feel the ViBe" for children, adolescents and young adults exposed to family violence, a study protocol. BMC Public Health 2013;13:226.	Ongoing trial
35.	Visser MM, Telman MD, de Schipper JC, Lamers-Winkelman F, Schuengel C, Finkenauer C. The effects of parental components in a trauma-focused cognitive behavioral based therapy for children exposed to interparental violence: study protocol for a randomized controlled trial.BMC Psychiatry 2015;15:131.	Ongoing trial
36.	Saulsberry A, Corden M, Taylor-Crawford K, Crawford T, Johnson M, Froemel J, et al. Chicago Urban Resiliency Building (CURB): An Internet-Based Depression-Prevention Intervention for Urban African-American and Latino Adolescents.	Ongoing trial

	Journal of Child & Family Studies 2013;22(1):150-60.	
37.	Skerfving A, Johansson F, Elgan TH. Evaluation of support group interventions for children in troubled families: study protocol for a quasi-experimental control group study. BMC Public Health 2014;14:76.	Ongoing trial
38.	Taussig HN, Culhane SE, Hettleman D. Fostering Healthy Futures: An Innovative Preventive Intervention for Preadolescent Youth in Out-of-Home Care. Child Welfare 2007;86(5):113-31.	Ongoing trial
39.	Butler S, Baruch G, Hickey N, Fonagy P. A randomized controlled trial of multisystemic therapy and a statutory therapeutic intervention for young offenders.[Erratum appears in J Am Acad Child Adolesc Psychiatry. 2012 Mar;51(3):337]. 2011;50(12):1220-35.e2.	Excluded outcomes
40.	Spencer MB, Noll E, Cassidy E. Monetary incentives in support of academic achievement: Results of a randomized field trial involving high-achieving, low-resource, ethnically diverse urban adolescents. Eval Review 2005;29(3):199-222.	Excluded outcomes
41.	de Vries SL, Hoeve M, Asscher JJ, Stams GJ. The effects of the prevention program 'New Perspectives' (NP) on juvenile delinquency and other life domains: study protocol for a randomized controlled trial. BMC Psychology 2014;2(1):10.	Excluded outcomes
42.	Dopp AR, Borduin CM, Wagner DV, Sawyer AM. The economic impact of multisystemic therapy through midlife: a cost-benefit analysis with serious juvenile offenders and their siblings. Journal of Consulting & Clinical Psychology 2014;82(4):694-705.	Excluded outcomes
43.	Borduin CM, Schaeffer CM, Heiblum N. A randomized clinical trial of multisystemic therapy with juvenile sexual offenders: effects on youth social ecology and criminal activity. Journal of Consulting & Clinical Psychology 2009;77(1):26-37.	Excluded outcomes
44.	Goldberg E, Millson P, Rivers S, Manning SJ, Leslie K, Read S, et al. A human immunodeficiency virus risk reduction intervention for incarcerated youth: a randomized controlled trial. Journal of Adolescent Health 2009;44(2):136-45.	Excluded outcomes
45.	Zeanah CH, Fox NA, Nelson CA. The Bucharest Early Intervention Project: case study in the ethics of mental health research. Journal of Nervous & Mental Disease 2012;200(3):243-7.	Excluded outcomes
46.	Mullany B, Barlow A, Neault N, Billy T, Jones T, Tortice I, et al. The Family Spirit trial for American Indian teen mothers and their children: CBPR rationale, design, methods and baseline characteristics. Prevention Science 2012;13(5):504-18.	Excluded outcomes
47.	Owen-Jones E, Bekkers M, Butler CC, Cannings-John R, Channon S, Hood K, et al. The effectiveness and cost-effectiveness of the Family Nurse Partnership home visiting programme for first time teenage mothers in England: A protocol for the Building Blocks randomised controlled trial. BMC Pediatrics 2013;13(1):114.	Excluded outcomes
48.	Price JM, et a. Effects of a foster parent training intervention on placement changes of children in foster care. Child Maltreatment 2008;13(1):64-75.	Excluded outcomes
49.	Phillips G, Renton A, Moore DG, Bottomley C, Schmidt E, Lais S, et al. The Well London program--a cluster randomized trial of community engagement for improving health behaviors and mental wellbeing: baseline survey results. 2012;13:105.	Excluded outcomes
50.	Kindt KC, Kleinjan M, Janssens JM, Scholte RH. Evaluation of a school-based depression prevention program among adolescents from low-income areas: a randomized controlled effectiveness trial. 2014;11(5):5273-93.	Excluded setting
51.	Miller S, Herman-Stahl M, Fishbein D, Lavery B, Johnson M, Markovits L. Use of formative research to develop a yoga curriculum for high-risk youth: Implementation considerations. Advances in Scholl Mental Health Promotion 2014;7(3):171-83.	Excluded setting
52.	Powers LE, et a. My Life: effects of a longitudinal, randomized study of self-determination enhancement on the transition outcomes of youth in foster care and special education. Children & Youth Services Review 2012;34(11):2179-87.	Excluded setting
53.	Kindt KCM, Kleinjan M, Janssens JMAM, Scholte RHJ. Evaluation of a school-based depression prevention program among adolescents from low-income areas: A randomized controlled effectiveness trial. International Journal of Environmental Research & Public Health 2014;11(5):5273-93.	Duplicate

54.	Cohen JA, Mannarino, AP, Knudsen, K. Treating sexually abused children: 1 year follow-up of a randomised controlled trial. 2005;29:135-45.	Included in systematic review
55.	Deblinger E, Mannarino, AP, Cohen, JA, Steer, RA. A Follow-up Study of a Multisite, Randomised, Controlled Trial for Children with Sexual Abuse-Related PTSD Symptoms. Jnl American Acad Child & Adol Psychiatry 2006; 45(12):1474-84.	Included in systematic review
56.	Hyun M, Chung, HC, Lee Y. The effect of cognitive-behavioural group therapy on the self-esteem, depression, and self-efficacy of runaway adolescents in a shelter in South Korea. Applied Nursing Research 2005; 18:160-66.	Included in systematic review

6.8 Data extraction for included systematic reviews

Vulnerable population: Looked after

Author (year)	Armelius et al (2007)
Population (vulnerable group, age)	Looked after (aged 12 – 22 years)
Aim of review	**Primary:** To determine the effectiveness of CBT in residential settings for reducing criminal behaviour and other antisocial behaviour in young people. **Secondary:** To determine if a focus on criminogenic needs within CBT programs is associated with better outcomes.
Scope of review	Intervention driven.
Inclusion & exclusion criteria	**Participants:** Youth in residential treatment **Intervention:** Cognitive Behavioural Therapy either as part of a comprehensive programme or as an isolated intervention. **Comparison:** alternative intervention, standard/usual care or no intervention. **Outcomes:** primary outcome was criminal behaviour. Secondary outcomes were self-control, locus of control, psychological adjustment, self-esteem, school attendance, cognitive and social skills and relations to pro-social friends. **Language:** no language restrictions **Dates:** database inception to 2005 **Study design:** RCTs and non-randomised studies with other types of allocation of participants to a treatment and control group
Details of interventions in synthesis	Detailed description of interventions and components of interventions. The authors note the nature of interventions, specifically name the intervention, outline each intervention's components and the underlying presumed mechanisms in how the intervention 'works'.
Types of interventions in included studies	Included studies described a variety of established Cognitive Behavioural Therapy programmes:- R&R/Enhanced thinking skills; Moral Reconation Therapy, Dialectical Behaviour Therapy, Social Interactional Training/Social Modelling plus three 'more comprehensive programs': Positive Peer Culture, ART and a military camp program using social skills training, vocational training, challenging justifications for crime and work training.
Relevant studies included	5 out of 12 included studies are relevant
Limitations of review findings when applied to our review	**Outcomes:** No outcomes reported that are directly related to mental health, happiness and wellbeing
Summary	This review reported on recidivism outcomes only. Though the authors identified 5 studies with relevant secondary outcomes (psychological and/or behavioural such as social competence) , these outcomes were not reported nor included in the synthesis as the authors explained that measures were either reported in only 1 study, or were not measured at follow-up.
Quality assessment	Good quality

Author (year)	Everson-Hock et al (2011)
Population (vulnerable group, ages)	Looked after (no age restrictions)
Aim of review	**Primary:** To identify and synthesize evidence on the effectiveness of support services for transition to adulthood/leaving care (TSSs) delivered towards the end of care for looked after young people LAYP on their adult outcomes, compared with no intervention/usual care.
Scope of review	Outcome/Population driven
Inclusion & exclusion criteria	**Participants:** LAYP and/or adults who were previously LAYP, with no age limit at the time of intervention **Intervention:** support services for transition to adulthood/ leaving care (TSSs) **Comparison:** LAYP or former LAYP in receipt of usual care/no intervention **Outcomes:** The following adult outcomes were of particular interest: educational attainment, employment, substance misuse, criminal and offending behaviour, young parenthood, housing and homelessness and physical, mental and sexual health. Also considered were other outcomes (such as LAYP's own children not being taken into care) related to successful transition (as reported by studies). **Language:** English **Dates:** 1990 - 2008 **Study design:** Randomized controlled trials, nonrandomized controlled trials, case control studies, prospective cohort studies and retrospective cohort studies
Details of interventions in synthesis	Detailed information on intervention components, delivery and delivery personnel provided. No information on underlying processes and the duration of interventions
Types of interventions in included studies	No detailed information provided.
Relevant studies included	3 out of 7 studies are relevant
Limitations of review findings when applied to our review	**Outcome:** Only 3 studies reported on mental health related outcomes.
Summary	The authors explain that health outcomes were not widely reported in the literature. 3 US studies indicated little or no effect of TSSs on general satisfaction, depression or life satisfaction. However, the authors stress that of these 3, 1 study also indicated that those who had received TSSs felt more hopeful about the future.
Quality assessment	Good quality

Author (year)	Jones et al (2012)
Population (vulnerable group, ages)	Looked after (no ages provided)
Aim of review	**Primary:** To identify and synthesise evidence that evaluated the effectiveness of interventions to improve access to specialist or universal (available to any child or young person) services among looked after children and young people (LACYP)
Scope of review	Population driven
Inclusion & exclusion criteria	**Participants:** looked after children and young people (LACYP) **Intervention:** any intervention designed with the purpose of improving access to any specialist or universal service accessed by LACYP (from 2010 paper) **Comparison:** LACYP or former LACYP with usual or no access (from 2010 paper) **Outcomes:** primary – access to services; secondary – physical and emotional health and wellbeing, and longer-term outcomes in adult life and intermediate outcomes (including placements stability) – from 2010 paper **Language:** no restrictions **Dates:** 1990 – onwards (from 2010 paper) **Study design**: RCTs, controlled studies with retrospective or cross-sectional designs, non-comparative studies with baseline and post-intervention measures
Details of interventions in synthesis	Some detail of interventions described, though no reference to underlying mechanism or duration of intervention
Types of interventions in included studies	All interventions described provided additional external services. This referred to either providing additional medical information to social or health care providers, or providing additional resources such as a full time psychotherapist at foster care agencies or implementing comprehensive medial services.
Relevant studies included	0 out of 5 studies are relevant
Limitations of review findings when applied to our review	**Age:** No actual age profile provided **Interventions:** All interventions provided by external providers, typically health professionals **Outcomes:** No outcomes of interest identified
Summary	In this review, none of the included studies address an outcome of relevance to us. Furthermore, all included studies are either outwith our age range or the age range provided tends to be younger than our age range (e.g. 0-16 years, 0-18 years, 16 months – 17 years). The authors do not provide an actual age profile for any of the included studies.
Quality assessment	Good quality

Author (year)	Montgomery et al (2006)
Population (vulnerable group, ages)	Looked after (no ages provided)
Aim of review	**Primary:** To gauge their effectiveness of Independent Living Programmes (this review is a follow on review from Donkoh et al, 2006 – empty review)
Scope of review	Intervention driven.
Inclusion & exclusion criteria	**Participants:** young people leaving care (no ages provided) **Intervention:** Independent living programmes (ILP) **Comparison:** ILPs vs usual care, no intervention, or another intervention **Outcomes:** educational attainment, employment, housing, health, and life skills **Language:** not stated **Dates:** database inception to 2005 **Study design:** non-randomised studies
Details of interventions in synthesis	Detailed description of the intervention in terms of possible components, though there is no information on duration of the intervention and there is no clear outline of how different components or the intervention as a whole may work. The authors report wide variations.
Types of interventions included studies	Independent living programmes generally employ social skills training techniques such as instruction, modelling, roleplays and feedback. The specific skills targeted by ILPs vary, but most programs focus on personal development and independent living. Personal development skills may include communication, decision making, and anger management; independent living skills may include job skills, budgeting, household tasks, seeking housing, obtaining legal assistance, and utilizing community resources. Some ILPs provide educational and vocational support, and may continue services after youth are emancipated.
Relevant studies included	0 out of 8 studies
Limitations of review findings when applied to our review	**Age:** No reference to ages **Methodology**: 3 of the 8 studies are based on qualitative designs **Outcomes**: all included studies focus on outcome data relating to education and access to services such as health care
Summary	This review did not report on any study with any relevant outcomes
Quality assessment	Good quality

Author (year)	Stewart et al (2013)
Population (vulnerable group, ages)	Looked after (no ages provided)
Aim of review	**Primary**: What is the effect of mental health interventions on the outcomes of children in the child welfare system compared to standard child welfare care? **Secondary**: What is the quality of that evidence?
Scope of review	Population driven.
Inclusion & exclusion criteria	**Participants:** Children and adolescents involved with the child welfare services (no age restrictions) **Intervention:** Mental Health interventions **Comparison:** all relevant randomized control trials and studies that compared a treated group with another group were considered for inclusion **Outcomes:** measure of behavioural functioning, psychosocial functioning, placement stability, and parenting ability **Language:** Not stated **Dates:** 2001 to 2011 **Study designs:** RCTs and any study comparing a treated with a control group
Details of interventions in synthesis	Some detail described of interventions and components of interventions by grouping these into differentiated interventions (n = 21) and undifferentiated interventions (n = 6). Further details provided on the components of differentiated interventions, i.e. 11 had multiple components (example: Multidimensional Treatment Foster Care) and 10 studies included a single component (example: Incredibly Years Parenting Group). No information on duration of interventions.
Types of interventions in included studies	Differentiated interventions were specific and well-defined. Typically, these interventions are manualized and involve specific service components for clients, although their approach may vary based on the individual needs of the child and their families. Undifferentiated interventions include broad-based and less focused interventions that provide limited information regarding the services received by the child and his/her families. These services include case management and outpatient mental health services.
Relevant studies included	6 out of 27 studies are relevant
Limitations of review findings when applied to our review	**Age:** only one third of included studies are within the age range of 10 – 24 years
Summary	This review reported mixed findings. The relevant studies ranged in reporting a significant increase, decrease as well as no change in psychosocial functioning and mental health between the intervention and the control group following the intervention. The decrease in mental health was explained as a potential type I error.
Quality assessment	Good quality

Author (year)	Turner et al (2007)
Population (vulnerable group, ages)	Looked after (aged 3 – 17 years)
Aim of review	**Primary**: To assess the effectiveness of behavioural and cognitive-behavioural training interventions in improving a) placement stability, b) foster carers' psychological well-being and functioning, and c) looked-after children's behavioural and relationship problems
Scope of review	Intervention driven
Inclusion & exclusion criteria (relevant to quant studies)	**Participants:** children in the welfare system (foster care, looked after children) aged 3 – 17 years **Intervention:** foster carer training with CBT-based intervention (both group and individual settings) **Comparison:** control groups, assigned by random allocation **Outcomes:** children's psychological functioning (including psychiatric symptoms) such as depression, PTSD, anxiety. **Language:** no restrictions **Dates:** database inception to 2006 **Study design**: RCT, quasi-randomised studies
Details of interventions in synthesis	Detailed description of interventions regarding nature, components and duration of interventions. Detailed information on how the intervention might work.
Types of interventions in included studies	The authors stipulate the intervention of interest as part of their search and inclusion strategy. Interventions of interest had to include either operant learning, classical learning, social learning theory, or cognitive theories of learning.
Relevant studies included	2 out of 6 studies are relevant
Limitations of review findings when applied to our review	**Age:** 2 of the 6 studies are based on participants outwith our age range **Synthesis:** findings are synthesised according to rating scale used in included studies
Summary	Out of the 6 included studies, 2 are based on ages outwith our interest (4-7 year old, and primary school aged). There is no information on age profile for the remaining four studies. Though the reviewers conduct a meta-analysis, this was only possible using 3 studies, of which only 1 reports results that are relevant to us (regarding outcomes and age range).
Quality assessment	Good quality

Author (year)	Turner et al (2011)
Population (vulnerable group, ages)	Looked after (0 – 18 years)
Aim of review	**Primary**: To assess the impact of Treatment Foster Care (TFC) on psychosocial and behavioural outcomes, delinquency, placement stability, and discharge status for children and adolescents who require out-of-home placement
Scope of review	Intervention driven
Inclusion & exclusion criteria	**Participants:** children and adolescents (age 0-18years) who are placed out of home **Intervention:** any TFC programme providing individualized, therapeutic, community-, and foster family-based intensive services to children and adolescents (and their biological or adoptive families), designed to prevent multiple placements, and/or as an alternative to restrictive institutional placement options. **Comparison:** no treatment, waiting list or regular foster care **Outcomes:** behavioural outcomes, psychological functioning, educational outcomes, interpersonal functioning, mental health status, family skills, TFC agency and costs. **Language:** no restrictions **Dates:** database inception – 2007 **Study design:** RCT, quasi-randomised controlled trials
Details of interventions in synthesis	Detailed description of the intervention of interest, i.e. Treatment Foster Care with reference to nature, components and how the intervention might work. No information on duration of intervention.
Types of interventions in included studies	This review focussed on a specific intervention, i.e. Treatment Foster Care.
Relevant studies included	0 out of 5 studies are relevant
Limitations of review findings when applied to our review	**Outcome:** Only 1 study reported psychological and mental health outcomes, but this is with a clinical population.
Summary	No non-clinical study reported on findings of relevance. Instead, findings are reported for antisocial behaviour, delinquency, homework completion, job training/employment, interpersonal relationships (again only psychiatric sample), school attendance. There are further non-relevant findings on placement stability, ‘time on the run’, placement outcomes, days spent in regular foster care etc.
Quality assessment	Good quality

Author (year)	Donkoh et al (2006)
Population (vulnerable group, age)	Looked after (no ages provided)
Aim of review	**Primary:** To assess the effectiveness of independent living programmes for young people leaving the care system
Scope of review	Intervention driven
Inclusion & exclusion criteria	**Participants:** young people leaving care systems at their country's statutory age of discharge **Intervention:** Independent Living Programmes (ILP) **Comparison:** ILPs to standard care, another intervention, no intervention, or a wait-list control **Outcomes:** not stated **Language:** not stated **Dates:** database inception to 2005 **Study design**: Randomised or quasi-randomised controlled trials
Details of interventions in synthesis	Independent living programmes provide training and/or support in the acquisition of personal development. Programmes specifically targeted at young people with special needs such as those with physical or learning disabilities, teenage parents, young offenders, and those in psychiatric institutions were excluded.
Types of interventions in included studies	There were no differentiations between different types of independent living programmes
Relevant studies included	0 out of 0 studies
Limitations of review findings when applied to our review	No studies were identified that met the inclusion criteria
Summary	The authors explained that no study was found that met the inclusion criteria of this review. The authors outline that 18 studies using nonrandomised or non-comparative designs were found, which generally reported favourable outcomes for ILP participants; however, reliable inferences could not be drawn from these studies due to their use of weak methodology.
Quality assessment	Poor quality

Author (year)	Leve et al (2012)
Population (vulnerable group, ages)	Looked after (no ages provided)
Aim of review	**Primary**: To review interventions that improve the wellbeing of foster children and their families.
Scope of review	Intervention driven
Inclusion & exclusion criteria	**Participants:** children and young people in foster care **Intervention:** any foster care intervention **Comparison:** not stated **Outcomes:** not stated **Language:** not stated **Dates:** database inception to 2012 **Study design:** RCT
Details of interventions in synthesis	Detailed, though inconsistent, descriptions provided for each identified intervention (n = 8) regarding the nature, underlying processes and duration of each intervention. Limited information on components.
Types of interventions in included studies	The eight interventions are grouped according to age applicability. Early childhood: Attachment and Biobehavioral Catchup, Multidimensional Treatment Foster Care for Preschoolers, Bucharest Early Intervention Project. Middle Childhood: Incredible Years, Keeping Foster Parents Trained and Supported, Middle School Success, Fostering Individualized Assistance Program. Adolescence: Multidimensional Treatment Foster Care for Adolescents
Relevant studies included	4 out of 21 studies are relevant
Limitations of review findings when applied to our review	**Age**: 10 studies focussed on interventions for children younger than 10 years.
Summary	The authors group interventions according to age categories of 'early' and 'middle childhood' and 'adolescence' without providing numerical age ranges. Using sciencenetlinks.com, we ascribed the following numerical ages to these categories: early childhood (3-8 year old), middle childhood (9-11 year old), and adolescence (12 – 18 year old). There were 4 studies listed for adolescents. Of these, all considered mental health. However, results were not described in detail except for 1 study which noted an improvement in mental health 2 years post baseline measurement.
Quality assessment	Poor quality

Author (year)	Thompson et al (2016)
Population (vulnerable group, ages)	Looked after (aged 13 – 25 years)
Aim of review	**Primary**: To comprehensively identify, synthesize, and summarize what we currently know from theories, concepts, and research findings pertaining to natural mentoring among adolescent youth in foster care **Secondary**: To make practice recommendations and outline an agenda for future research investigating natural mentoring among older youth in foster care
Scope of review	Intervention driven
Inclusion & exclusion criteria	**Participants:** Adolescents or emerging adults (ages 13–25 years) with foster care experience **Intervention:** natural mentoring in foster care **Comparison:** not stated **Outcomes:** not stated **Language:** English **Dates:** database inception to 2015 **Study design**: any study design (quantitative, qualitative, mixed methods, theoretical and conceptual work, reports, policy briefs and literature reviews)
Details of interventions in synthesis	Detailed description of the intervention, providing a conceptual and research background to the intervention. Limited description of components and underlying processes though the authors outline individual differences.
Types of interventions included in studies	Natural mentoring was defined as the presence of a supportive, caring relationship with a non-parental adult (other than a peer, spouse, or present caregiver) from within a youth's existing social network.
Relevant studies included	11 out of 38 studies are relevant
Limitations of review findings when applied to our review	**Outcomes:** Lack of data to support findings, i.e. the authors outline that there is a positive relationship between the intervention and the outcome variables in a narrative only. **Setting**: It is not clear whether 2 of the 12 relevant studies are based in schools or in the community. **Methodology**: This review utilised quantitative studies, qualitative and conceptual papers in equal numbers. Results can be isolated as per methodology.
Summary	The authors report a positive association between natural mentoring and improved adjustment among foster youth during their transition to adulthood (e.g. improved psychological well-being and the development of resilience).
Quality assessment	Poor quality

Vulnerable population: Homeless

Author (year)	Altena et al (2010)
Population (vulnerable group, ages)	Homeless (aged 10 – 24 years)
Aim of review	Primary: To provide an accurate and complete picture of effective interventions for homeless youth.
Scope of review	Population driven
Inclusion & exclusion criteria	**Participants:** Homeless youth (no age restrictions) **Intervention:** Any for the population of interest **Comparison:** comparison group or pre and post measures **Outcomes:** Not stated **Language:** English **Dates:** 1985-2008 **Study design:** RCT and NRS
Details of interventions in synthesis	Detailed description of all included interventions in terms of intervention content, duration, components and who delivered the intervention (in online appendix). Limited information on how the intervention might work.
Types of interventions in included studies	Interventions split by type (n = 7) by systematic reviewers: intensive case management; independent living; motivational interviewing; cognitive behavioural; living skills/vocational; peer based; supportive housing.
Relevant studies included	7 out of 11 studies are relevant
Limitations of review findings when applied to our review	**Outcomes**: 4 studies did not address any outcome of interest **Interventions**: 3 interventions were not relevant as these were linked to non-relevant outcomes
Summary	Included studies varied in outcomes. 4 studies focussed on substance misuse, general health, or knowledge acquisition. 3 interventions 'supportive housing', 'motivational interviewing' and 'peer based' are not relevant as related to a non-relevant outcome. Of the relevant studies, CBT at group and individual level reduced mental health symptoms, as did individual interventions of intensive case management and independent living programmes. Group interventions were reported to increase total life satisfaction in the intervention group while there were no effects noted for depression or self-esteem following the intervention and when compared to a control group.
Quality assessment	Good quality

Author (year)	Coren et al (2013)
Population (vulnerable group, ages)	Homeless (aged 0 – 24 years)
Aim of review	**Primary:** To summarise the effectiveness of interventions for street-connected children and young people that promote inclusion and reintegration and reduce harms **Secondary**: To explore the processes of successful intervention, and to understand how intervention effectiveness may vary in different contexts
Scope of review	Population/outcome driven
Inclusion & exclusion criteria	**Participants:** street connected children and young people (0 – 24 years) **Intervention:** any therapeutic intervention targeting harm-reduction, inclusion or reintegration for street connected children and young people **Comparison:** shelter/drop-in no intervention, standard practice intervention or different type of intervention. **Outcomes:** measures of inclusion and reintegration, mental health, self-esteem; substance misuse, sexual risk behaviour, family functioning **Language:** no restrictions **Dates:** database inception - 2012 **Study design:** RCTs, quasi-randomised trials, non-randomised studies
Details of interventions in synthesis	Some description of the interventions, components and duration, and detailed descriptions of the conceptual underpinnings. The authors group interventions according to individual oriented (n = 6), group-based (n = 2) and family oriented (n = 4). Detailed description of how the intervention might work.
Types of interventions in included studies	12 interventions were identified, n = 5 were multi-component. The theoretical underpinnings grouped the interventions into: motivational framework, community reinforcement framework, CBT framework, multicomponent case management framework (incl. individual therapy), behavioural family intervention framework, functional family therapy and a CBT family intervention, social cognitive framework.
Relevant studies included	6 out of 11 studies are relevant
Limitations of review findings when applied to our review	**Outcome:** 5 studies report outcomes that are either unclear or not relevant. **Population**: 1 study is based on homeless families with runaway young people. Results are not separated. **Age:** 1 study is based on children ages outwith our age range.
Summary	Five studies focussed on outcome data such as abstinence, delinquent behaviour, living stability, and risky sexual behaviours. All included studies are based on homeless or runaway young people. However, the authors make the argument that runaway young people are likely to have stronger family ties, and are different from homeless young people. Findings indicate that an improvement in self-esteem score, and a reduction of mental health symptoms.
Quality assessment	Good quality

Author (year)	Slesnick et al (2009)
Population (vulnerable group, ages)	Homeless (aged 12 – 24 years)
Aim of review	**Primary:** To review and summarize those evaluations of stand-alone, community-based service interventions (those offered by shelters and drop-in centres) and evaluations of add-on treatment interventions (e.g., case management, substance abuse treatment and HIV and STD intervention) which focus on assisting shelter, street or drop-in centre recruited youth.
Scope of the review	Population driven
Inclusion & exclusion criteria	**Participants:** runaway, shelter, street or drop-in centre recruited youth (aged 12-24) **Intervention:** any intervention improving life situation by reducing problem behaviours such as HIV, substance use, homelessness, medical and mental health problems **Comparison:** not required **Outcomes:** homelessness, mental health, substance use and more **Language:** English **Dates:** not stated **Study design:** any study design
Details of interventions in synthesis	There are no details on any of the interventions included in the synthesis.
Types of interventions in included studies	Youth drop in centres, runaway shelters, case management and vocational training interventions, substance abuse treatment interventions, HIV and sexual behaviour interventions and group CBT. Individual international interventions.
Relevant studies included	7 out of 32 studies are relevant
Limitations of review findings when applied to our review	**Methodology:** 6 studies were qualitative in nature, and 5 were international studies (including non-OECD). **Synthesis:** findings were presented per methodology category **Outcome:** The full range of outcomes across studies is not clear though the authors summarise findings in a table in the appendix
Summary	There is a lack of information on the interventions identified and included in the synthesis. The findings are presented as per methodology or study type, i.e. service evaluations, international research, qualitative studies, intervention efficacy studies. While the authors present outcome data as part of a table of all reviewed studies, the extent of synthesis in the narrative is limited. In this table, the relevant studies are noted with a significant decrease in mental health symptoms, and a significant increase in self-esteem and total life satisfaction.
Quality assessment	Good quality

Author (year)	Dawson et al (2013)
Population (vulnerable group, ages)	Homeless (aged 15 – 24 years)
Aim of review	**Primary:** To synthesise current research on homeless youth experiences of the delivery of primary health care
Scope of review	Intervention driven
Inclusion & exclusion criteria	**Participants:** Homeless youth aged 15 – 24 years **Intervention:** Service delivery **Comparison:** Not required **Outcomes:** Not stated **Language:** Not stated **Dates:** 2000-2011 **Study design:** any study design
Details of interventions in synthesis	There is no description of individual interventions, nor the duration of interventions, components or who delivers the intervention. The authors note 2 studies from which the nature of the relevant interventions (n = 2) are summarised from.
Types of interventions in included studies	There is no information on the number of interventions included. The authors mention individual therapy, case management, improved housing, counselling and support groups, and refer to intervention approaches such as street outreach programme and community reinforcement approach therapy. It is, however, not clear whether these are a select few or all interventions studied.
Relevant studies included	1 out of 12 studies is relevant
Limitations of review findings when applied to our review	**Outcome:** One study provided outcomes of interest. **Methodology:** six studies were qualitative in design. **Setting:** it is unclear how many studies – if any - were set within a primary care setting.
Summary	Most studies focussed on outcomes irrelevant to our review. The focus of interventions was on the delivery of primary care services, albeit these seemed to be predominantly based within the community such as outreach, community health services and drop in centres. The only relevant study reported that therapy and case management in combination with improved housing positively impacted on mental health and reduced substance use over time.
Quality assessment	Poor quality

Vulnerable population: Young offender

Author (year)	Daykin et al (2012)
Population (vulnerable group, ages)	Young offenders (aged 11 – 25 years)
Aim of review	**Primary**: To contribute to the evidence base on the impact of music making on the health, well-being and behaviour of young offenders and those considered at risk of offending.
Scope of review	Population/intervention driven
Inclusion & exclusion criteria (relevant to quant studies)	**Participants:** Young offenders (aged 11 – 25 years) **Intervention:** Interventions with children and young people aged 11 – 25 years; Interventions in young offenders institutions and youth justice settings; Interventions with young people identified as 'at risk' of offending or displaying characteristics associated with offending; Music interventions including singing, rapping, songwriting and music technology. **Comparison:** not stated **Outcomes:** offending behaviour, health and wellbeing; measurements of music intervention. **Language:** English **Dates:** 1996 - 2011 **Study design**: not stated
Details of interventions in synthesis	Some description of the interventions, though primarily in terms of criticism. Limited information on the component of interventions, and inconsistent information on duration of intervention. No information on how the intervention might work.
Types of interventions in included studies	Any Music interventions including singing, rapping, song writing and music technology
Relevant studies included	6 out of 11 studies are relevant
Limitations of review findings when applied to our review	**Methodology:** Four of the 11 studies are qualitative. 2 are mixed methods. Results are presented as per methodology (quantitative vs qualitative). **OECD**: 1 study was set within South Africa despite relevant methodology
Summary	The authors reported complexities in synthesising findings due to the wide variation in studies, interventions and outcomes reported. This is reflected in their overall conclusion of there being a suggestion that music making may be an important tool for the promotion of health.
Quality assessment	Good quality

Author (year)	Lubans et al(2012)
Population (vulnerable group, ages)	At risk (aged 4 – 18 years)
Aim of review	**Primary:** To describe the effectiveness of physical activity interventions to improve social and emotional wellbeing in at-risk youth **Secondary:** To evaluate the quality of existing studies and provide recommendations for future studies
Scope of review	Intervention driven
Inclusion & exclusion criteria	**Participants:** At risk youth (4-18y) **Intervention:** outdoor education, exercise, sport or sport skills intervention/ programme **Comparison:** not stated **Outcomes:** quantitative assessment of social and emotional well-being (e.g. depression, anxiety, self-concept, self-esteem, resilience **Language:** English **Dates:** 1990 – onwards (not stated) **Study design:** RCT, quasi-experimental design or a single group pre-post-test design
Details of interventions in synthesis	Detailed information on nature and duration of intervention. Some detail on components (variable), and on theoretical underpinnings
Types of interventions in included studies	Physical activity including outdoor adventure programmes, sport and skill-based interventions, physical fitness programmes
Relevant studies included	2 out of 15 studies are relevant
Limitations of review findings when applied to our review	**Population:** Only 2 studies looked populations of interest to us (i.e. young offenders).
Summary	The results are inconsistent, albeit based on 2 studies only. In one study, there were no significant intervention effects, while in the other study, significant improvements were noted in self-worth. However, the former included job preparation workshops and family skill-building workshops while the latter focussed on outdoor family activities.
Quality assessment	Good quality

Author (year)	Townsend et al (2010)
Population (vulnerable group, year)	Young offenders with a mean age of under 19 years
Aim of review	**Primary:** To determine what interventions are relevant to, and effective in, alleviating the symptoms and behaviours associated with mood and anxiety disorders and self-harm.
Scope of review	Population/outcome driven
Inclusion & exclusion criteria	**Participants:** young offenders (mean age less than 19 years) **Intervention:** any interventions relevant to the treatment of mood or anxiety disorders, or self-harm **Comparison:** not stated **Outcomes:** mental health assessments on suicidality, anxiety symptoms, depressive symptoms **Language:** not stated **Dates:** not stated **Study design:** RCTs, systematic reviews of RCTs
Details of interventions in synthesis	Though the authors named the intervention, there is no description of interventions, nor components or how these might work. Some information on duration of intervention, who delivered the intervention.
Types of interventions in included studies	The majority of interventions included were cognitive-behavioural interventions. These comprised Group psychotherapy, oral Librium, transactional analysis, rational stage directed imagery, rational cognitive restructuring treatment, social interaction skills programme, stress management training, behaviour modification, cognitive processing therapy, brief problem solving group therapy, coping course, muscle relaxation therapy, Adolescent Coping with depression course, Life-skills tutoring.
Relevant studies included	6 out of 10 studies are relevant
Limitations of review findings when applied to our review	**Clinical:** 3 out of 10 studies describe young offenders with a mental disorder (diagnosed). **Interventions:** 1 out of the 10 studies discussed an intervention of medication.
Summary	The authors summarise that significant improvements in depressive and anxiety symptoms were seen in those receiving the intervention relative to the control group
Quality assessment	Good quality

Author (year)	Van der Stouwe et al (2014)
Population (vulnerable group, ages)	Young offenders (no age range provided)
Aim of review	**Primary**: To assess the extent to which MST is effective in the prevention of recidivism (primary outcome) **Secondary**: To assess the extent to which MST is effective in improving juveniles' functioning on other psychosocial (secondary) outcomes
Scope of review	Intervention/population driven
Inclusion & exclusion criteria	**Participants:** Young offenders **Intervention:** Multisystemic Therapy **Comparison:** any control group (unspecified), pre/post evaluations **Outcomes:** delinquency, psychopathology, skills and cognitions and substance use. **Language:** not stated **Dates:** 1985 – 2012 **Study design**: controlled trials, pre-post evaluations
Details of interventions in synthesis	Detailed description of the nature of the intervention, the conceptual underpinnings and some detail on possible components of the intervention. Detailed description on how the intervention might work.
Types of interventions in included studies	This review discussed only one intervention, i.e. Multi-systemic Therapy. This is a multi-faceted, short-term, home and community-based evidence-based intervention for juvenile delinquents and juveniles with social, emotional and behavioural problems, disseminated in fourteen countries.
Relevant studies included	Unclear, possibly 16 out of 22 studies are relevant
Limitations of review findings when applied to our review	**Age:** No indication of age ranges in any of the included studies **Synthesis:** There is a disconnect between included studies and synthesis in that though the authors provide details of all included studies, in the synthesis and meta-analysis, only the number of studies for each outcome are listed, without any reference to the actual paper.
Summary	There is no detailed information on age profiles (range, mean, medium age), however, the authors consistently refer to participants as 'juveniles' and 'young offenders' rather than 'children' implying that perhaps the age group is relevant to us. While synthesis tables highlight that k = 16 studies address outcomes and analyses of relevance to this review, these studies are not referenced. If we assume, that 16 studies are relevant, then the findings indicate that multi-systemic therapy has a positive impact on reducing psychopathological symptoms in young offenders post intervention. Moderator analysis suggests that it is especially beneficial for those young offenders under age 15 years, with more extensive offending histories and where the intervention was longer in duration.
Quality assessment	Poor quality

Vulnerable population: Low SES

Author (year)	Lucas et al (2008)
Population (vulnerable group, ages)	Socioeconomically deprived aged under 18 years
Aim of review	**Primary:** To assess the effectiveness of direct provision of financial benefits to socially or economically disadvantaged families in improving children's physical health, mental health and educational attainment
Scope of review	Intervention/population driven
Inclusion & exclusion criteria	**Participants:** Families with at least one child aged less than 18 years or in which a woman is pregnant, who are socioeconomically disadvantaged (e.g. by income or neighbourhood). **Intervention:** Direct payments or positive taxation schemes to low SES families. **Comparison:** not stated **Outcomes:** Any measure of child health including physical, sexual, mental or oral health, psychomotor or cognitive development, educational progress. **Language:** No restrictions **Dates:** database inception - 2006 **Study type:** RCT and quasi-RCT
Details of interventions in synthesis	Limited description of the intervention, components, duration, conceptual underpinnings and how the intervention might work due to either lack of available information, or simplicity of intervention. Detailed description of interventions in terms of nature and duration. The authors provide some thoughts on how the intervention might work.
Types of interventions in included studies	Interventions were primarily focussed on providing additional monies to families, at times in combination with peer support, subsidised health insurance, assistant with vocational training, child care monetary incentives.
Relevant studies included	0 out of 9 studies are relevant
Limitations of review findings when applied to our review	**Age:** 3 studies focussed on children outwith our age range, and 5 studies did not clearly specify the age range **Outcome:** no study reported on the mental health of children
Summary	The search strategy and inclusion criteria of this review are likely to have identified relevant studies if there were any. Though one study used a scale on child anxiety, no outcome data were reported. There is no evidence available to infer about the effectiveness of this intervention in low SES populations.
Quality assessment	Good quality

Author (year)	Farahmand et al (2012)
Population(s) (vulnerable group and ages)	Low income urban youth (school-aged)
Aim of review	**Primary**: To assess how effective community-based mental health and behavioural programs have been in promoting positive outcomes for low-income urban youth **Secondary**: To identify what factors (e.g., sample and program characteristics) influence the effectiveness of community-based mental health and behavioural programs for low-income urban youth
Scope of review	Population driven
Inclusion & exclusion criteria	**Participants:** low income, urban, school-aged youth **Intervention:** community-based mental health and behavioural programmes **Comparison:** any control group (no intervention, placebo, intervention as usual, waiting list) **Outcomes:** Mental health or behavioural **Language:** English **Dates:** 1975 to 2010 **Study design:** RCT and quasi-randomised trials
Details of interventions in synthesis	Some description of interventions included as the authors provide a brief on the title of the intervention, its main objectives and focus, duration and setting of the intervention. When available the authors included a brief statement on the theoretical background of the intervention. No detail on how the intervention might work per se.
Types of interventions in included studies	This review included a wide range of interventions spanning from peer mentoring, arts, parenting education, drug and alcohol prevention to family therapy.
Relevant studies included	7 out of 33 are relevant
Limitations of review findings when applied to our review	**Synthesis:** The methods of how effect sizes were combined are not clear, and at times it is not clear which studies are included in relevant results sections. The authors provide a comparison of effect sizes across different age categories, though fail to indicate which type of intervention might be most effective for each age group. **Age**: eight studies are outwith our age range of interest, and one additional study does not provide an age profile. **Setting**: Three studies were based in schools, and there is the potential that more of the included studies contain interventions delivered in schools. **Population**: 1 study was based on a clinical sample of depressed adolescents **Outcome**: 16 studies were reported to have focussed on a psychological outcome. Unfortunately, it is not clear which studies used a psychological outcome, and what exactly the psychological outcome was.
Summary	All studies are based in the US. Though the authors excluded school-based interventions, they conceded to have included those

	school-based interventions where part of the intervention/strategy was delivered outside of schools. It is not clear how many of the included interventions are at least partly based in school settings (except for three studies clearly marked as school-based). Also, the authors present separate effect sizes for age groups, but unfortunately they seemed to have aggregated all interventions into one effect size and therefore it is not possible to say which intervention type worked best for the age groups we are interested in. The authors conclude that overall, community based mental health interventions can be effective and that targeting the environment rather than just working with the individual is important.
Quality assessment	Poor quality

Author (year)	Brunton et al (2015)
Population (vulnerable group, ages)	At risk (no age restrictions)
Aim of review	**Primary:** To update and extend the evidence base, with a focus on both effective approaches and appropriateness
Scope of review	Intervention driven
Inclusion & exclusion criteria	**Participants:** disadvantaged populations (including children and young people, but no ages provided) **Intervention:** any interventions that utilise community engagement **Comparison:** primary studies – control/comparison group; reviews – contain an outcome/process evaluation **Outcomes:** health, wellbeing **Language:** English **Dates:** 2000 (reviews)/ 2008 (primary studies and reports) – not stated **Study design:** control/comparison group intervention design
Details of interventions in synthesis	Some information on the intervention, i.e. definition and components. No information on underlying processes, conceptual underpinnings or duration of the intervention.
Types of interventions in included studies	The primary intervention was defined as community engagement using one or more of: coalitions, collaboration, stakeholder involvement, advisory groups, partnerships or community mobilisation.
Relevant studies included	3 out of 28 studies are relevant (6 focussed on children and youths specifically)
Limitations of review findings when applied to our review	**Age:** Children and young people (n = 6 studies) are analysed in a subsection. 5 studies in US, and 1 in UK. But no precise ages are provided, i.e. unable to determine whether the samples are within our age range. **Outcomes:** Primary outcomes are health status, sexual risk behaviour, obesity and substance abuse. There appear to be 3 studies looking at self-efficacy, self-esteem or self-regard, but there is no breakdown data on which study refers to self-esteem, and there is no summary data on self-esteem.
Summary	Those studies that did address children and young people are exclusively focussed on outcomes other than mental health, wellbeing or happiness. While there is reference to three studies addressing self-esteem, these are not synthesised in any detail. All three studies reported positive trends in increasing self-efficacy. There are no specific results on self-esteem except for Bonell et al (2010) who noted beneficial effects for a sense of achievement in young people following the intervention. The authors claim that overall, these studies indicate that interventions which incorporate community engagement with young people acting in a collaborative or leadership capacity leads to a positive direction of effect in self-efficacy.
Quality assessment	Poor quality

Vulnerable population: Teenage parent

Author (year)	Barlow et al (2011)
Population(s) (vulnerable group and ages)	Teenage parents (aged under 20 years)
Aim of review	**Primary**: To assess the effectiveness of parenting programmes in improving psychosocial outcomes for teenage parents and developmental outcomes in their children.
Scope of review	Intervention driven
Inclusion & exclusion criteria	**Participants**: parents aged under 20 years **Intervention**: individual or group parenting programmes **Comparison**: control group (waiting list or no treatment) **Outcomes**: psychosocial health of parent (depression, anxiety, stress, self-esteem), parenting knowledge, behaviour, competence, child health and development, parent-child relationship **Language**: no restrictions. **Dates**: database inception - 2010 **Study design**: RCTs and quasi-randomised trials
Details of interventions in synthesis	Detailed description of nature, components and duration of intervention. The authors mention theoretical underpinnings and psychological theories informing interventions, and explain how the intervention might work.
Types of interventions in included studies	Standard group based parenting programmes, with details on duration and frequency of intervention (n = 3 studies). Brief parenting interventions (n = 5).
Relevant studies included	0 out of 8 studies is relevant.
Limitations of review findings when applied to our review	**Population:** 4 studies are clinical in that teenage mothers were recruited from outpatient clinics/settings **Outcome**: 1 study reported on an outcome of relevance, however the inclusion criteria stipulated clinical depression. **Synthesis**: The authors report on parental psychosocial health, though combined a number of non-relevant outcomes with the outcome of relevance for us.
Summary	While the authors combined several outcomes into parental psychosocial health, i.e. the synthesised finding is not relevant, the authors also provided the findings of individual studies. They summarise that there was a non-significant reduction in depressive symptoms post intervention. The only study of relevance to us in terms of outcomes has the inclusion criteria of female adolescents with clinical depression.
Quality assessment	Good quality

Author (year)	Lachance et al (2012)
Population(s) (vulnerable group and ages)	Teenage parents (aged under 19 years)
Aim of review	Examination of rigorous evaluations of programmes for adolescent parents and recommendations for conducting more rigorous evaluations. (Focus on what is needed for future quality studies rather than reporting outcomes of previous studies).
Scope of review	Population driven.
Inclusion & exclusion criteria	**Participants**: pregnant and parenting adolescents (aged less than 19 years) in the USA **Intervention**: any for pregnant and parenting adolescents in USA **Comparison**: not stated **Outcomes**: any outcome **Language**: English **Dates**: 1996 to 2011 **Study design:** RCT or quasi-experimental
Details of interventions in synthesis	No description of interventions in terms of nature, components, conceptual underpinnings nor how the intervention might work
Types of intervention in included studies	Home visiting, case management, parenting education, support groups and clinical care.
Relevant studies identified	0 out of 14 studies are relevant
Limitations of review findings when applied to our review	**Outcome**: No study reports on outcomes relevant to our review
Summary	No studies of relevance were identified in this review. Though the search strategy and inclusion criteria were relatively broad, i.e. no pre-determined outcome or intervention type, the authors restricted their search to studies conducted in the US only. Outcomes such as rapid repeat pregnancy, educational progress or the infant's health were the focus.
Quality assessment	Good quality

Vulnerable population: Ethnic minority

Author (year)	Hodge et al (2010)
Population (vulnerable group, ages)	Ethnic minority youth (aged 0 – 18 years)
Aim of review	**Primary**: To assess the effectiveness of CSIs designed to address health and behavioural health outcomes. **Secondary**: To investigate whether effectiveness varies depending on the class or type of outcome, and whether race/ethnicity moderates effectiveness.
Scope of review	Intervention/population driven
Inclusion & exclusion criteria	**Participants:** adolescents aged 18 years or younger who were Latino, African American, or Native American. **Intervention:** any intervention described as culturally sensitive **Comparison:** not stated **Outcomes:** any health outcome **Language:** not stated **Dates:** database inception - 2009 **Study design:** prospective studies
Details of interventions in synthesis	Some description of nature of culturally sensitive interventions (i.e. definition), and some description of how a culturally sensitive intervention can be achieved on a general level. Limited description of components (as variable by nature), and no information on duration, any particular types of culturally sensitive interventions nor how the intervention might work.
Types of interventions in included studies	None of the types of culturally sensitive interventions in the included studies were addressed in any detail. These were all pooled into the concept of 'culturally sensitive intervention'.
Relevant studies included	0 out of 21 studies is relevant
Limitations of review findings when applied to our review	**Age:** the mean ages or the age range of 5 studies were outwith our age range of interest **Outcomes:** 1 study measured an outcome of relevance **Synthesis**: the data of all included studies were aggregated into three types of findings, i.e. the findings of the one study of relevance could not be accessed **Population:** The included studies ranged in relevance of population, with the 1 study measuring anxiety being based on a clinical population
Summary	None of the included studies were of relevance to our review. Outcomes measured in this review ranged from drug use, alcohol, violence, tobacco use, physical fitness to measurements of glucose levels. The authors combined all outcomes into three aggregate outcomes, i.e. externalising behaviour (violence and substance misuse), physical health and internalising behaviour (anxiety and suicidal probability). It is therefore not possible to reflect the finding of this 1 relevant study.
Quality assessment	Good quality

Vulnerable population: Asylum seekers

Author (year)	Tyrer et al (2014)
Population (vulnerable group, ages)	Refugee and asylum seeking children (2 – 17 years)
Aim of review	**Primary**: To conduct a systematic review of mental health interventions that had been evaluated in school or community-settings for refugee and asylum-seeking children.
Scope of review	Population driven
Inclusion & exclusion criteria	**Participants:** internally displaced persons, asylum-seekers and refugees aged 2 to 17 years **Intervention:** mental health intervention programme that addressed emotional, social or behavioural difficulties **Comparison:** not stated **Outcomes:** depression, anxiety, PTSD, functional impairment, emotional behavioural conduct problems **Language:** No restrictions **Dates: study published:** 1987 - 2012 **Study design:** controlled or within-subject experimental designs
Details of interventions in synthesis	Limited description of interventions, the authors point to the focus of the intervention and summarise the main features of interventions by categorising these as either verbal, arts or mental health interventions. Some summarised information on the nature of the intervention in terms of individual vs family therapy.
Types of interventions in synthesis	The authors categorise interventions as either 'verbal processing of experiences' (n = 9) or 'creative art techniques' (n = 7), and mental health interventions (n = 7). All interventions are listed, albeit in the absence of any detailed information on components or duration.
Relevant studies included	1 out of 21 studies is relevant
Limitations of review findings when applied to our review	**Setting:** 13 are school based interventions (two of these are in camp schools) **Country:** 7 conducted in low and middle income countries **Age:** 5 studies are based on ages outwith our age range **Outcome:** 1 study lacks any outcome data, and 13 report irrelevant outcomes
Summary	The majority of included studies are either based in school settings, or in non-OECD countries, primarily included young people outwith our age range, or are set within school settings. More than half of the included studies focussed on functional impairment, anger, behavioural problems, unspecified emotional problems and grief. The 1 study of relevance reported a decrease in PTSD symptoms following trauma focussed therapy (which the authors outlined in a table).
Quality assessment	Good quality

Vulnerable population: Sexual abuse

Author (year)	MacDonald et al (2012)
Population (vulnerable group, ages)	Child sexual abuse (0 – 18 years)
Aim of review	**Primary**: To assess the efficacy of cognitive-behavioural approaches (CBT) in addressing the immediate and longer-term sequelae of sexual abuse on children and young people up to 18 years of age
Scope of review	Intervention driven
Inclusion & exclusion criteria	**Participants:** children and adolescents up to age 18 years who had experienced sexual abuse **Intervention:** any behavioural or cognitive-behavioural intervention **Comparison:** treatment as usual or placebo control. **Outcomes:** Psychological functioning, depression, post-traumatic stress disorder, anxiety **Language:** no restrictions **Dates:** 1980 - 2011 **Study design:** RCTs and quasi-RCTs
Details of intervention in synthesis	Detailed description of cognitive behavioural approaches in terms of nature, conceptual underpinnings, components, duration of interventions and how this intervention might work.
Type of interventions in synthesis	All included studies are based on CBT interventions ranging from generic CBT approaches to sexual abuse specific CBT interventions including trauma-focussed CBT and structured intervention programmes such as 'Recovering from abuse'.
Relevant studies included	5 out of 10 studies are relevant.
Limitations of review findings when applied to our review	**Age:** In 4 studies, the age ranges of participant are not within our range, i.e. younger. **Population**: In 2 studies, the inclusion criteria stipulated clinical populations.
Summary	This review had a broad search strategy and inclusion criteria. Unfortunately, there are no distinctions in the findings regarding age categories. That is, all findings are based on one overall sample of young people aged 0 – 18 years, i.e. relevant and non-relevant studies are synthesised as one single group. The findings suggest that CBT may have a positive impact on reducing symptoms of depression, PTSD and anxiety in children though most results were not statistically significant. The strongest evidence was reported for reducing anxiety and PTSD with a moderate effect size.
Quality assessment	Good quality

Author (year)	Wethington et al (2008)
Population (vulnerable group, ages)	At risk youths (under median age of 21 years)
Aim of review	**Primary:** To assess several common interventions to determine which interventions are effective in reducing the harms of traumatic exposures, which are ineffective, and which have not yet been adequately studied.
Scope of review	Intervention driven.
Inclusion & exclusion criteria	**Participants:** Children and adolescents (median age less than 21 years) **Intervention:** individual cognitive–behavioural therapy, group cognitive behavioural therapy, play therapy, art therapy, psychodynamic therapy, and pharmacologic therapy for symptomatic children and adolescents, and psychological debriefing, regardless of symptoms. **Comparison:** comparison group without intervention or with delayed or lesser doses of intervention **Outcomes:** PTSD symptoms, anxiety disorder/symptoms, depressive disorder/symptoms, externalising disorder/symptoms (behavioural problems), internalising disorder/symptoms (emotional problems), suicidal behaviour/ideation, substance abuse **Language:** English **Dates:** database inception - 2007 **Study design**: any primary evaluation
Details of interventions in synthesis	Detailed information on nature, theoretical underpinnings, components and duration of interventions. The authors compared individual vs group therapy, and compared each therapy against one another and in combinations.
Types of interventions in included studies	The only interventions in our included studies were group and individual CBT. Other interventions such as art therapy, play therapy, psychodynamic therapy and psychological debriefing were either focussed on populations or age groups outwith relevance to this review.
Relevant studies included	6 out of 30 are relevant
Limitations of review findings when applied to our review	**Age:** 12 studies are outwith our age range **Population:** 3 studies did not specify the trauma or included participants with a variety of traumas of no relevance to our review. 1 study included a clinical population.
Summary	Target populations in most studies had experienced sexual abuse or physical abuse; 3 studies did not specify the trauma or included participants with a variety of exposures. All relevant studies reported a positive trend in reducing mental health symptoms and increasing wellbeing post intervention.
Quality assessment	Good quality

Author (year)	Lentini et al (2015)
Population (vulnerable group, ages)	At risk (no age restrictions)
Aim of review	**Primary:** To gather all relevant recent white (i.e. peer-reviewed journals) and grey (variable quality) literature on the various forms of Equine-Facilitated Psychotherapy (EFP) and synthesize it in order to better describe what is being done and to determine best practices of EFP and other equine-related activities addressing social, emotional, cognitive, or behavioural functioning in children and adolescents both with and without mental health diagnoses.
Scope of review	Intervention driven
Inclusion & exclusion criteria	**Participants:** children, adolescents and youths (no ages provided) **Intervention:** equine-facilitated psychotherapy **Comparison:** not stated **Outcomes:** social, emotional, cognitive, or behavioural functioning **Language:** English **Dates:** 2008 - 2014 **Study design:** any study design
Details of interventions in synthesis	Detailed description of the nature, components/activities and theoretical underpinnings of EFP. Summarised information on duration.
Types of interventions in included studies	EFP only, though ranging in actual activities under the EFP umbrella.
Relevant studies included	2 out of 47 studies are relevant.
Limitations of review findings when applied to our review	**Methodology**: 34 studies are quantitative. Results are presented separately for each methodology. **Populations**: the authors grouped included samples into 4 populations, i.e. ‘at risk’ (including young offenders), autistic spectrum disorder (clinical), neurotypic and other (including sexually abused). **Ages:** 5 studies did not state age ranges
Summary	Within the at risk group, one study focuses on young offenders, however the outcome is not relevant as focussed on adjunction only. Within the ‘other’ group, two studies looked at sexually abused children and adolescents. At least 50% of the samples were within our age range. Results indicated that mounted and non-mounted EFP reduced depression and anxiety symptoms.
Quality assessment	Poor quality

Author (year)	Silverman (2008)
Population (vulnerable group, ages)	At risk (0 – 17 years)
Aim of review	**Primary**: To review psychosocial treatments for children and adolescents who have been exposed to traumatic events
Scope of review	Intervention/outcome driven
Inclusion & exclusion criteria	**Participants:** Children and adolescents exposed to trauma, (ages: birth to 17 years old) **Intervention:** psychosocial treatments aimed at youths exposed to trauma **Comparison:** not stated **Outcomes:** PTSD, stress, anxiety **Language:** No restrictions **Dates:** 1993 – 2007 **Study design**: RCT
Details of interventions in synthesis	Detailed description of interventions in that the authors named each intervention, referred to components, listed the duration of each intervention. Limited information on how the intervention might work and the conceptual underpinnings of each intervention.
Types of interventions in included studies	The authors grouped interventions according to child only vs child-parent based, explained the setting of the intervention (community vs schools), defined each intervention in terms of objectives for the target group (e.g. sexually abused children) and grouped interventions according to theoretical background, i.e. CBT, non-CBT, sexual abuse specific, other interventions.
Relevant studies included	5 out of 21 studies are relevant.
Limitations of review findings when applied to our review	**Age:** 12 studies report on samples outwith our age range. **Population:** 6 studies report on populations of no relevance to our review. **Setting**: 2 studies reported on school based interventions. **Outcome**: Aggregate effect sizes are presented for PTSS, anxiety, depression and externalising behaviour. Though we know the number of studies reporting on each outcome as per trauma category, it is not clear which studies contributed to each effect size.
Summary	In terms of populations, the included studies predominantly consist of vulnerable groups of relevance to our review, i.e. sexually abused children (n = 11) and children exposed to domestic violence (n = 1). It is, however, not possible to isolate findings. Effect sizes are available for each intervention category, i.e. overall, CBT, non-CBT, sexual abuse interventions and interventions for 'other' types of trauma. Detailed findings are presented in a narrative synthesis as per intervention type (micro level) though this is not separated as per vulnerable population. One study met all relevant criteria but was from a non-OECD country (Jaberghaderi et al, 2004).
Quality assessment	Poor quality

Vulnerable population: Domestic Violence

Author (year)	Hackett et al (2016)
Population (vulnerable group, ages)	Domestic Violence (no ages provided)
Aim of review	**Primary**: To provide more clarity regarding the effectiveness of intervention programs for intimate partner violence aimed at victims and child witnesses and to examine intervention effectiveness through meta-analysis
Scope of review	Intervention driven
Inclusion & exclusion criteria	**Participants:** Women victims of domestic violence and their children **Intervention:** Mental health interventions **Comparison:** Included those with control and those with no control **Outcomes:** external stress, psychological adjustment, self-concept, social adjustment, family relations, maltreatment events. **Language:** Not stated **Dates:** Not stated **Study design:** Not stated
Details of interventions in synthesis	No description of domestic violence interventions. No reference to components, duration of interventions or how the intervention might work.
Types of interventions in included studies	The authors list the names of all interventions included in the synthesis: advocacy, empowerment, play therapy, cognitive behavioural, parent-child.
Relevant studies included	Unclear out of 17 studies are relevant
Limitations of review findings when applied to our review	**Age:** No information on age profile or age range provided **Outcome**: 2 studies report on irrelevant outcome, i.e. maltreatment events **Synthesis:** findings are presented for mothers and children combined
Summary	While 15 studies report on relevant outcomes pertaining to depression, anxiety and happiness, it is not possible to ascertain the ages of the young people included in this review, nor the results of individual studies. The authors present the effect sizes of relevant outcomes for children separately from mothers, but it is not possible to identify the studies on which these effect sizes are based on.
Quality assessment	Poor quality

Vulnerable population: At Risk

Author (year)	Littell et al (2005)
Population (vulnerable group, ages)	At risk (aged 10 – 17 years)
Aim of review	**Primary:** To assess the impacts of Multisystemic Therapy on out-of-home living arrangements, crime and delinquency, and other behavioural and psychosocial outcomes for youth and families
Scope of review	Intervention driven
Inclusion & exclusion criteria	**Participants:** At risk youth (aged 10-17 years) with social, emotional, and/or behavioural problems and at risk of out-of-home placements **Intervention:** multisystemic therapy **Comparison:** any counterfactual condition, including 'usual services', other treatment conditions, and no treatment **Outcomes:** behavioural (antisocial behaviour, drug use and school attendance), psychosocial (psychiatric symptoms, school performance, peer relations and self-esteem), family outcomes (living arrangements, family functioning) **Language:** No restrictions **Dates:** 1985 – 2003 **Study design**: any experimental randomised study
Details of interventions in synthesis	Detailed information on the intervention, components, and theoretical underpinnings
Types of interventions in included studies	Multisystemic Therapy (MST) is a multi-faceted, short-term, home- and community-based intervention for families of youth with severe psychosocial and behavioural problems.
Relevant studies included	0 out of 8 studies is relevant
Limitations of review findings when applied to our review	**Outcome:** 7studies focussed on outcomes such as delinquency, school attendance, drug use and psychiatric symptoms **Population**: 2 studies focussed on either a clinical sample or youths with problematic behaviour
Summary	The one RCT with a relevant outcome was based on a clinical population (young people with a psychiatric illness severe enough to warrant hospitalisation)
Quality assessment	Good quality

Author (year)	Zlotnick et al (2012)
Population (vulnerable group, ages)	At risk (no ages provided)
Aim of review	**Primary:** To examine the existing literature to identify the most promising practices among the physical, mental health and case management services used for children living in transition – whether in homeless and foster care living situations.
Scope of review	Population driven
Inclusion & exclusion criteria	**Participants:** homeless and foster care children (no ages provided) **Intervention:** any intervention for homeless and foster care children and families **Comparison:** not stated **Outcomes:** not stated **Language:** English **Dates:** 1993 – 2009 **Study design:** primary studies with evaluation
Details of interventions in synthesis	Limited information on components, duration and theoretical underpinnings of interventions. Some information on the nature of interventions.
Types of interventions in included studies	The authors grouped interventions as either 'mental health' or 'case management' oriented
Relevant studies included	0 out of 43 studies are relevant
Limitations of review findings when applied to our review	**Outcomes:** no study reported on outcomes relevant to our review. **Age:** 27 studies are outwith our age range, and 11 studies do not provide any information on age.
Summary	Although the populations included are of relevance to our review, with interventions categorised as either mental health oriented or case management, all studies focussed on access to service, reduction in 'problem behaviours', increasing stability or looking at relationships between carer and young person.
Quality assessment	Good quality

Vulnerable population: Unemployed

No systematic reviews identified.

Vulnerable population: Out of school/excluded

No systematic reviews identified.

Vulnerable population: Young carers

No systematic reviews identified.

6.9 Summary table with characteristics & findings from included systematic reviews (ordered by vulnerable group and review quality)

Review author, year of publication	Review coverage (date of search, population/country, study design)	Interventions in review		Specific interventions identified and evaluated for relevant outcomes (wellbeing, happiness, mental health)	Characteristics of relevant studies included in synthesis	Findings by intervention group i.e. reflecting how they were synthesised in review	Quality of review
Vulnerable group: Looked after							
Armelius (2007)	**Participants:** Youth in residential treatment (aged 12 – 22 years). **Dates:** Database inception - 2005 **Study design:** RCTs and NRS.	CBT either as part of a wider intervention or as an isolated intervention		Studies identified but not reported.	Relevant studies not reported.	Did not synthesise relevant outcomes.	Good
Everson-Hock (2011)	**Participants:** Looked after young people (no age restrictions). **Dates:** 1990 - 2008 **Study design:** RCT and NRS.	Transition Support services (TSS) for leaving care		No specifically named TSS interventions.	**Synthesis grouping:** All interventions synthesised as a single group. **Dates of studies included:** 1993 - 2005 **Study designs:** NRS (n=3) **Country:** USA (n=3)	None of the relevant studies reported a difference in happiness, life satisfaction or mental health when comparing the intervention group with the control group.	Good
Jones (2012)	**Participants:** Looked After children and young people (LACYP) (no age restrictions) **Dates:** 1990 – ~2011 **Study design**: RCTs and NRS.	Any intervention designed to improve access to any specialist or universal service accessed by LACYP.		No studies with relevant outcomes.	No studies with relevant outcomes.	Did not report nor synthesise relevant outcomes.	Good
Montgomery (2006)	**Participants:** Young people leaving care (no age restrictions). **Dates:** Database inception - 2005 **Study design:** NRS (with	Independent living programmes (ILP)		No studies with relevant outcomes.	No studies with relevant outcome.	Did not report nor synthesise relevant outcomes.	Good

Review author, year of publication	Review coverage (date of search, population/country, study design)	Interventions in review		Specific interventions identified and evaluated for relevant outcomes (wellbeing, happiness, mental health)	Characteristics of relevant studies included in synthesis	Findings by intervention group i.e. reflecting how they were synthesised in review	Quality of review
	control group)						
Stewart (2013)	**Participants:** Children and adolescents involved with the child welfare services (no age restrictions). **Dates:** 2001 - 2011 **Study designs:** RCTs, NRS.	Mental Health interventions.		**Differentiated (n = 3)** Multisystemic therapy (MST) **Undifferentiated (n = 3)** case rate payments for mental health services, wraparound services, mental health care. The authors categorised interventions as differentiated (e.g. specific, manualised) and undifferentiated (e.g.case management).	**Synthesis grouping:** By intervention type (differentiated vs undifferentiated) **Dates of studies included:** 2004 - 2010 **Study designs:** RCT (n=5), NRS (n=1) **Country:** Norway (n=1), Sweden (n=1), not stated (n=4).	**Differentiated multi-component intervention** Mixed findings as one study found no difference in wellbeing between intervention and control group while improvements in mental health symptoms and social competence were reported in two other studies. **Undifferentiated interventions** Mixed findings as one study reported improvement in psychosocial functioning in the intervention group when compared to the control group, another study reported improvements in psychosocial functioning across both intervention and control group, and a third study reported a decrease in mental health in the intervention group.	Good

Review author, year of publication	**Review coverage (date of search, population/country, study design)**	**Interventions in review**		**Specific interventions identified and evaluated for relevant outcomes (wellbeing, happiness, mental health)**	**Characteristics of relevant studies included in synthesis**	**Findings by intervention group i.e. reflecting how they were synthesised in review**	**Quality of review**
Turner (2007)	**Participants:** Children in the welfare system (foster care; looked after children) (aged 3 – 17 years). **Dates:** Database inception - 2006 **Study design**: RCT, quasi-RCT.	Foster carer training with CBT-based intervention (both group and individual settings).		Foster carer training with CBT.	**Synthesis grouping:** By outcome. **Dates of studies included:** 2002 **Study designs:** RCT (n=1), NRS (n=1) **Country:** UK (n=2)	One relevant study reported no difference in emotional wellbeing between intervention and control group post intervention. One relevant study reported a positive, albeit non-significant, effect on foster children's self-esteem, but a significant positive increase in mental health post intervention when compared to the control group.	Good
Turner (2011)	**Participants:** Children and adolescents (aged 0 – 18 years) who are placed out of home. **Intervention:** **Dates:** Database inception – 2007 **Study design:** RCT, quasi-randomised controlled trials.	Any foster care programme providing individualized, therapeutic, community-, and foster family-based intensive services.		No studies with relevant outcomes.	No studies with relevant outcomes.	Did not report nor synthesise relevant outcomes.	Good
Donkoh (2006)	**Participants:** young people leaving care systems (no age restriction). **Dates:** database inception - 2005 **Study design**: RCTs and quasi-RCTs.	Independent Living programmes (ILP)		No studies met their inclusion criteria.	No studies met their inclusion criteria.	Did not report nor synthesise relevant outcomes.	Poor

Review author, year of publication	Review coverage (date of search, population/country, study design)	Interventions in review		Specific interventions identified and evaluated for relevant outcomes (wellbeing, happiness, mental health)	Characteristics of relevant studies included in synthesis	Findings by intervention group i.e. reflecting how they were synthesised in review	Quality of review
Leve (2012)	**Participants:** Children and young people in foster care (no age restrictions). **Dates:** Database inception - 2012 **Study design:** RCT	Any foster care intervention		Multidimensional treatment foster care for adolescents (MTFC-A).	**Synthesis grouping:** By age range as a single group. **Dates of studies included:** 1998 - 2010 **Study designs:** RCT (n=4) **Country:** USA (n=4)	Did not report nor synthesise for all relevant studies (n = 4). One study was noted with a reduction of depression scores at the 2 year follow up for foster adolescents in MTFC-A when compared to controls.	Poor
Thompson (2016)	**Participants:** Adolescents or emerging adults (aged 13–25 years) with foster care experience **Dates:** Database inception - 2015 **Study design**: NRS.	Natural mentoring in foster care		Natural mentoring intervention	**Synthesis grouping:** By methodology as a single group. **Dates of studies included:** 2006 - 2015 **Study designs:** NRS (n=11) **Country:** USA (n=9), Canada (n=1), Portugal (n=1)	The relevant studies reported an improvement in psychological wellbeing, health or the development of resilience in the presence of a natural mentor.	Poor
Vulnerable group: Homeless							
Altena (2010)	**Participants:** Homeless youth (no age restrictions) **Dates:** 1985 - 2008 **Study design:** RCT and NRS.	Any intervention for homeless youth.		**Individual interventions:** Intensive mental health case management, Community Reinforcement Approach therapy (CBT), Independent Living **Group interventions:** Community Reinforcement Approach therapy (CBT),	**Synthesis grouping:** By intervention type. **Dates of studies included:** 1985 - 2008 **Study designs:** RCT (n=4), NRS (n=3) **Country:** USA (n=6), South Korea (n = 1)	**Individual interventions:** Intensive mental health case management: No difference between the intervention and an alternative intervention group. Both interventions reported reduction in mental health symptoms and increase in wellbeing.	Good

Review author, year of publication	Review coverage (date of search, population/country, study design)	Interventions in review		Specific interventions identified and evaluated for relevant outcomes (wellbeing, happiness, mental health)	Characteristics of relevant studies included in synthesis	Findings by intervention group i.e. reflecting how they were synthesised in review	Quality of review
				Social Enterprise Intervention (Living skills/vocational), group CBT		Independent Living: Positive difference in self-concept for the intervention group when compared to the control group. The authors noted they had included measures of self-esteem, but did not report on this. **Group intervention:** Living skills/vocational: Total life satisfaction increased in the intervention group. No significant effects on depression or self-esteem in the intervention group when compared to the control group. CBT One study did not compare effects between intervention and control group, but noted a reduction in mental health symptoms and an increase in wellbeing within the intervention group. **Individual/Group** CBT: Both, group and individual oriented CBT, reduced mental	

Review author, year of publication	Review coverage (date of search, population/country, study design)	Interventions in review		Specific interventions identified and evaluated for relevant outcomes (wellbeing, happiness, mental health)	Characteristics of relevant studies included in synthesis	Findings by intervention group i.e. reflecting how they were synthesised in review	Quality of review
						health symptoms.	
Coren (2013)	**Participants:** Street connected children and young people (aged 0 – 24 years) **Dates:** Database inception – 2012. **Study design:** RCTs and NRS.	Any intervention targeting harm-reduction, inclusion or reintegration.		Intensive case management, Community Reinforcement Approach (CBT), ecologically based family therapy, functional family therapy, group CBT	**Synthesis grouping:** By outcome. **Dates of studies included:** 1994 - 2009 **Study designs:** RCT (n=6) **Country:** USA (n=5), South Korea (n = 1)	Two studies reported a positive trend in self-esteem scores post intervention. There were mixed results on depressive symptoms. Three studies reported a reduction in depressive symptoms post intervention, while one study reported no changes in depression between control and intervention group.	Good
Slesnick (2009)	**Participants:** Runaway, shelter, street or drop-in centre recruited youth (aged 12 – 24 years). **Dates:** Not stated. **Study design:** Any study design.	Any intervention		**Service Evaluation:** Shelter service, Drop in service, intensive case management, Social Enterprise Intervention (living skills/vocational), Community Reinforcement Approach (CBT), group CBT	**Synthesis grouping:** By type of intervention. **Dates of studies included:** 1994 - 2008 **Study designs:** RCT (n=2), NRS (n=5) **Country:** USA (n=2), South Korea (n =1), not stated (n=4)	The authors report relevant outcomes but do not synthesise these in detail. Five relevant studies reported a significant decrease in mental health symptoms across time, two evaluations reported a significant increase in self esteem and self efficacy. One study reported an increase in total life satisfaction.	Good
Dawson (2013)	**Participants:** Homeless youth (aged 15 – 24 years). **Dates:** 2000 - 2011 **Study design:** Any study design.	Service delivery		Community reinforcement approach therapy (CBT) and case management	**Synthesis grouping:** By outcome category. **Dates of studies included:** 2008. **Study designs:** NRS (n=1) **Country:** USA (n=1)	The authors report a significant decrease in mental health symptoms following individual CBT therapy and case management alongside improved housing.	Poor

Review author, year of publication	Review coverage (date of search, population/country, study design)	Interventions in review		Specific interventions identified and evaluated for relevant outcomes (wellbeing, happiness, mental health)	Characteristics of relevant studies included in synthesis	Findings by intervention group i.e. reflecting how they were synthesised in review	Quality of review
Vulnerable group: Young offenders							
Daykin (2012)	**Participants:** Young offenders (aged 11 – 25 years) **Dates:** 1996 - 2011. **Study design**: Not stated.	Music interventions		Guitar, instrumental work, rap therapy (with psycho-educational group therapy), Hip-Hop therapy, musical performance,	**Synthesis grouping:** By study methodology. **Dates of studies included:** 1998 - 2010 **Study designs:** RCT (n=2), NRS (n=4) **Country:** UK (n=1), USA (n=5)	The authors do not report nor synthesise findings in detail. It is suggested that 'music making may be an important tool for the promotion of health'.	Good
Lubans (2012)	**Participants:** At risk youth (4-18 years) **Dates:** 1990 – ~2011 **Study design:** RCT and NRS.	Outdoor education, exercise, sport or sport skills intervention/ programme		Outdoor adventure (alongside job preparation, family skill building workshops), Outward Bound programme (including a family training component)	**Synthesis grouping:** By type of physical activity. **Dates of studies included:** 1994 - 1995 **Study designs:** RCT (n=2) **Country:** not stated (n=2)	The two relevant studies reported mixed findings on outdoor adventure programmes. One study found no significant intervention effect while the other study reported significant improvements in wellbeing (self worth) following the intervention.	Good
Townsend (2010)	**Participants:** Young offenders (< mean age 19 years) **Dates:** Not stated. **Study design:** RCTs, systematic reviews of RCTs.	Any interventions relevant to the treatment of mood or anxiety disorders, or self-harm		Group psychotherapy, transactional analysis, group coping course, muscle relaxation therapy, rational stage directed imagery, social interaction skills programme.	**Synthesis grouping:** By outcome. **Dates of studies included:** 1965 - 2004 **Study designs:** RCT (n=6) **Country:** USA (n=4), New Zealand (n=1), Japan (n=1)	Depressive and anxiety symptoms were significantly reduced in young offenders receiving a cognitive-behavioural intervention, compared to those receiving 'usual care' or a 'no treatment control'.	Good

Review author, year of publication	Review coverage (date of search, population/country, study design)	Interventions in review		Specific interventions identified and evaluated for relevant outcomes (wellbeing, happiness, mental health)	Characteristics of relevant studies included in synthesis	Findings by intervention group i.e. reflecting how they were synthesised in review	Quality of review
Van der Stouwe (2014)	**Participants:** Young offenders (no ages provided) **Dates:** 1985 – 2012 **Study design**: NRS.	Multisystemic Therapy (MST)		Multisystemic therapy	**Synthesis grouping:** By outcome but unclear which studies contributed to the synthesis. **Dates of studies included:** unclear **Study designs:** unclear **Country:** unclear	MST significantly reduced psychopathology symptoms in those receiving the intervention. MST seems most effective in reducing symptoms of psychopathology with juveniles under the age of 15, with more extensive offending histories, and where treatment is longer in duration and delivered under well controlled treatment conditions.	Poor
Vulnerable group: Low SES							
Lucas (2008)	**Participants:** Families with at least one child (aged < 18 years) or in which a woman is pregnant, who are socio-economically disadvantaged **Dates:** Database inception - 2006 **Study type:** RCT and quasi-RCT.	Direct payments or positive taxation schemes to low SES families.		No studies with relevant outcomes.	No studies with relevant outcomes.	Did not report nor synthesise relevant outcomes.	Good
Farahmand (2012)	**Participants:** Low income, urban youth (school aged) **Dates:** 1975 - 2010 **Study design:** RCT and quasi-RCT.	Community-based mental health and behavioural programmes.		Attachment based family therapy, home visitation (teenage parents), Mentoring programme (Big Brother/Big Sister), mentoring programme 'Computeen', RECAP problem solving/coping programme	**Synthesis grouping:** As a single group. **Dates of studies included:** unclear **Study designs:** unclear (n=7) **Country:** USA (n=7)	Did not synthesise relevant outcome data. All interventions, including those of non-relevant studies, have been combined into an aggregate effect size, and therefore it is not clear which interventions worked best for the studies relevant to our	Poor

Review author, year of publication	Review coverage (date of search, population/country, study design)	Interventions in review		Specific interventions identified and evaluated for relevant outcomes (wellbeing, happiness, mental health)	Characteristics of relevant studies included in synthesis	Findings by intervention group i.e. reflecting how they were synthesised in review	Quality of review
						review.	
Brunton (2015)	**Participants:** Disadvantaged populations (no ages provided) **Dates:** 2000 (reviews)/ 2008 (primary studies and reports) – ~2014 **Study design:** control/comparison group intervention design	Community engagement interventions		Community engagement interventions with the aim of assisting young people to become leaders within their communities.	**Synthesis grouping:** By community engagement level and age group. **Dates of studies included:** 2009 - 2010 **Study designs:** not stated (n=3) **Country:** USA (n=2), UK (n=1)	Did not synthesise relevant outcomes. The authors report significant positive effects of the intervention on self efficacy while a third study noted a positive, albeit non-significant, trend in the data post intervention.	Poor
Vulnerable population: Teenage parents							
Barlow (2004)	**Participants**: Parents (aged < 20 years). **Dates**: Database inception - 2010 **Study design**: RCTs and quasi-RCT.	Individual or group parenting programmes		No studies with relevant outcomes.	No studies with relevant outcomes.	Did not report nor synthesise relevant outcomes.	Good
Lachance (2012)	**Participants**: Pregnant and parenting adolescents (aged < 19 years) **Dates**: 1996 - 2011 **Study design:** RCT or quasi-experimental	Any for pregnant and parenting adolescents in USA		No studies with relevant outcomes.	No studies with relevant outcomes.	Did not report nor synthesise relevant outcomes.	Good
Vulnerable group: Ethnic minority							
Hodge (2010)	**Participants:** Adolescents who are Latino, African American, or Native American (aged < 18 years). **Dates:** Database inception - 2009 **Study design:** NRS.	Any intervention described as culturally sensitive.		No studies with relevant outcomes.	No studies with relevant outcomes.	Did not report nor synthesise relevant outcomes.	Good

Review author, year of publication	Review coverage (date of search, population/country, study design)	Interventions in review		Specific interventions identified and evaluated for relevant outcomes (wellbeing, happiness, mental health)	Characteristics of relevant studies included in synthesis	Findings by intervention group i.e. reflecting how they were synthesised in review	Quality of review
Vulnerable group: Asylum Seekers							
Tyrer (2014)	**Participants:** Asylum-seekers and refugees (aged 2 - 17 years). **Dates:** 1987 - 2012 **Study design:** NRS.	Mental health intervention programme that addressed emotional, social or behavioural difficulties.		Creative arts therapy.	**Synthesis grouping:** As a single group. **Dates of studies included:** 2013 **Study designs:** NRS (n=1) **Country:** USA (n=1)	The authors reported a decrease in PTSD, anxiety and depression following the intervention.	Good
Vulnerable group: Sexual Abuse							
MacDonald (2012)	**Participants:** sexually abused children and adolescents (aged < 18 years). **Dates:** 1980 - 2011 **Study design:** RCT and quasi-RCT	Any behavioural or cognitive-behavioural intervention.		Group based CBT (n=1) Individual based CBT (n=4)	**Synthesis grouping:** By outcome as a single group. **Dates of studies included:** 1988 - 2001 **Study designs:** RCT (n=5) **Country:** USA (n=4), Australia (n=1)	Did not report nor synthesise relevant studies separately from non-relevant studies.	Good
Wethington (2008)	**Participants:** Children and adolescents (median age < 21 years) **Dates:** Database inception - 2007 **Study design**: NRS.	Individual and group cognitive–behavioral therapy.		Group CBT (n=2), individual CBT (n=4).	**Synthesis grouping:** By type of intervention. **Dates of studies included:** 1996 - 2005 **Study designs:** RCT (n=4), NRS (n=2) **Country:** not stated (n=6)	**Individual CBT intervention** All relevant studies reported a positive trend in mental and wellbeing, in particular for PTSD and anxiety symptoms among sexually abused young people, and when the comparison group were untreated. **Group CBT intervention** All relevant studies reported a reduction in anxiety, depression and PTSD symptoms, in particular when the comparison	Good

Review author, year of publication	Review coverage (date of search, population/country, study design)	Interventions in review		Specific interventions identified and evaluated for relevant outcomes (wellbeing, happiness, mental health)	Characteristics of relevant studies included in synthesis	Findings by intervention group i.e. reflecting how they were synthesised in review	Quality of review
						group was untreated.	
Lentini (2015)	**Participants:** Children, adolescents and youths (no ages provided) **Dates:** 2008 - 2014 **Study design:** Any study design.	Equine-facilitated psychotherapy		Non-mounted and mounted equine-facilitated psychotherapy.	**Synthesis grouping:** By abuse category. **Dates of studies included:** 2013 - 2014 **Study designs:** NRS (n=2). **Country:** not stated (n=2)	**Abuse category: Sexual abuse** Significant reduction in symptoms of depression, anxiety and trauma following intervention. One study reported that equine-facilitated treatment effects were greater than those reported for trauma-focussed CBT.	Poor
Silverman (2008)	**Participants:** Children and adolescents exposed to trauma (aged 0 - 17 years). **Dates:** 1993 – 2007 **Study design**: RCT	Psychosocial treatments		Trauma focussed CBT (including child and family CBT), client centred therapy, Recovering From Abuse programme (sexual abuse specific intervention)	**Synthesis grouping:** By intervention approach. **Dates of studies included:** 1996 - 2005 **Study designs:** RCT (n=5) **Country:** not stated (n=5)	Did not synthesise data for all relevant studies. **Trauma focussed CBT** One study reported that trauma focussed CBT achieved significantly better improvements in mental health and anxiety symptoms than an alternative intervention, i.e. client centred therapy. These improvements continued to be evident at 6 and 12month follow-up. Another study compared child with family trauma focussed CBT, and reported a significant reduction in mental health and anxiety symptoms when comparing the intervention with the control group (waiting list). However,	Poor

Review author, year of publication	Review coverage (date of search, population/country, study design)	Interventions in review		Specific interventions identified and evaluated for relevant outcomes (wellbeing, happiness, mental health)	Characteristics of relevant studies included in synthesis	Findings by intervention group i.e. reflecting how they were synthesised in review	Quality of review
						there was no difference between this and an alternative intervention. **Sexual abuse specific interventions** One study reported a positive trend in anxiety post intervention, however this was not significantly better than the control group (i.e. alternative intervention).	
Vulnerable group: Domestic Violence							
Hackett (2016)	**Participants:** Women victims of Domestic Violence and their children (no ages provided) **Dates:** Not stated. **Study design:** Not stated.	Mental health interventions		Advocacy, empowerment, play therapy, CBT, parent-child.	**Synthesis grouping:** As a single group. No information on age range, therefore unclear how many studies are relevant. **Dates of studies included:** unclear **Study designs:** unclear **Country:** unclear	Did not report relevant outcomes in individual studies. The authors provide a synthesis for children only, and note that all interventions had a medium to large effect on all children outcomes. Unfortunately, it is not clear what children outcomes are specifically referred to.	Poor

Review author, year of publication	Review coverage (date of search, population/country, study design)	Interventions in review		Specific interventions identified and evaluated for relevant outcomes (wellbeing, happiness, mental health)	Characteristics of relevant studies included in synthesis	Findings by intervention group i.e. reflecting how they were synthesised in review	Quality of review
Vulnerable group: At risk							
Littell (2005)	**Participants:** At risk youth (aged 10 - 17 years) **Dates:** 1985 – 2003 **Study design**: Any experimental randomised study.	Multisystemic therapy (MST)		No studies with relevant outcomes.	No studies with relevant outcomes.	Did not report nor synthesise relevant outcomes.	Good
Zlotnick (2012)	**Participants:** Homeless and foster care children (no ages provided) **Dates:** 1993 – 2009 **Study design:** NRS.	Any intervention		No studies with relevant outcomes.	No studies with relevant outcomes.	Did not report nor synthesise relevant outcomes.	Good

6.10 Summary table with characteristics & findings of included randomised controlled trials

Study name/author Year Location	Intervention	Sample age & size	Outcomes assessed	Summary of author reported findings	Reported impact on mental health outcomes
Vulnerable population: Looked after					
Jee 2015 USA	10 week programme teaching stress reduction skills, including an 8 week mindfulness programme. Also offered the chance to socialise in a supervised environment with other youths.	**Age range**: 14-17 years **Study sample**: n=42 youths in foster care.	**Stress**: PSC-17, CAMM or STAIT/STAIS. Physiological measures of stress using ECG.	Scores on quantitative outcome measures were not significantly difference pre/post intervention. Subgroup analysis indicated that youths aged 14-17 years has a trend towards improvement in these measures. The ECG parameters did not reveal strong effect of the intervention. Unexpectedly the heart rates of the subjects involved in the intervention groups were slightly higher after the intervention. This difference, while statistically significant, was not strong enough to be clinically meaningful.	**Stress**: no significant impact on mental health
Haight 2010 USA	Life Story intervention delivered within the child's home. Conducted in Illinois.	**Age range**: 7-17 years **Study sample**: n=15 children from methamphetamine involved families who are in foster care. Participants also included 12 substitute care givers, 2 biological grandparents and 10 traditional foster parents.	**Mental health** and **behavioural functioning**: Child Behaviour Checklist (CBLC) completed by foster carers.	Pretest CBLC scores showed that children entered the study with diverse issues, nearly all had clinical or subclinical behavioural problems. Most children in the life story intervention group showed modest improvements over a 7 month period. Trajectory of externalising behaviour improved in the intervention group and worsened in the control group. The pattern of modest improvement for the experimental group and modest decline for the control group is reflected in internalising, total problems and PTSD/dissociation scores. Gains made in the experimental group were maintained over the 7 month follow up period.	**Mental health**: improved Impact on post-traumatic stress, total problems and externalisation.

Study name/author Year Location	Intervention	Sample age & size	Outcomes assessed	Summary of author reported findings	Reported impact on mental health outcomes
				*externalising behaviour is defined as outward aggression	
Taussig (2010) USA	Fostering Healthy Futures (FHF) intervention. 9 months mentoring and skills group program. Preventive intervention: manualised skills group and one to one mentoring by graduate social work students. Groups of 8-10 children met for 30 weeks for 1.5 hours covering traditional CBT group activities with process orientated materials. Topics included emotion recognition, perspective taking, problem solving, anger management, cultural identity, change and loss, healthy relationships, peer pressure, abuse prevention and future orientation. Based in USA Denver.	**Age range**: 9-11 years **Study sample**: intervention n=79, control n=77 Children who were placed in foster care	**Mental health functioning:** Trauma Symptom Checklist for Children (TSCC). Multi-informant index of metal health problems. Child Behaviour Checklist CBCL and the Teacher Report Form (TRF). Quality of life: life satisfaction survey (rating satisfaction in school, home, health, friendships) Children's use of mental health services: care giver report Psychotropic medication: medication used in the last month	At T2 there were no group differences on mental health symptoms but at T3 intervention youth scored lower on multi-informant mental health factor. At T3 intervention youth also reported fewer symptoms of dissociation than did control youth and there was a trend to suggest they were less likely to report symptoms of post-traumatic stress. At T3 intervention youth were less likely to report receiving recent mental health therapy. At T2 intervention youth scored higher on self-report scale measuring quality of life. The intervention demonstrated significant impact in reducing mental health symptoms, particularly those associated with trauma, anxiety and depression. The results suggest that program participants were less likely to use mental health therapy and psychotropic medication. Although mental health functioning improved among program participants relative to controls the effect was not apparent until 6 months post intervention. Findings suggest that the FHF mentoring and skills group protocol holds promise and that future work examining programme efficacy is warranted.	**Mental health:** improved

Study name/author Year Location	Intervention	Sample age & size	Outcomes assessed	Summary of author reported findings	Reported impact on mental health outcomes
Vulnerable population: Homeless					
Nyamanthi et al (2013) USA	Two interventions provided: art therapy; nurse-led hepatitis health promotion. Primary aim was to improve HIV and HHP knowledge, secondary aim was to improve mental health and psychological wellbeing among young homeless adults. A pilot randomised trial. Setting was within a homeless youth drop-in agency.	**Age range**: not stated, mean age 21.2 years **Study sample**: n=156	**Depressive symptoms**: CES-D Depression Scale (CES-D) **Psychological and emotional wellbeing**: Mental Health Index (MHI-5) HIV and Hepatitis knowledge: CDC knowledge and attitudes questionnaire for HIV/AIDS	The health promotion group reported improved psychological wellbeing. Homeless young people who reported having a significant other in their lives and excellent or very good health did better than their counterparts. Youths attempting to get their lives together had higher scores for all types of knowledge except Hepatitis V Virus.	**Depressive symptoms:** **Depressive symptoms:** no significant changes **Psychological wellbeing:** scores in the total sample increased significantly **Wellbeing scores:** increased significantly in the health promotion group but not in the art therapy group
Vulnerable population: Socio-economically deprived areas					
Osypuk et al (2012) Osypuk et al (2012) Nguyen et al (2012) Nguyen et al (2015) USA	'Move to Opportunity': Financial and other assistance for families living in high poverty neighbourhoods to relocate to low poverty neighbourhoods. Conducted 1994-1998 in Baltimore, Boston, Chicago, Los Angeles, and New York	**Age range:** 12-19 years **Study sample:** n=2829	Psychological distress Behavioural problems Major Depressive Disorder Measured 4-6 years after relocation	Girls from families with no pre-existing health issues benefited, but mental health outcomes for boys were unchanged and sometimes worse after the intervention. For those from families with history of crime victimization, or with pre-existing health vulnerabilities (at family level) the outcomes were worse for both boys and girls. Impacts on mental health were not affected by socio-economic status of the family.	**Psychological distress:** improved for sub-group of girls, but deteriorated for boys **Behavioural problems:** improved for sub-group of girls, but deteriorated for boys **Major Depressive Disorder:** improved for sub-group of girls, but deteriorated for boys
Vulnerable population: Teenage parents					
Aracena et al (2009) Chile	Twelve monthly 1 hour home visits from volunteer community educator during pregnancy and	**Age range:** 14-19 years **Study sample:**	**Depression**: General Health Questionnaire (GHQ-12) Hypertension	The intervention group were less likely to be underweight and had lower levels of depression at follow-up. There was little	**Depression:** improved

Study name/author Year Location	Intervention	Sample age & size	Outcomes assessed	Summary of author reported findings	Reported impact on mental health outcomes
	after birth. Sessions focussed on parenting, relationships, and adolescence.	n=90	Anaemia Weight Children's health	effect on hypertension.	
Barlow et al (2015) Barlow et al (2013) USA	Family Spirit parenting intervention: 43 structured lessons delivered at home over 36 months post-partum. Combining parenting and mental health intervention. **Primary aim:** to improve parenting knowledge **Secondary aim:** to reduce maternal psychosocial risks including depression	**Age range:** 12-19 years **Study sample:** n=322	**Depressive symptoms**: Centre for Epidemiological Studies- Depression Scale (CES-D) **Externalizing behaviours** Parenting knowledge & stress Home Observational Measure of the Environment (HOME) Infant-Toddler Social & Emotional Assessment Parental Substance Abuse Assessed 1 & 3 years after birth	At 1 year, there were small reductions in depression and externalising behaviours but these were of borderline statistical significance. At 3 years there was a 1 point difference in CES-D score. The intervention improved effective parenting, reduced maternal risks, and improved child developmental outcomes.	**Depression:** small improvement at 3 years follow-up. **Externalizing behaviours:** small reduction at 1 year
Black et al (2006) USA	Home visits for first year post-partum up to maximum of 19 home visits.	**Age range:** 13-18 years **Study sample:** n=149	**Depressive symptoms**: Beck Depression Inventory (BDI) Center for Disease Control & Prevention Youth Risk Behavior Surveillance System Parenting competence Second birth Assessed 2 years after birth	Mothers in control group 2.5 times more likely to have given birth 2 years after first birth. There was no effect of the intervention on mental health measures, although those mothers with a second baby within 2 years had improved mental health measures compared with those who had not had a second birth.	**Depression:** unimproved
Phipps et al (2013) USA	Relaxation, Encouragement, Appreciation, Communication Helpfulness (REACH): 5 x 1 hour sessions (mix of group and one-to-one) of interpersonal therapy	**Age range:** 13-18 years **Study sample:** n=100	**Depression:** KID-SCID tool Measured 6 months after birth	At 6 months levels of depression were 12.5% among the intervention group compared with 25% in the control group.	**Post-partum depression:** Improved

Study name/author Year Location	Intervention	Sample age & size	Outcomes assessed	Summary of author reported findings	Reported impact on mental health outcomes
	including videos, role play, homework and feedback.				
Samankasikorn et al (2016) USA	Resource Mothers Program (RMP): home visits by a trained community health worker, at least twice a week during the pregnancy and monthly to 1 year postpartum. Components based on social support, role modelling, health promotion and referrals.	**Age range**: not stated, mean age 17 years **Study sample**: n=150 pregnant teenage women	**Maternal stress, social support** and **self-esteem**: Prenatal Psychosocial Profile (PPP). **Self-esteem**: Rosenberg Self-esteem Scale. **Depressive symptoms**: Edinburgh Postnatal Depression Scale (EPDS).	RMP intervention group self-esteem scores were significantly improved at 3 months postpartum. Neither intervention or control group at risk for depression at baseline or 3 months postpartum. Analysis by ethnic group found significantly different baseline stress mean scores between Hispanic and non-Hispanic teens which were no longer significant by 3 months postpartum. The EPDS scores by ethnicity were not different at baseline but were significantly different at 3 months.	**Maternal stress, social support**: improved **Self-esteem**: improved **Depressive symptoms**: Overall no change. Hispanic women improved, non-Hispanic women no change.
Jacobs et al (2016) USA	Healthy Families Massachusetts: home visiting services, involving goal setting, curriculum-based activities, family support tailored to individual families. Routine developmental and health screenings, and referral to medical and other services as needed.	**Age range**: not stated, mean age 18.8 years **Study sample**: n=704	**Parental distress**: Parenting Stress Index Short Form Parenting, child health and development Educational and economic achievement Family planning Parental health and well-being (measures: reported drug use, carrying a weapon, involvement in violence)	The home visiting program had a positive influence. Parenting stress, intimate partner violence, and engagement in risky behaviours were reduced, with an improvement in college attendance and condom use.	**Parenting stress**: improved for 2 of the measurement subscales. Parents reported reduced difficulty with their children.
Barnet et al (2007) USA	Community-based home-visiting program for pregnant and parenting teenagers. Consisted of home visits, mentoring and case management. Started	**Age range**: not stated, mean age 16.9 years **Study sample**: n=84	**Depressive symptoms**: Center for Epidemiologic Studies Depression (CES-D) Parenting attitudes and beliefs	Observed trend in greater condom use amongst intervention group, however no impact on depression despite the intervention's focus on assessing adolescents for depression. No changes	**Depressive symptoms**: no change

Study name/author Year Location	Intervention	Sample age & size	Outcomes assessed	Summary of author reported findings	Reported impact on mental health outcomes
	during pregnancy, then biweekly for the first year postpartum, followed by monthly visits until the child's second birthday.		Condom and contraceptive use School status	observed in further outcomes such as use of hormonal contraception, repeat pregnancy or birth.	
Vulnerable population: Ethnic minority					
Goossens et al (2016) Netherlands	POWER: multi-component empowerment programme. Three elements: culturally sensitive group course for young people; course for the parents of the young people; community approach, i.e. local organisations involved in the project. POWER was used as a preventive rather than reactive/curative tool.	**Age range**: 12 - 18 years **Study sample**: intervention n=132, control n=116	Problem behaviour: Strengths and Difficulties questionnaire (SDQ) Social marginalisation: activities scale and social scale **Mastery** (self-efficacy, including self-esteem): sense of mastery scale Coping skills: Utrecht Coping List for Adolescents	POWER effective in improving young people's activities in sports, hobbies and casual work. No impact on mastery.	**Mastery:** no intervention effect
Vulnerable population: Sexual abuse					
Danielson (2012) USA	'Risk Reduction through Family Therapy' (RRFT): seven components referring to Psychoeducation, Coping, Family Communication, Substance Abuse, PTSD, Healthy Dating and Sexual Decision Making, and Revictimization Risk Reduction. Delivered weekly for 60-90 minutes in family (with caregiver) and one-to-one (young person only) sessions.	**Age range**: 13-17 years **Study sample**: n=30	**Post-Traumatic Stress Disorder** (PTSD): UCLA PTSD Index for DSM–IV–Adolescent & Caregiver versions. **Depressive symptoms**: Child Depression Inventory (CDI) **Internalizing and externalizing symptoms**: Behavioral Assessment System for Children (BASC- Substance abuse and substance use risk factors Risky sexual behaviour	Participants in both the RRFT intervention group and the control group reported reductions in PTSD symptoms. The RRFT group had statistically greater reductions in substance use, specific substance use risk factors, parent reported PTSD, depression, relative to youth in the control 'treatment as usual' group.	**PTSD symptoms**: improved **Depression**: improved **Internalising symptoms:** improved

Study name/author Year Location	Intervention	Sample age & size	Outcomes assessed	Summary of author reported findings	Reported impact on mental health outcomes
Vulnerable population: Exposure to domestic violence or Intimate Partner Violence					
Cohen et al (2011) USA	Trauma Focussed Cognitive Behaviour Therapy (TF-CBT): weekly 45 minute session for 8 weeks	**Age range:** 7-14 years **Study sample:** n=124	**Post-Traumatic Stress Disorder (PTSD):** K-SADS-PL **Anxiety**: Screen for Child Anxiety Related Emotional Disorders (SCARED) **Depressive symptoms**: Children's Depression Inventory (CDI) Child Behaviour Checklist	Improvements in PTSD symptoms and anxiety. Depression symptoms fell in both groups, however the difference in change between the groups was not statistically significant.	**PTSD:** improved **Anxiety:** Improved **Depression:** Unclear

MRC/CSO Social and Public Health Sciences Unit, University of Glasgow,
200 Renfield Street,
Glasgow, G2 3QB.
Tel: 0141 353 7500
Fax: 0141 332 0725
email: sphsu-enquiries@glasgow.ac.uk

A University Unit funded by the Medical Research Council and the Scottish Government Chief Scientist Office, at the University of Glasgow.