The engagement of young people in the development and implementation of programmes to secure health

A systematic review

Anna Gavine
Aixa Y. Aleman-Diaz
Candace Currie
Irene Garcia-Moya
Gerald Humphris
Antony Morgan

Author contributions to manuscript

1. Anna Gavine – main reviewer (search, screening, data extraction), main author of first draft report
2. St Andrews
    a. Aixa Y. Aleman-Diaz – conceptualization, project oversight, intimately involved in the editing and final draft of report (general and policy section)
    b. Candace Currie – conceptualisation, comments to draft report
    c. Gerald Humphris – ensured financial support was in place to finalise this review and offered general comments in manuscript discussions
    d. Antony Morgan – conceptualization, some screening, comments to v2 of report
    e. Irene Garcia-Moya, screening, substantial review and comments of this manuscript

Affiliations
1 University of Dundee, School of Nursing and Health Sciences, Dundee Centre for Health And Related Research
2 University of St Andrews, School of Medicine, WHO Collaborative Centre for International Child and Adolescent Health Policy
3 Glasgow Caledonian University London
4 University of Hertfordshire

Acknowledgements

The authors would like to thank Vivian Barnekow, Consultant and former Programme Manager for Child and Adolescent Health Development at the WHO Regional Office for Europe for her insights and support during the development phase of the project. In addition, we appreciate the comments shared by the HBSC network during the Spring 2015 meeting where Dr Antony Morgan presented our methodology and preliminary findings. In addition, we are grateful to Dr Magaly Aceves-Martins for her comments on this manuscript.

This review would not have been possible without Gina Martin (University of St Andrews), Jana Speth (University of Dundee), Maria Faciolince (University of St Andrews alumni and now at the London School of Economics), Karolina Kaminska (Telfer School of Management at the University of Ottawa, in affiliation with the Glasgow Caledonian University - London, and the EnRiCH Research Lab at the University of Ottawa), Ed Clark (University of St. Andrews) and Claire Simpson (University of St. Andrews) who contributed to the search, screening and extraction.

This work was funded by the University of St Andrews WHO Collaborative Centre for International Child and Adolescent Health Policy. The paper does not necessarily reflect the view of the funding sources or the author's organisations.

Executive Summary

Participatory research approaches in which participants actively work with researchers are being increasingly recognized as being means of not only understanding how to better prevent and manage complex health problems but also empowering participants (Horowitz et al., 2009). This is contrast to traditional approaches to health promotion which are led by professionals (Harden and Oliver, 2001). Whilst the majority of programmes which employ participatory approaches have worked with marginalised adult populations (Vaughn et al., 2013), there is increasing recognition that such an approach could be utilised in child and adolescent health promotion (Wong et al., 2010). This may be partly reflective of a change in perspective on children's status in society more generally, with children and young people now having a say in many aspects of their lives (Alderson and Morrow, 2004). Consequently, there is now a raft of published trials which involve children and young people in the development, implementation and evaluation of interventions aiming to secure health. However, there is a lack syntheses of such studies (Patton et al., 2016). A systematic review which examines the components and effectiveness of these programmes is therefore timely.

This project therefore aims to summarise through a systematic review, the evidence base the benefits of the involvement of children and young people in the development, implementation and evaluation of programmes aiming to secure health. This will be addressed through the following research questions:

1. What are the following characteristics of studies which involve young people in the development, implementation and evaluation of programmes aiming to secure health:
    a. Study design?
    b. Participants (i.e. age, gender)?
    c. Setting (i.e. geographical location, demographics, school or community-based)?
    d. Characteristics of the intervention (i.e. content, health focus, theoretical/empirical basis, training, extent of young people's and adults' involvement)?
    e. Quality of the research on which the evidence rests?

2. What is the evidence of the impact that involving young people has on programme effectiveness through outcome evaluations?

3. What are the views that young people have of being involved in the process of developing health programmes?

4. What are the barriers and facilitators associated with the meaningful, appropriate and effective involvement of young people?

The methodology for this review follows the guidance detailed by the Evidence for Policy and Practice Information and Co-ordianting (EPPI) centre (EPPI-Centre, 2010). A search of ten bibliographic databases (e.g. Medline, CINAHL, ASSIA) and the grey literature was conducted. All identified studies were screened by two reviewers and were included if they met a pre-defined inclusion criteria. Data that could be used to answer the research questions was extracted and a narrative synthesis was performed. Risk of bias for the quantitative studies was assessed using the Effective Public Health Practice Project's quality assessment tool and trustworthiness of the qualitative studies was assessed using the EPPI centre tool.

This review identified 42 distinct studies of programmes that involved young people in one or more of: issue identification, needs assessment (i.e. investigating the issue of interest), development of the intervention (including development of materials), delivery of the intervention and evaluation of the intervention. The majority of programmes were conducted in high income countries, although only five were conducted in the WHO Europe region. Programmes were exclusively targeted at adolescents (i.e. 10-19 year olds) and focused on a range of health topics with sexual health being the most common.

Of the included studies, the majority conducted outcome evaluations (n=34). These studies reported mixed effects, with the most consistent effects being for tobacco and healthy eating behaviours, and for knowledge of the specific health behaviour of the programme. There was no clear relationship between level of participation and programme effectiveness. Generally, the higher quality studies involved lower levels of participation. Study quality was generally poor there was considerable heterogeneity in study design, study quality, level of participation, health focus and outcome measurement which prohibited meta-analysis. Nevertheless, the qualitative studies suggested that young people appeared to enjoy participating in these programmes and identified a number of benefits (e.g. learning new schools, developing confidence, learning more from the programme, gaining a better understanding of their community). However, a number of barriers to participation were identified (e.g. difficulties performing in front of other students, time pressures, insufficient training, interest waning over time, logistical issues). Conversely, the following facilitators were also reported: positive relationships between young people and staff; staff that are compassionate and not authoritative, local trainers and sufficient training.

To conclude, programmes that involve young people in the implementation and development are generally viewed as positive by the young people themselves and may confer some benefits in health related knowledge and some health behaviours (e.g. smoking, healthy eating). However, more high quality studies in which young people are involved in multiple components of participation and also compare the effects between young people actually involved in the implementation and/or delivery are necessary.

Contents

1. Introduction

Participatory research approaches in which participants actively work with researchers are being increasingly recognized as being means of not only understanding how to better prevent and manage complex health problems but also empowering participants (Horowitz et al., 2009). This is contrast to traditional approaches to health promotion that are led by professionals (Harden and Oliver, 2001). Consequently there is now a raft of published trials which involve children and young people in the development, implementation and evaluation of interventions aiming to secure health. And yet although 'the rationale for youth engagement in health is strong, there have been few syntheses of the evidence on its effectiveness' (Patton et al., 2016, p.2462). A systematic review which examines the components and effectiveness of these programmes is therefore timely. For the purpose of this review we will define health using the WHO definition of health: "health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (WHO, 1948).

1.1 Background

At the heart of many participatory approaches lies the work of Paulo Freire, who argued that education and research occur within a political context with teachers/academics holding power over participants/students (see Freire, 2000). In order to address this power imbalance, approaches to research and education need to recognise the strengths of all participants and engage them in decision making (Chávez et al., 2006).

Participatory research with adults has demonstrated positive effects in tackling a range of health problems including: increasing interest in influenza vaccination in hard to reach groups (Coady et al., 2008); increasing levels of physical activity in women (Pazoki et al., 2007); and blood pressure control in adults (Brownstein et al., 2005). However, it should be noted that it is not yet clear whether success from participatory approaches can be attributable to the fact the programmes developed may be more effective since they are designed by community experts or whether the process of participation has additional health benefits (Wallerstein and Duran, 2006).

Participatory methods can also be used in approaches to community engagement. Although there is no uniformly accepted definition of community engagement, it has been defined as "involving communities in decision-making and in the planning, design, governance and delivery of services" (Swainston and Summerbell, 2008, p.11). However, the nature of this engagement can be variable and may involve a range of other activities including: service user networks, health-care forums, volunteering, courses delivered by peers, soliciting opinions (e.g. via websites), as an actual intervention, and involvement in evaluation of services (O'Mara-Eves et al., 2013). Such approaches have demonstrated some success in improving health related outcomes for disadvantaged groups, however, there is variation in

effectiveness of different approaches and it is not clear which approach is the most effective (O'Mara-Eves et al., 2013).

Whilst the majority of programmes which employ participatory approaches have worked with marginalised adult populations (Vaughn et al., 2013), there is increasing recognition that such an approach could be utilised in child and adolescent health promotion (Wong et al., 2010). Within public health, this approach has been used in community interventions and youth development (Chávez et al., 2006). Indeed, children and young people are increasingly taking on roles as active participants in different aspects of health programmes including: defining the problem to be addressed, collecting data, using the results to design and/or implement a programme and evaluation of the programme (Checkoway and Richards-Schuster, 2003). Such an approach contrasts with more traditional research where young people were passive in the research process (Checkoway and Richards-Schuster, 2004). This can be considered reflective of a change in perspective on children's status in society more generally, with children and young people now having a say in many aspects of their lives (Alderson and Morrow, 2004). This change in perspective follows the publication of the United Nations Convention of the Rights of the Child (United Nations, 1989) which stipulates that children's views must be respected and that children have a right to freedom of expression. Arguably, this could be interpreted as a need to fully enable young people to participate in research and programme development which affects them. Moreover, children and young people have an 'insider' perspective (Kellett, 2005) which means that by engaging with them in research, we are working with experts (Vaughn et al., 2013).

1.2 Aims and Research Questions

To date, systematic reviews of participant involvement in trials of health interventions have focused on adults (Las Nueces et al., 2012, Cook, 2008, Salimi et al., 2012) and a lack of syntheses of such studies in adolescents has been noted by Patton et al. (2016). Whilst these did identify some positive effects, it is not clear whether these results would be applicable to children and young people. There is therefore a need to synthesise the available evidence on children and young people's involvement in trials of health interventions in order to identify if this approach confers any health benefits for them.

It should be cautioned that, despite the increase in attempts to develop young people's participation in clinical trials of health interventions, such attempts at times have been tokenistic (Hart, 2013). Indeed, the term participation has been accused of being a cliché (Woelk, 1992) and participatory research methods have been criticised for being biased, impressionistic and unreliable (Cornwall and Jewkes, 1995). There is therefore a need to synthesise the available evidence on children and young people's involvement in trials of health interventions in order to identify if this approach confers any health benefits for them. It is also important to examine to what extent the level of participation influences

programme effectiveness and crucially the strength of the evidence upon which any conclusions are based. Our goal is to inform health and social policy in this area, with a particular interest on the relevance to the WHO European Region given our centre's partnership around child and adolescent health and development.

This project aims to summarise through a systematic review, the scientific evidence base the benefits of the involvement of children and young people in the development, implementation and evaluation of programmes aiming to secure health. More specifically, this review will address this through the following four research questions (RQ):

1. What are the following characteristics of studies which involve young people in the development, implementation and evaluation of programmes aiming to secure health (section 3.2):
    a. Study design?
    b. Participants (i.e. age, gender)?
    c. Setting (i.e. geographical location, demographics, school or community-based)?
    d. Characteristics of the intervention (i.e. content, health focus, theoretical/empirical basis, training, extent of young people's and adults' involvement)?
    e. Quality of the research on which the evidence rests?

2. What is the evidence of the impact that involving young people has on programme effectiveness through outcome evaluations (section 3.3)?

3. What are the views that young people have of being involved in the process of developing health programmes (section 3.4)?

4. What are the barriers and facilitators associated with the meaningful, appropriate and effective involvement of young people (section 3.5)?

2. Methods

The methodology for this review follows the guidance detailed by the Evidence for Policy and Practice Information and Co-ordinating (EPPI) centre (EPPI-Centre, 2010). The study eligibility criteria, search strategy and methods for data extraction and analysis will now be described.

2.1 Eligibility Criteria

2.1.1 Programme Type

Studies were included if they involved young people in any aspect of the programme development, delivery or evaluation. More specifically programmes were included if they involved young people in any of the following domains:

- Issue identification (i.e. actively involved in determining focus of programme);
- Needs assessment (i.e. conducting research to explore the issue of interest);
- Programme development (i.e. contributed to develop of programme and/or materials);
- Delivery of programme (i.e. facilitating or teaching sessions, outreach work);
- Programme evaluation (i.e. actual conduct of the evaluation).

Programmes targeting individual young people who have a specific clinical condition will be excluded. However, if the intervention aims to target risk factors for a clinical condition (e.g. diabetes, asthma) at a population level it will be included.

Programmes that involved young people in programme development, delivery or evaluation but did not have a focus on health were excluded.

2.1.2 Study design

In order to be included studies must report methods and results. Different study types will be included to best answer RQ1-4, however, all included studies must describe primary empirical research which can utilise either a quantitative, qualitative or mixed-methods design.

As RQ1 involves scoping the available evidence, any form of empirical research will be included to answer it.

RQ2 necessitates the use of quantitative data. Although randomised controlled trials are considered to be the most reliable means of obtaining quantitative data, they may not be the most appropriate design for every scenario (Evans, 2003). Participatory approaches in particular may not be amendable to a RCT design due to ethical and feasibility issues (e.g.

contamination between groups of young people) and this review will therefore include the following study types in addition to RCTs to answer RQ2:

- Quasi-randomised controlled trials (i.e. using allocation methods that are not truly random)
- Cluster-randomised controlled trials
- Controlled before-and-after studies
- Interrupted time series
- Observational study

For RQ3, studies that collected data on the benefits of involving young people will be included. These could take the form of focus groups, interviews, surveys or ethnographic work. These studies may either be standalone studies or may be an additional component of a bigger study which also contained an outcome evaluation, which could potentially also address RQ2.

For RQ4 either qualitative or quantitative (or mixed-methods) studies will be included. Again, these could take the form of focus groups, interviews, ethnographic work or surveys, which may be quantitative or qualitative. As for RQ3, this work may be standalone or form part of a wider study.

Case studies which provide a descriptive overview of a programme but do not report methods or results will not be included in the review.

2.1.3 Participants

Children and young people aged 5-18 years who are either a) actively involved any aspect of the programme conceptualisation, development, implementation, delivery or evaluation of a programme aiming to improve health, or b) participating in a programme in which other children or young people are actively involved any aspect of the programme conceptualisation, development, implementation, delivery or evaluation of a programme aiming to improve health.

Children or young people who participate in a programme which has been fully developed and implemented by adults (e.g. teachers, researchers, parents) will be excluded.

Studies which only include children or young people with a specific clinical condition will also be excluded. However, it is anticipated that at a population level some of the included children may experience one or more clinical condition.

2.1.4 Outcomes

Outcomes were selected based on the broad definition of health taken in this review (see WHO, 1948). Studies will be included to answer RQ2 if they assess the following outcomes:

- Outcomes related to health and wellbeing (e.g. physical and mental health), health behaviour (e.g. physical activity, balanced diet) and health risk behaviours (e.g. alcohol misuse, tobacco use, illicit drug use),
- Outcomes related to psychosocial wellbeing including emotional wellbeing (e.g. happiness, life satisfaction), social wellbeing (e.g. empathy or opposite of delinquency, violence and bullying) and psychological wellbeing (e.g. resilience, self-confidence, positive focus),
- Outcomes related to addressing inequalities (i.e. health inequalities, health equity, social inequalities, social deprivation, social determinants of health),
- Outcomes relating to social effects of participation (i.e. social capital, social cohesion, reduced social isolation),
- Outcomes relating to community benefits (community identity, sense of community, community solidarity, improvements in services),
- Outcomes related to participation (i.e. perceived participation, levels of participation).

2.2 Search Methods for Identification of Studies

2.2.1 Electronic Bibliographic Databases

Journal coverage of databases was screened to identify which databases were most likely to contain articles that would be able to answer RQ1-4 and reduce duplication. This process identified the following databases as being a priority to search:

- Applied Social Science Index and Abstracts (ASSIA)
- Campbell Collaboration (C2) databases
- Cochrane Register of Controlled Trials (CENTRAL)
- Cumulative Index to Nursing and Allied Health Literature (CINAHL)
- Database of Abstracts of Reviews of Effects (DARE)
- Education Resources Information Centre (ERIC)
- Medline
- PsycInfo
- Social Care Online
- Social Science Citation Index

The searches were conducted in August 2014 and updated in September 2016. Due to time constraints, the search was limited to studies from 1994 and to English language papers (where the database allowed). The search log is detailed in Appendix 1.

2.2.2 Grey literature

The grey literature was searched using two approaches. First, the database Open Grey was searched and secondly, websites which were identified as being relevant to youth participation were searched for any relevant material. A list of all websites searched and the search log is presented in Appendix 2.

2.2.3 Personal Contacts

A call for evidence was put out to the Health Behaviour in School Children (HBSC) Youth Engagement group, whereby members were asked to identify any studies that they were aware of that could answer any of RQ1-4. However, there was no response to the call.

2.2.4 Search Terms

A scoping review of three databases (ASSIA, Medline, PsycInfo) was conducted to identify the most relevant search terms. As per recommendation of the Cochrane Collaboration, searches contained a combination of index terms and free text words (Lefebvre et al., 2011). To increase the specificity of the search, the free text search was limited to abstracts (Jenuwine and Floyd, 2004). The same free text search was conducted in each database; however, as indexing varies between databases, searches were adapted accordingly for each database. The full search strategy is detailed in Appendix 3 and was developed used the following search architecture:

- Population terms. Synonyms and index terms for children and adolescents, and schools were combined with the Boolean operator OR.
- AND Intervention terms. Synonyms and index terms for participatory methods, youth empowerment and engagement were combined with the Boolean operator OR.
- AND Outcome terms. Synonyms and index terms were combined for outcomes listed in section 2.1.4.

2.3 Data Collection and analysis

2.3.1 Study Selection

All identified studies were imported and de-duplicated using Refworks reference management software programme. Titles and abstracts were then screened by two independent reviewers who excluded studies based on topic, lack of participatory approach or population. Any disagreements were discussed with a third reviewer. Full texts of articles that potentially met the inclusion criteria based on title and abstract or for which there was insufficient information to judge were retrieved and screened.

2.3.2 Data Extraction and Management

There was no blinding of the names of journals, authors, the institutions or results when data was being extracted. The data was extracted and study quality assessed using the relevant items of the EPPI centre's data extraction and quality appraisal tool (EPPI-Centre, 2007), which includes sections on the following (see Appendix 4 for full tool):

A. Administrative details
B. Study aims and rationale
C. Study Policy or Practice Focus
D. Sample
E. Programme or intervention description
F. Results and conclusions
G. Study Method
H. Methods –Groups (only completed if compares two groups)
I. Methods – sampling strategy
J. Methods – recruitment and consent
K. Methods – data collection
L. Methods – data analysis
M. Quality of study – reporting
N. Quality of study – weight of evidence

Extraction using this form resulted in a large volume of data which was further reduced using a project specific data extraction tool which enabled summarisation of the following information: number of participants; number of young people involved in development of implementation; gender; age; geographical location; socioeconomic status; programme name; control programme (if applicable); theoretical/empirical basis; content of programme; extent of young people's participation; role of adult in the programme; programme duration; training; study design; data collection; outcomes (if applicable); results.

2.3.3 Risk of Bias Assessment in Outcome Evaluation

Risk of bias for each outcome evaluation (i.e. studies that were included to answer RQ2), was assessed using the Effective Public Health Practice Project's quality assessment tool for quantitative studies (http://www.city.hamilton.on.ca/phcs/EPHPP/), which was developed for use in all areas of public health (Thomas et al., 2004). The tool assesses risk of bias across the following domains: selection bias, study design (i.e. use of randomization, repeated measures), confounders, blinding, data collection methods and withdrawals and drop-outs. Each domain is judged as either strong, moderate or weak and using these judgements an overall grading is made. If one domain is judged as weak, then the overall judgement is moderate and if two or more domains are judged as weak the overall judgement is weak.

This tool has been recommended for use in systematic reviews of complex interventions and can be applied to RCTs and non-RCTS (Jackson and Waters, 2005).

2.3.4 Quality Assessment of the Qualitative Studies

The trustworthiness of the qualitative studies was assessed using the EPPI centre tool which includes sections on study quality assessment (EPPI-Centre, 2007).

2.3.5 Data synthesis

As anticipated, there was considerable heterogeneity in the studies with quantitative data (i.e. population, study design, programme, outcomes) and a narrative synthesis was conducted instead of a meta-analysis (Petticrew and Roberts, 2008).

The second level of data abstraction was used to provide a narrative summary of the characteristics of the included studies to answer RQ1. To summarise the extent of the participation of young people, each study was categorized as whether it included young people in the following aspects of the study: initial issue identification, needs assessment of problem, development of intervention, delivery of intervention, and evaluation of intervention. Similarly, the extent of adult involved was assessed in the same way but included an extra category of training provision.

In order to answer RQ2 (programme effects on health-related outcomes), a standard effect size was calculated to facilitate comparisons across studies where possible (in some cases no data was presented in the study that could be used to calculate this). For continuous data, means and standard deviations (when presented) were used to calculate Cohen's *d* and the 95% Confidence Interval (CI). If means and standard deviations were not available, but other information that could also be used to calculate Cohen's *d* (e.g. *t* or *F* values) was presented, this was used instead. For dichotomous data the Odds Ratio (OR) was calculated based on the number of events presented. In a few cases, studies did present an adjusted OR and this was used in preference. About half of the studies did not provide sufficient data to calculate effect sizes for some or all of the outcomes and this is denoted in the text by 'data not available'. In these cases, the information that was provided in the papers on significance testing (e.g. *p* values, results from regressions analyses) is presented in Appendix 7.

Finally, in order to address RQ3-4 themes relating young people's experiences of youth participation programmes and barriers and facilitators were extracted and synthesised.

3. Results

3.1 Results of the Search

The study selection process (i.e. identification, screening, eligibility and inclusion) is presented in the Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA; Moher et al., 2009) flow diagram (figure 1).

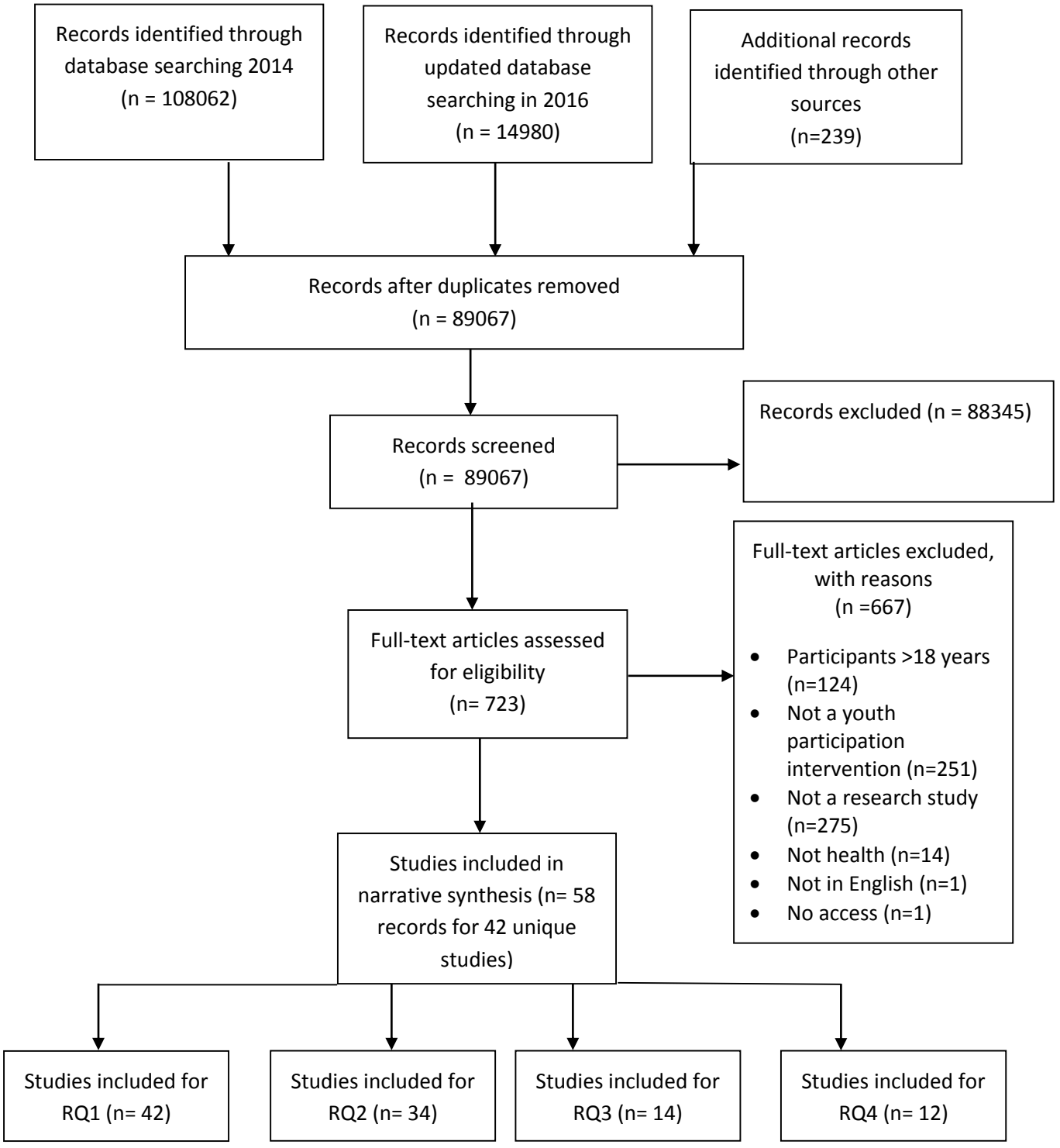

Figure 1. PRISMA diagram detailing study selection process

The initial database search in September 2014 identified 108062 records, however, after de-duplication this was reduced to 73852 records. The website search identified 239 records which potentially met the inclusion criteria based on title and these records were included for further screening. The updated database search conducted in September 2016 identified an additional 14980 unique records. Therefore a total of 89067 titles and abstracts were screened. Of these 723 were judged as potentially meeting the inclusion criteria or insufficient information was available in the abstract to judge and the full text articles were retrieved. Full text screening identified 42 unique studies reported in 58 papers. Papers which reported on the same study were grouped together.

The most common reason for exclusion was that the paper was not an empirical research study (n=275). The second most common reason for exclusion was that the study was not about a programme which involved the participation of young people in its development, delivery or evaluation (n=251). Other reasons for exclusion were: participants aged over 18 years at the start of the study (n= 124), the programme was not focused on health (n=14) or the paper was not in English (n=1). Finally, one paper was excluded on the basis that we could not obtain access to it.

As RQ1 aimed to provide a scope of the literature to identify characteristics of studies that involve young people in the development, implementation and evaluation of programmes aiming to secure health all 42 studies were used to answer this question. The studies were then categorised by which of RQ 2-4 they answered, however, there was considerable overlap in this, particularly between RQ3 and RQ4. Specifically, 35 of the included studies contained outcome evaluations of programmes. However, Carroll et al. (1999) which was an outcome evaluation was excluded from RQ2. The rationale for this exclusion was it was an uncontrolled study, which only collected the data at post-test and therefore no comparison could be made between either a control group or with pre-test data. Therefore only 34 studies were used to answer RQ2.

Fourteen studies included data on young people's views on being involved in such programmes that was used to answer RQ3. Twelve studies included data on barriers and facilitators associated with the meaningful, appropriate and effective involvement of young people which was used to answer RQ4. The results for each question will now be presented in turn.

3.2 Research Question 1: Study Characteristics

The 42 unique studies included over 64,187 young people as participants. The number of participants in each study varied hugely with smallest study containing seven participants (Ager et al., 2008) and the largest containing a total of 14,063 participants (Perry et al., 2009). The median number of participants was 285. Of the 64,187 young people, 3773 were actively involved in an aspect of the development, implementation or evaluation of a

programme. The other young people were either participants receiving the programme or acted as controls. The included papers were published between 1994 and 2016. Appendix 5 provides a brief outline of the number of participants, location of intervention and content of the interventions.

3.2.1 Research Question 1a: Study Design

The majority of studies (n=35) used experimental or quasi-experimental study designs to evaluate the effectiveness of programmes and could therefore be used to answer RQ2:

- 10 studies used cluster randomised designs (Al-sheyab et al., 2012a, Winkleby et al., 2004, Campbell et al., 2008, Goldberg et al., 2000, Perry et al., 2009, Stephenson et al., 2004, Ozer and Douglas, 2013, Pearlman et al., 2002, Bogart et al., 2014, Birnbaum et al., 2002);
- 12 studies used uncontrolled before-and-after designs (McGuire and Gamble, 2006, Coleman et al., 2011, Goslar et al., 2009, Ager et al., 2008, Midford et al., 2000, Onyango-Ouma et al., 2005, Madrigal et al., 2014, Mahat and Scoloveno, 2010, Tencati et al., 2002, Petrova et al., 2015, Woodgate and Sigurdson, 2015, O'Reilly et al., 2016);
- 8 studies used non-randomised controlled studies (Merakou and Kourea-Kremastinou, 2006, Berg et al., 2009, Beshers, 2007, Bogart et al., 2011, Gibson et al., 1998, McKinney et al., 2014, Menna et al., 2015, Hamdan et al., 2005);
- 2 studies used a non-randomized cluster-controlled trial (Caron et al., 2004, Lindqvist et al., 2014);
- 1 study used an individual randomised trial (Peña et al., 2008);
- 1 study used an uncontrolled post-test only design (Carroll et al., 1999, N.B. excluded from RQ2);
- 1 study used a repeat cross-sectional design (Alstead et al., 1999)

The 14 studies which were included to answer RQ3 used a range of methods:

- 3 studies used semi-structured interviews (Ferrera et al., 2015, Stewart et al., 2008, Wallerstein and Sanchez-Merki, 1994);
- 5 studies used focus groups (Al-Sheyab et al., 2012b, Bader et al., 2007, Campbell et al., 2008, Woodgate and Sigurdson, 2015, Marko and Watt, 2011);
- 6 studies used questionnaires (Kohlstadt et al., 2015, Berg et al., 2009, Birnbaum et al., 2002, Hamdan et al., 2005, O'Reilly et al., 2016, Tencati et al., 2002).

Ten of the studies which were used to answer RQ3, also provided data that was used to answer RQ4 (Al-Sheyab et al., 2012b, Bader et al., 2007, Berg et al., 2009, Birnbaum et al., 2002, Campbell et al., 2008, Ferrera et al., 2015, Marko and Watt, 2011, O'Reilly et al., 2016, Stewart et al., 2008, Wallerstein and Sanchez-Merki et al., 1994). In addition Madrigal et al.

(2014) conducted questionnaires which examined barriers and facilitators and Ager et al. (2008) reported the researchers' reflections on barriers and facilitators.

3.2.2 Research Question 1b: Nature of Participants

3.2.2.1 Participants' Age

All of the studies focused on adolescents (defined by WHO as aged 10-19 years) and none included children under the age of ten. The included studies either presented mean ages, age ranges or school grades (see Appendix 5). When only school grades were presented, age ranges were estimated based on the age of young people normally in those grades. The majority of studies (n=22) focused on older adolescents defined as the majority of participants being aged 15 years or older. Ten studies specifically focused on early adolescents, defined as the majority of students being aged 10-14 years. Nine studies included participants at any stage in adolescence and one study did not define the age of the young people included.

3.2.2.2. Participants' Gender

The majority of studies included male and female participants. Three studies specifically included only female students (Al-Sheyab et al., 2012b, Gibson et al., 1998, Peña et al., 2008). The studies by Al-Sheyab et al. (2012b) and Gibson et al. were both conducted in female only schools and both were an evaluation of the same programme (Adolescent Asthma Action programme). The study by Peña et al. was a sexual health programme desinged specifically for female participants. Only one study included only male students and this was focused on steroid use prevention (Goldberg et al., 2000). All of the other studies included participants of both gender and the majority of studies (n=20) contained approximately balanced numbers of male and female participants. However, ten studies contained predominantly more students of one gender (defined as over two thirds of participants being either male or female). Seven of these studies included predominantly more female participants and three predominantly more male participants. Nine studies did not provide specific details on number of female and male participants.

3.2.3 Research Question 1c: Setting

3.2.3.1 Geographical Location

The vast majority of studies were conducted in high income countries based on World Bank classifications (n=36; see Appendix 5 for full details). Of these the majority were conducted in the USA (n=23) and the others were conducted in the following five countries: Canada (n=5), UK (n=2), Australia (n=2), Sweden (n=1), Greece (n=1) and Ireland (n=1). Two studies were conducted in the same upper middle income country (Jordan). Three studies were conducted in the following lower middle income countries: Nicaragua, India and Kenya. Only one study was conducted in a low income country (Ethiopia).

3.2.3.2 Context and Setting

The majority of studies were conducted in school settings (n=33). One study, specifically included continuation high schools (Winkleby et al., 2004). The other nine studies were conducted in community settings (Ager et al., 2008, Bader et al., 2007, Berg et al., 2009, Ferrera et al., 2015, Kohlstadt et al., 2015, Madrigal et al., 2014, Marko and Watt, 2011, Peña et al., 2008).

Twenty studies were conducted in low income settings. Specifically, 16 were conducted in low income communities within high income countries and four were conducted in low or low-middle income countries.

The majority of studies (n=26) either focused on targeting young people from ethnic minorities or included a diverse range of ethnic groups in the study.

3.2.4: Research Question 1d: Characteristics of the Intervention

3.2.4.1 Health Focus of Programmes

The programmes the young people participated in focused on a wide range of health-related topics (see Appendix 5), with the most frequently studied area being sexual health (n=11). Other programmes focused on the following topic areas: healthy eating (n=6), substance misuse (n=4), mental health (n=3), alcohol (n=3), tobacco (n=4), violence (n=3), asthma (n=3), physical fitness (n=2), health literacy (n=2), type II diabetes prevention (n=1), cardiovascular health (n=1), seatbelt use (n=1), diarrhoea and malaria prevention (n=1), steroid use prevention (n=1) and environmental health. In addition, one programme Ozer et al. (2013) focused on more generic life skills (i.e. empowerment, self-esteem) by tackling health-related topics of the students' choosing. A number of programmes tackled multiple related health behaviours (i.e. alcohol and substance misuse or healthy eating and physical fitness).

3.2.4.2 Theoretical and Empirical Basis of Programmes

Some programmes reported one or more theoretical basis (see Appendix 5). Social cognitive theory (Bandura, 2001), was the most commonly cited theoretical basis with 12 programmes reporting to have been based on it. Eight programmes reported the use of approaches that could be broadly grouped as strengths-based approaches based on resiliency theory (Zimmerman et al., 2013) as they aimed to promote empowerment, self-management and strengthen capacity in young people. In addition, three studies reported to use the diffusion of innovation theory (Rogers and Shoemaker, 1971), three studies were based on social norms theory (Fabiano et al., 2003), two studies were informed by theory of

planned behaviour (Ajzen, 1991), and two programmes evaluated in three studies were informed by ecological theory (Bronfenbrenner, 1992).

A considerable number of studies (n=17) were either solely informed by previous empirical work that utilised peer education approaches or used this empirical work in conjunction with a theoretical basis. Finally, 17 studies reported to have used a participatory action research (PAR) approach which was either in addition to a theoretical basis or as the sole basis.

One study developed a model of participation to involve young people in all stages of the study process and involves the following six stages: 1) Engage (i.e. connecting with the young people), 2) Identify (i.e. explore and identify issues of concern), 3) Plan (i.e. choose an issue and define a strategy, 4) Act (i.e. implement the project), 5) Research, Reflect and Reward (i.e. evaluate the effectiveness of the programme) and 6) Sustain (i.e. consider ways to continue through successive groups (Bader et al., 2007). The other studies reporting to take a participatory action approach, utilised stages similar to these to varying degrees.

3.2.4.3 Training

Training was provided for young people and/or adult facilitators. Training for the young people involved in either developing, delivering or evaluating the sessions varied considerably. Some programmes (n=13; see Appendix 5) provided extensive training either delivered as multi-day training or multiple sessions delivered over an extended period and consisted of education sessions on the health behaviour of interest, skills for participating in the programme (e.g. team-working, leadership, communication, research, project management) and often provided an opportunity for students to develop action plans. The duration of these programmes ranged from over six weeks of summer school (Berg et al., 2009, McKinney et al., 2014) to two day training events (Beshers et al., 2007, Campbell et al., 2008).

The majority of other programmes (n=21; see Appendix 5) provided shorter training sessions, for example two to three hour sessions delivered at several time points or a one day training event. Twelve programmes also detailed training for the adults also involved in the programme. Specifically, seven provided training for teachers, two for health workers (Al-Sheyab et al., 2012a, Wallerstein and Sanchez-Merki, 1994) and five for researchers/site staff. Four programmes did not specify any formal training for young people or adults.

3.2.4.4 Extent of Young People's Involvement in Programme

Each of the included studies was assessed by the extent to which young people were involved in the programme through the following five categories of participation: 1) issue identification, 2) needs assessment (i.e. investigating the issue of interest), 3) development

of the intervention (including development of materials), 4) delivery of the intervention, and 5) evaluation of the intervention. Details of young people's involvement in each study is presented in Appendix 5.

The most common component for young people to be involved was delivery of sessions (n=40). For ten of these programmes, young people's participation was limited to programme delivery and therefore young people were not involved in identifying the need for the programme, researching the programme, developing the programme or evaluating it Interestingly, in the largest studies young people's involvement was limited to delivery of the programme. Only two studies did not involve young people in the delivery of sessions, and instead their input was limited to programme development and programme development and needs assessment. Thirty-two studies involved the young people in programme development and in almost of all these, the young people were also involved in the delivery of the intervention. Only six studies involved young people in the issue identification process and only ten involved young people in a needs assessment to research the programme. Importantly, these studies tended to describe themselves as PAR or were based upon strengths based approaches. Four studies involved young people in the evaluation of the programme. Only Berg et al. (2009) appeared to involve young people in all five components of the research process and only three studies involved young people in four components of the research process.

3.2.4.5 Adult Involvement

All of the studies involved an adult in some aspects of the programme conceptualisation and development (see Appendix 5). In only a small number of studies their role was limited to facilitating the young people to determine the focus and nature of the programme (n=6). However, the majority of other studies did involve a collaborative approach between young people and adults to programme development.

The professional role of the adults working with the young people varied between studies. Half of the studies involved a researcher in some aspect of the programme (n=22) and 17 studies which were implemented in a school setting involved a teacher in part of the programme. Other adults involved included healthcare professionals (n=9), public health workers (n=5), members of the local community (n=5), youth workers (n=4), parents (n=3) and school cafeteria staff (n=3).

3.2.5 Research Question 1e: Study Quality

All 35 studies that included an outcome evaluation of a health programme were used to answer RQ2 were critically appraised using the EPHPP tool (see Appendix 5). Of these only four were judged to be strong (Birnbaum et al., 2002, Campbell et al., 2008, Ozer et al., 2013, Stephenson et al., 2004). Ten were judged to be of moderate quality (Al-Sheyab et al.,

2012b, Berg et al., 2009, Bogart et al., 2014, Goldberg et al., 2000, Lindqvist et al., 2014, McKinney et al., 2014, Perry et al., 2009, Petrova et al., 2015, Winkleby et al., 2004, Woodgate and Sigurdson, 2015) and the remaining 22 were judged to be weak.

Study quality was therefore considered to generally be poor. The primary issue with the weak studies was a risk of confounding due to use of non-randomized study designs and subsequent failure to account for confounding. Similarly, the use of non-randomized designs in many of the included studies also gave rise selection bias. Another important issue of concern was the frequent use of data collection tools that were not shown to be valid or reliable.

The 12 studies that consisted of or contained a qualitative component were assessed using the EPPI centre tool. Only Campbell et al. (2008) was judged to be of high quality and only two studies were judged to be medium quality (Stephenson et al., 2004, Wallerstein and Sanchez-Merki, 1994). The other nine studies were judged as low quality. The primary reason for this was insufficient information on participant recruitment, data collection and analysis methods and limited description of results (i.e. limited or no, quotations, no indication of typicality of views or outliers).

3.3 Research Question 2: What is the evidence of the impact that involving young people has on health outcomes?

3.3.1. Outcome Measurement

There was considerable heterogeneity between the 34 studies which were included to answer RQ2, both in terms of the outcomes measured and the measurement tools. Relevant information about the outcome measurement, including the strategy used for group comparison is summarized in Appendix 6. This heterogeneity can partly be attributed to the different health focus across the studies. However, even between studies with the same health focus there was heterogeneity in outcome measurement with differences in the concepts measured and scales used, with a considerable proportion of authors developing their own measurements for the purposes of the study rather than using pre-existing validated scales. Outcomes could be broadly divided into those that measured actual health behaviours and those that measured predictors of behaviour (e.g. attitudes, knowledge, beliefs, self-efficacy, perceived behavioural control). In addition, some studies included non-specific measures that could be broadly grouped around the following concepts: positive youth development (e.g. self-esteem, self-efficacy, empathy); community engagement/sense of belonging; and presentation and peer education skills; and team/leadership skills.

The vast majority of studies collected data using questionnaires. However the following studies also utilised alternative methods of data collection: Bogart et al. (2011, 2014)

collected behavioural data using cafeteria records; Lindqvist et al. (2014) used text messaging to ask participants about engagement in physical activity; Winkleby et al. (2004) measured smoking using a handheld breath monitor which measures levels of carbon dioxide; Goslar et al. (2009) asked students to observe seatbelt use upon driving to school; and Onyango-Ouma et al. (2005) observed hygiene practices.

There were also differences in how the comparisons between groups were made; a small number of studies compared the young people who had been involved in the development or implementation of the programme with either the young people who had received the programme or a control group. However, the majority of programmes included all young people receiving the programme (whether or not they were involved in the development or implementation) in the in the intervention group. Specifically, only Birnbaum et al. (2002) and Hamdan et al. (2005) made this distinction. It is therefore difficult to identify whether involvement in the programme development and implementation conferred any additional benefit beyond receiving a programme in which young people were involved in the development and/or implementation.

3.3.2 Results of Outcome Evaluations

The study results and effect sizes (when available) are presented in Appendix 7. A narrative description of the results by outcome topic will now be presented.

3.3.2.1 Sexual health

Effects for the studies which included sexual health outcomes were mixed and tended to yield more positive results for predictors of behaviour, in particular knowledge, then actual self-reported behaviour.

Specifically, only two studies consistently reported positive significant differences in outcomes, however, both of these studies were graded as weak. First, Mahat and Scoloveno (2010) reported significant positive effects in predictors of sexual health behaviours: HIV/AIDs knowledge (d=0.48 (95% CI: 0.18 – 0.80)) and self-efficacy (d = 0.45 (95% CI 0.81 – 1.39). Secondly, Peña et al. (2008) reported positive changes in gender norms (OR = 2.8, 95% CI 1.2-6.2). It should also be noted that this study was judged as weak.

Five studies reported mixed effects, and were all judged weak with the exception of the study by Stephenson et al. (2004), which was judged as strong. Specifically, Merakou and Kourea-Kremastinou (2006) reported significant positive differences in beliefs and attitudes to high risk HIV behaviour and personal sexual practices (data not available to calculate effect size), but no significant difference in either knowledge about HIV or attitudes towards HIV carriers. Caron et al. (2004) reported significant positive differences in 18 measures of predictors of sexual health behaviours (i.e. intentions, self-efficacy, attitudes, anticipated regret, perceived behavioural control) in high school juniors and in 16 of these measures for

seniors. However, there was no significant difference in actual behaviour (i.e. postponing sexual intercourse). Pearlman et al. (2002) reported significant changes in HIV/AIDs knowledge (d=0.48 (95% CI: 0.18 – 0.80)) and perception of self as a change agent (d=0.51 (95% CI: 0.20 – 0.82)) but no significant difference in actual sexual health behaviour or generic skills (self-efficacy and knowledge of planning and presenting skills; data not provided). Conversely, Menna et al. (2015) reported significant positive effects in actual condom use (aOR = 4.73(95% CI 1.40-16.0)) but not in predictors of behaviour: HIV/AIDs knowledge aOR = 1.20(95% CI 0.77-.1.87) or willingness to go for HIV testing (aOR = 1.23(95% CI 0.75-2.02). Finally Strange et al. only reported significant positive effects for two outcomes: knowledge of STI prevention and having sexual intercourse. However, the effect sizes were all small and knowledge of STI prevention was only significant for girls at six months (aOR = 1.27 (95% CI 1.01-1.59)); and boys at 18 months (aOR = 1.31 (95% CI 1.02-1.68)), and having sexual intercourse was only significant in girls at 18 months (aOR = 0.92 (95% CI 0.75–1.11)).

Three studies did not identify any positive significant differences. Two of these studies were judged weak (Alstead et al., 1999; Beshers et al., 2007) and one as moderate (Berg et al., 2009). More specifically, Alstead et al. (1999) did not identify any significant differences in sexual behaviours (data not available); Beshers et al. did not identify any significant differences in any predictors for sexual health behaviours (with the exception of perceived norms for condom use); and Berg et al. did not identify any significant difference in number of sexual partners.

The majority of these programmes included young people in programme development and delivery of sessions (see Appendix 5 for details). Therefore it was not possible to identify a relationship between level of engagement and impact on sexual health outcomes.

3.3.2.2 Alcohol Use/Misuse

Whilst four studies included measures of alcohol misuse, only the programme by Midford et al. (2002) exclusively focused on alcohol. Across the studies there was a lack of any consistent significant effects, particularly for alcohol behaviours. However, there were more consistent improvements in knowledge.

Specifically, Midford et al. (2002) reported a significant negative difference between the proportion of students drinking at harmful or hazardous levels between pre- and post-test (OR = 0.39 (95% CI 0.14-1.11)). Similarly, Tencacti et al. (2002) did not identify any significant differences in the proportion of female participants (OR = 1.15 (95% CI 0.56-2.37)) or male participants (OR = 0.82 (95% CI 0.23-2.89)) who had drunk any alcohol in the last 30 days and Berg et al. (2009) did not identify any significant difference in alcohol consumption (data not available). Conversely, Goldberg et al. (2000) did report a significant positive difference in intervention students (data not available). However, this was a combined

measure which also included substance misuse and therefore not specific to alcohol. Despite the apparent lack of impact on actual alcohol behaviours, there were more consistent improvements in alcohol knowledge with both Midford et al. and Goldberg et al. reporting positive changes (data not available). There was no change in attitudes in the one study that included this as an outcome (Tencati et al., 2002).

Significance of effects did not appear to vary with study quality with Goldberg et al. and Berg et al. being judged as moderate and Midford et al. and Tencati et al. being judged as weak. The significant positive effects were found in the studies with lower levels of engagement of young people, with Midford et al. only involving young people in two components and Goldberg et al. only involving young people in one component (see Appendix 5 for details). Conversely, Berg et al. involved young people in five components and Tencati et al. involved young people in three components. However, given the small numbers of studies, it is not possible to draw any conclusions.

3.3.2.3 Healthy Eating

Five studies included measures on healthy eating. Generally, positive significant differences were reported, particularly for measures of actual healthy food consumption.

More specifically, Bogart et al. (2011, 2014) used cafeteria records on food consumption and reported significant positive differences in soda, sports/fruit drink, fruit and healthy entrée consumption (Bogart et al., 2011; data not available) and tap water consumption (Bogart et al., 2014; b (SE) = 0.18 (.09), p <.05), fruit servings during the intervention only (Bogart et al., 2014 ; b (SE) = 0.07 (.03), p <.01) and school lunch consumption both during (b (SE) = 0.05 (.02), p <.001) and after the intervention (b (SE) = 0.04 (.12), p<.01). Birnbaum et al. (2002) reported that peer leaders specifically self-reported significantly higher mean number of daily servings (d = 0.21 (95% CI 0.71 – 0.34)), however, there was no significant difference in non-peer leaders who students exposed to the intervention as participants or in the wider school environment. However, there was a very small but significant increase in self-reported lower fat food consumption in all treatment groups (d = 0.08 (95% CI 0.01 – 0.15)), although this effect was slightly greater in the peer leaders (d = 0.17 (95% CI 0.04 – 0.31)). Hamdan et al. (2005) also identified positive significant effects for young people involved in delivering the intervention by comparing highly involved students (i.e. those delivering the intervention) to less involved students (i.e. those receiving the intervention) but did not include a non-treatment control group. Significant positive differences were reported in the proportion of students who reported the following: eating more low fat foods (OR = 5.79 (95% CI 3.12–10·75)), paid more attention to diet (OR = 3.92 (95% CI 2.12-7.26) eating more fruit and vegetables (OR = 15.48 (95% CI 5.69-42.08)). However, Bogart et al. (2014) did not identify any significant differences in vegetable servings or fruit servings after the intervention.

Predictors of behaviour were inconsistent. Positive significant differences were reported by Bogart et al. (2011, 2014) in cafeteria attitudes, Bogart et al. (2014) also reported positive significant differences in attitudes to tap water, knowledge about healthy eating and intentions to drink water and Hamdan et al. (2005) reported improved attitudes to low fat food foods (OR = 28.86 (95% CI 7.96-104.7)) and fruit and vegetable consumption (OR = 7.35 (95% CI 3.15-17.12)), and thinking it's cool to eat low fat foods at school (OR = 3.87 (95% CI 1.8-8.33)). Hamdan et al. also reported the less involved were more likely to report that they had not noticed more students eating low fat foods (OR = 6.57 (95% CI 3.5 – 12.33)) or that the intervention had no impact on students eating low fat food in the cafeteria (OR = 16.34 (95% CI 8.4-31.63)). However, Birnbaum et al. (2002) did not report any significant changes in either beliefs towards healthy eating, intentions to eat healthily or assessment of current healthy eating behaviour. Similarly, McKinney et al. (2014) did not report any significant differences in healthy food knowledge (data not available) or nutrition attitudes (OR = 1.67 (95% CI 0.78-3.56)).

These studies were of variable quality with Birnbaum et al. (2002), judged as strong, two studies judged as moderate (Bogart et al., 2014, McKinney et al.) and two studies judged as weak (Bogart et al., 2011, Hamdan et al., 2005). It should be noted that the two weak studies were the only two to report positive significant differences for all outcomes. With the exception of Hamdan et al. (2005), young people's involvement was limited to delivery of sessions +/- programme development (see Appendix 5 for details).

3.3.2.4 Physical activity

Two moderate quality studies included physical activity as outcomes and reported mixed results in terms of levels of physical activity.

Specifically, one study specifically focused on physical activity (Lindqvist et al., 2014) and reported a positive significant difference in self-reported levels of physical activity. McKinney et al. (2014) targeted healthy eating and physical activity, however, did not identify any significant differences between the intervention and control group in actual levels of physical activity (OR = 0.51 (95% CI 0.18-1.45)) or fitness attitudes (OR = 1.3 (95% CI 0.6-2.94)). Both of these studies involved limited participation of young people (see Appendix 5 for details).

3.3.2.5 Substance Misuse

Of the four studies which included substance misuse as outcomes, only the programme by Ager et al. (2008) specifically focused on substance misuse, whereas the others included substance misuse as one component of a broader programme for multiple health behaviours. Results were generally mixed in particular for self-reported substance use. However, more consistent positive changes were reported for knowledge.

Three studies measured actual substance abuse behaviour (Berg et al., 2002; Goldberg et al., 2000; Tencati et al., 2002). Effects were mixed with Tencati et al. reporting no significant differences in marijuana use in the last 30 days in either girls (OR = 0.74 (95% CI 0.16-3.38)) or boys (OR = 1 (95% CI 0.06 -15.78)). However, Berg et al. reported a positive significant effect on marijuana use and Goldberg et al. reported a significant positive effect in substance abuse in both a combine measure with alcohol and also a separate illicit substance measure.

The two studies that measured knowledge of illicit substances reported positive effects. First, Ager et al. (2008) reported a significant positive difference at post-test (d = 2.18 (95% CI 0.75 – 3.61)). Secondly, Goldberg et al. (2000) reported a positive difference in marijuana at the first post-test only. Tencati et al. (2002) also reported significant positive effects in other predictors of behaviour in girls only: perceived incentive value and perceived self-efficacy (data not available). Berg et al. (2002) also reported a significant positive difference in perception of peer drug use (data not available).

There were no other significant differences in other predictors of substance misuse: attitudes towards drugs (Ager et al., 2008; d = 0.28 (95% CI -0.97 – 1.52)), outcome expectancies (Tencati et al., 2002; data not available), perceived policy control (Tencati et al., 2002; data not available) or perceived peer tolerance of drugs (Goldberg et al., 2000; data not available). Both Berg et al. (2002) and Goldberg et al. were judged to be of moderate quality whereas Ager et al. and Tencati et al. were judged to be low quality. The studies all involved young people to varying degrees and given the small number of studies involved, it is not possible to ascertain a clear relationship between level of involvement and programme effectiveness (see Appendix 5 for details).

3.3.2.6 Mental Health

Two studies of moderate and weak quality focused on mental health and reported mixed results, although more consistent positive effects were identified for help-seeking for mental health problems.

Specifically, Petrova et al. (2015) reported significant positive differences in help-seeking from adults at school, rejecting the code of silence and perceptions of adult help for suicidal youth (data not available). This study was judged to be of moderate quality. Similarly, O'Reilly et al. (2016) reported a significant positive effect in self-stigma of help-seeking (d =-0.19 (95% CI -0.63-0.25)) although this study was judged as low quality. Taken together, these results may suggest that students are more likely to feel less hesitant about seeking help for mental health problems. O'Reilly et al. also reported a significant improvement in mental health knowledge (d = 0.89 (95% CI 0.44-1.35)). However, no significant differences were seen in the following outcomes: maladaptive coping, sources of strength coping (i.e.

protective factors), perceptions of trusted adult at school and perceptions of the adult named at the session (Petrova et al., 2015); or perception of stigmatization of others for help-seeking (d = -0.19 (95% CI -0.63-0.25); O'Reilly et al., 2016). Both of these studies involved young people in programme development and delivery of sessions.

3.3.2.7 Tobacco

Generally, more positive significant effects were found for studies which focused on tobacco use prevention. All three studies which exclusively focused on tobacco reported significant positive effects in smoking behaviours.

Specifically, Campbell et al. (2008) measured proportion of weekly smokers immediately after the intervention (OR = 0·76 (95% CI 0·66–0.89)), at one year (OR = 0·82 (95% CI 0·72–0·90)) and two years follow-up (OR = 0·72 (95% CI 0·65–0.8)), indicating a positive sustained effect. Perry et al. (2009) reported a significant positive effect in cigarette smoking, bidi smoking and any tobacco use. Winkleby et al. (2004) also identified a positive effect in smoking behaviours, however, this effect was only significant in regular smokers and not sustained at six months follow-up (data not available).

In addition, Winkleby et al. (2004) reported positive effects in predictors of smoking behaviour: perceived incentive value (d = 4 (95% CI 3.75 - 4.25)); perceived self-efficacy (d = 2 (95% CI 1.82 – 2.18)) and outcome expectancies (d = 3 (95% CI 2.79 – 3.21)). Similarly, Perry et al. (2009) reported significant positive effects in eight predictors of behaviour (e.g. knowledge, attitudes, self-efficacy) but reported a significant negative effect in perceived prevalence of smoking and chewing tobacco. Two studies that did not focus specifically on tobacco included it as an outcome. Specifically Al-Sheyab et al. (2012a) reported a positive significant difference in self-efficacy to resist smoking (d = 7.74 (95% CI = 7-8.47)). However, Tencati et al. (2002) did not identify any significant difference in tobacco smoking in last 30 days (OR = 0.65 (95% CI 0.22-1.87)).

The three studies which focused exclusively on tobacco were generally of higher quality with two judged as moderate (Perry et al., 2009, Winkleby et al., 2004) and one as high (Campbell et al., 2008). There was no clear association between level of involvement and programme effectiveness with two studies only involving young people in delivery of sessions (Campbell et al., 2008, Perry et al., 2009), one study only involving young people in two components (Al-Sheyab et al., 2012a) and two studies involving young people in three components (Tencati et al., 2002, Winkleby et al., 2004; see Appendix 5).

3.3.2.8 Type 2 Diabetes

One study reported a positive change in diabetes knowledge.

Only one weak study included outcomes related to type 2 diabetes (Coleman et al., 2011). These were all single item measures of knowledge and significant positive effects were identified for four out of five measures specific to diabetes (see Appendix 7 for full details). The young people were involved in programme development and delivery of sessions.

3.3.2.9 Seatbelt Use

One study reported a positive change in number of students wearing seatbelts.

Again this was only the focus of one weak study (Goslar et al., 2009) which identified a significant positive difference in the number of drivers and passengers wearing seatbelts (OR = 0.44 (95% CI 0.38 – 0.50)). Young people were involved in programme development, the delivery of the intervention and evaluation.

3.3.2.10 Steroid Use

One study generally reported positive significant changes for both behaviour and predictors of behaviour immediately after the intervention and at one year follow-up (Goldberg et al., 2000).

One moderate quality study reported significant positive differences in the following outcomes (Goldberg et al.,2000): lifetime steroid use, supplement use (one year follow-up only), intent to use steroids, ability to turn down offer of drugs, knowledge, perceived coach tolerance, perceived harms, negative attitudes to steroid users (post-test only), perceived susceptibility to harms, concern about what friends think (post-test only) and reasons for using/not using steroids (data not available). However, no significant differences were reported for normative beliefs about steroids. Young people were only involved in delivery of sessions.

3.3.2.11 Diarrhoea and Malaria Prevention

One study reported a significant positive change in knowledge but not in hygiene behaviour.

Only one weak study focused on this (Onyango-Ouma et al., 2005). Whilst a significant positive effect on hygiene knowledge was identified, there was no significant change in hygiene practices (no data available). Young people were involved in programme development and delivery of sessions.

3.3.2.12 Asthma

Both the studies that included an outcome evaluation of a programme focused on asthma involved the same intervention delivered in different settings, and reported generally positive effects, particularly in terms of knowledge.

Specifically, positive significant differences in asthma knowledge were reported by both Gibson et al. (1998; d= 0.51 (95% CI 0.34-0.68)) and Al-Sheyab et al., 2012a (d = 8.1 (95% CI = 7.33-8.86)). In addition Al-Sheyab et al. (2012a) reported a significant positive difference in health-related quality of life (d = 9.64, (95% CI 8.75-10.53)). However, Gibson et al. did not identify any significant differences in attitudes towards asthma. The study by Al-Sheyab et al. (2012a) was judged to be moderate quality and the study by Gibson et al. was judged to be of low quality. This was the same programme and the young people were involved in programme development and delivery.

3.3.2.13 Self-esteem

Changes in self-esteem were inconsistent across the four studies which included it as an outcome measure.

Specifically, significant positive effects were reported by Peña et al. (2008; OR = 1.73, (95% CI: 1.1-2.7)) and Goldberg et al. (2000; data not available) who reported a significant positive difference at the immediate post-test only. However, neither Ozer et al. (2013; T1: d = 0 (95% CI -0.2-0.2), T2: d = 0.19 (95% CI -0.9-0.48)) or O'Reilly et al. (2016; d = 0.4 (95% CI -0.04-0.84)) identified any significant positive changes. These studies varied in quality with one study judged as strong (Ozer et al., 2013), one study judged as moderate (Goldberg et al., 2000), and two judged as weak (O'Reilly et al., 2016, Peña et al., 2008). These studies involved young people in a range of different levels of participation and it is therefore not possible to ascertain a clear relationship between level of participation and programme effectiveness (see Appendix 5).

3.3.2.14 Self-efficacy

Whilst the majority of studies which measured self-efficacy, considered it in relation to a specific health risk behaviour, three studies measured it in a more general sense and reported inconsistent results (Madrigal et al., 2014, Pearlman et al., 2002, Tencati et al., 2002).

Specifically, Tencati et al. (2002) reported a positive significant difference in female participants only (data not available). Madrigal et al. (2014) reported each item of a six item scale individually and reported a positive significant difference for one item (I can make good presentations on issues I care about to teachers (d = 0.81 (95% CI 0.67-1.56)) but no significant differences for the other five items (see Appendix 7 for details). Finally, Pearlman et al. (2002) did not identify any significant differences (data not available). All of these studies were judged as weak. These studies involved young people in a range of different levels of participation and it is therefore not possible to ascertain a clear relationship between level of participation and programme effectiveness (see Appendix 5).

3.3.2.15 Engagement/Sense of Belonging in Community

The four studies that included outcomes related to community engagement/sense of belonging reported limited effect.

Specifically, only McGuire and Gamble (2006) reported a significant positive effect in social responsibility (d = 0.55 (95% CI 0.07-1.04)), but did not report any impact on community belonging (d = 0.34 (95% CI -0.14-0.82)). Berg et al. (2009) reported no significant difference in collective efficacy (data not provided). Similarly, Tencati et al. (2002) did not identify any significant differences in sense of community and Madrigal et al. (2014) did not report any significant differences in three single item measures of participatory behaviour (see Appendix 7 for details). All of these studies were judged as weak. McGuire et al. only involved young people in delivery of sessions, whereas the other three studies which did not report positive effects involved young people in three or more components.

3.3.2.16 Presentation/Delivery Skills

There were inconsistent effects on students' comfort with delivering sessions and presenting skills from four weak studies.

Specifically, O'Reilly et al. (2016) reported a significant positive difference (d = 0.46 (95% CI 0.01-0.9)) and Beshers et al. (2007) reported significant positive differences in confidence and comfort in delivering peer education (data not available). However, Madrigal et al. (2014) did not report any difference in the number of students who had actually given a presentation to a group of people they did not know (d = 0 (95% CI -0.72-0.72)) and Pearlman et al. (2002) did not identify any significant differences (data not available). These studies involved young people to varying degrees and given the small numbers it is not possible to ascertain whether there is a relationship between level of involvement and programme effectiveness (see Appendix 5).

3.3.2.17 Team/Leadership Skills

There was little evidence from the four studies which included measures of leadership/team working skills (Madrigal et al., 2014, O'Reilly et al., 2016, Tencati et al., 2002, Woodgate and Sigurdson, 2015).

Only Tencati et al. (2002) identified a significant positive difference in leadership competence and this was in boys only (data not available). Woodgate and Sigurdson (2015) did not identify significant differences in any of their measures of positive youth development: caring (d = 0.09 (95% CI -0.53-0.7)); character (d = -0.15 (95% CI -0.77-0.47)); competence (d = -0.03 (95% CI -0.65-0.59)); connection (d = -0.05 (95% CI -0.67-0.57)); or confidence (d = -0.62 (95% CI -1.25-0.02)). O'Reilly et al. (2016) did not identify any significant differences in either team-working skills (d = 0.4 (95% CI -0.04-0.84)); decision making skills (d = 0.15 (95% CI -0.29-0.59); problem-solving skills (d = 0.09 (95% CI -0.35-

0.53)) and Madrigal et al. (2014) did not identify any significant differences in any of their three single item measures for leadership skills (see Appendix 7). Level of involvement varied between study and given the apparent lack of effect there is no clear relationship between level of involvement and programme effectiveness (see Appendix 5).

3.4 Research Question 3: What are the views that young people have of being involved in the process of developing health programmes?

A total of 14 studies contributed to data which could answer this question. Some of these studies used questionnaires to collect data for process evaluations of the programmes. One study measured students' perceptions of the benefits of the programme (Kohlstadt et al., 2015). Three studies included measures of engagement with the programme (Campbell et al., 2008, Hamdan et al., 2005, Tencati et al., 2002). In addition, Birnbaum et al. (2002) measured perception of being a peer leader and students' perception of the programme, O'Reilly et al. (2016) measured enjoyment of training and peer education programme and Campbell et al. (2008) how easy peers felt it was to have a conversation.

The information from the questionnaires was combined with the ten qualitative studies detailed in Section 3.2.1. Generally, young people appeared to enjoy actively taking part in health programmes and could recognise the importance of taking part (e.g. see Berg et al., 2009). Birnbaum et al. (2002) reported that the majority of students enjoyed being a peer leader and would do it again, however, 18% wished they had not been peer leader. Similarly, O'Reilly et al. (2016) reported that all students rated their enjoyment of the programme as five out of five. Tencati et al. (2002) reported that the mean number of community activities that the young people undertook increased from 2.0 to 7.7 during the intervention, suggesting that young people had engaged with the programme. Hamdan et al. (2005) reported that the young people involved in the delivery of the programme believed they were more likely to be have benefited from the programme than the young people who simply received the programme. Campbell et al. (2008) asked young people about how they felt carrying out the intervention and reported that 80% of peers found it easy to carry out.

Similarly, the results of the qualitative studies suggested that young people had enjoyed being involved (Al-Sheyab et al., 2012b, Bader et al., 2007; Ferrera et al., 2015; Woodgate and Sigurdson, 2015). However, one study by Marko and Watt (2011), did identify that at times young people felt the adult facilitators had the final say and felt they could have contributed more. Reported benefits of taking part included: strengthen college applications (Kohlstadt et al., 2015), helping others (Bader et al., 2007; Kohlstadt et al., 2015; Wallerstein and Sanchez-Merki, 1994), receiving the stipend (Kohlstadt et al., 2015); helping developed own personal interests (Kohlstad et al.); learning more from the programme (Al-Sheyab et al., 2012b; Hamdan et al., 2005; Birnbaum et al. 2002, Stewart et al., 2008, Woodgate and Sigurdson, 2015); opportunity to learn new skills (Bader et al.,

2007O'Reilly et al., 2016); opportunity to work with peers (Bader et al., 2007; Ferrera et al., 2015; O'Reilly et al., 2016); gaining confidence (Ferrera et al., 2015; O'Reilly et al., 2016; Wallerstein and Sanchez-Merki, 1994); opportunity to practice English (Al-Sheyab et al., 2012b); better understanding of their community (Bader et al., 2007; Ferrera et al., 2015; Stewart et al., 2008; Wallerstein and Sanchez-Merki, 1994), gains in confidence and self-efficacy (Stewart et al., 2008); feeling like a grown-up (Woodgate and Sigurdson, 2015) and development of empathy (Wallerstein and Sanchez-Merki, 1994).

3.5 Research Question 4: What are the barriers and facilitators associated with the meaningful, appropriate and effective involvement of young people?

A total of ten studies reported qualitative data (see Section 3.2.1) that was used to answer this question. This data was collected from the young people and unfortunately no studies reported results of evaluation work done with adult facilitators.

The following barriers to successful programme implementation were identified. First, Campbell et al. (2008) reported a lack of awareness of programme by non-peer leaders which may indicate that the programme is not effectively reaching other young people beyond those involved in the development or implementation. Campbell et al. also reported a decrease in engagement in intervention overtime as interest wanes which may suggest that programmes should not be overly long in duration or time consuming. Birnbaum et al. (2002) and Campbell et al. identified that insufficient training led to young people not retaining the information necessary for programme implementation. It was also reported that participation could constitute an additional pressure on top of regular schoolwork (Birnbaum et al., 2002), and therefore programmes should be cognisant of students' workload. Similarly, Bader et al. (2007) and Marko and Watt (2011) reported that time pressures could act as a barrier. Two studies reported that having to perform in front of other young people could be difficult for some young people and may act as a deterrent to participation (Bader et al., 2007, O'Reilly et al., 2016). Some young people felt that at times adults took over from which acted as a barrier to their participation (Marko and Watt, 2011). However, as Madrigal et al. (2014) noted, sometimes the young people found it hard to keep the other young people on track and one way of potentially managing this situation is intervention from adult facilitators. Finally, a range of logistical barriers were also reported including inconvenient meeting times (Bader et al., 2007) and transportation difficulties (Madrigal et al., 2014) and organising classes (Birnbaum et al., 2002).

However, some facilitators were identified which could address some of these barriers. Campbell et al. (2008) reported that students were able to avoid embarrassment by responding to others students' questions than initiate discussions around the programme by only approaching other young people they felt would be receptive (Campbell et al.,

2008). Sufficient and enjoyable training was identified as a facilitator by O'Reilly et al. (2016). The use of local trainers was reported to facilitate group dynamics in two studies (Al-Sheyab et al., 2012b; Ferrera et al., 2015). The importance of trainers not taking an authoritative stance and having an easy-going approach was identified by Marko and Watt (2011). Indeed, positive relationships between the young people and project staff was identified as being instrumental to programme success (Berg et al., 2009). One study reported that involving young people from diverse backgrounds improved cohesiveness (Marko and Watt, 2011). Finally, one study reported that the creation of a safe environment was important to programme success (Wallerstein and Sanchez-Merki, 1994).

4. Discussion

This systematic review identified a total of 42 studies which met the inclusion criteria. All of which were used to answer RQ1. With the exception of Caroll et al. (1999) all of the other studies were used to answer one more of RQ2-4. A summary of the findings for each question will now follow.

4.1 Research Question 1. Characteristics of studies which include young people in the development or implementation of programmes aiming to secure health.

The participants in the included studies were all aged between 10-19 years which meets the WHO definition of adolescence. Just over half of these studies focused exclusively on older adolescents (defined in this study as 15 years and older) and another quarter included adolescents of all ages although, often involvement in programme development or implementation was undertaken by the older adolescents and the young people were recipients of the intervention. Moreover, when young people were involved their role was often limited to one or two components, most frequently delivery of sessions or development of materials. This therefore suggests that younger people (i.e. <15 years) are less likely to be involved in directing the focus of the programme than older adolescents.

The majority of programmes were mixed sex, however there was some evidence that female students were more likely to participate than their male counterparts. Single sex studies were generally associated with positive effects, however, as there were only four such studies, no firm conclusions can be drawn from this. As the majority of programmes took place in a school setting, this may be reflective of lower school connectedness which has been reported in male students (Thompson et al., 2006).

Studies were generally conducted in schools and in high income countries, in particular the USA. This is consistent with other systematic reviews of interventions to secure health in adolescents which also report a high proportion of studies conducted in the USA (e.g. Van Sluijs et al., 2007, DiCenso et al., 2002, Gavine et al., 2016). Many of the studies conducted in the USA were specifically aimed at low income populations and targeted young people from ethnic minorities or included a diverse range of ethnic groups within the studies. Of note is that only five studies were conducted in European countries namely the UK, Sweden, Greece and Ireland. This therefore may raise concerns regarding the generalisability of the results to the WHO Europe area and given the small number of studies, it is not possible to make conclusions as to whether studies conducted in this region were more effective than studies conducted elsewhere. However, the European studies tended to be of a higher quality, were larger and aimed to include a representative sample of the population which may enhance the external validity to other European countries.

The majority of programmes focused on a specific area of health behaviour improvement with sexual health followed by healthy eating, substance misuse and tobacco being the most common. Other topics included alcohol, mental health, violence, physical fitness, health literacy, steroid use and seatbelt use. There was some overlap between topic areas in some programmes particularly around substance misuse and alcohol. Only one programme, enabled the young people to completely determine the focus of the study and focused on more generic skills (Ozer et al., 2013). These findings contrast with a series of systematic reviews on interventions (which were primarily non-participatory) for adolescent health which suggested that there were considerably more interventions that focused on tobacco and alcohol/substance abuse compared to sexual health (Das et al., 2016, Salam et al., 2016). However, the higher proportion of sexual health programmes in this review may be reflective of the popularity of peer education approaches (some of which use participatory methods) to sexual health with Tolli et al. (2012) noting that "although peer education has been applied in different areas, it is possible to highlight HIV prevention and sexual health by the number of implemented programs and the enthusiasm with which the method has been adopted" (Tolli, 2012, p.904).

Many programmes reported that the programme was informed by one or more theories. Social cognitive theory was the most common theoretical basis (n=12) and at its essence argues that behaviours are learnt through observing others (Bandura, 2001). Eight studies used strengths-based approaches which could arguably be based upon resiliency theory (Zimmerman, 2013) which aims to identify capabilities to tackle environmental influences that can lead to social problems (Perkins and Zimmerman, 1995). Three studies reported to use diffusion of innovation theory which aims to explain how change in behaviour spreads between participants (Rogers and Shoemaker, 1971). Three studies were based on social norms theory which argues that risk behaviours may arise from misperceptions about peers' behaviour (Fabiano et al., 2003). Two studies were informed by the theory of planned behaviour which states that attitudes, subjective norms and perceived behavioural control predict behaviour (Ajzen, 1991). Finally, two studies were informed by ecological theory which emphasizes the role of the environment on human development (Bronfenbrenner, 1992).

Over a third of programmes also purported to have been informed by other studies in peer education. Within the wider literature, the aforementioned theories have been claimed to be a basis for peer education approaches, however, it has been suggested that the evidence around these claims is limited (Turner and Shepherd, 1999). For the purposes of this review, peer education has therefore been considered an approach rather than a theory. It is also noteworthy that, such approaches have tended to demonstrate inconsistent and limited effects (e.g. Harden et al., 2001; Kim et al., 2008; Tolli et al., 2012). Finally, over a third of studies claim to have adopted a PAR approach. PAR advocates that the active involvement of those affected by a problem is necessary to address the problem (Minkler, 2000). This

approach arguably has its roots in the aforementioned theories and is also influenced Friere's (2000) pedagogy of the oppressed, which argues that learners should be co-creators in knowledge. The theoretical basis of these programmes is partly consistent with a review which examined theoretical basis of programmes for health behaviour change. Webb et al. (2010) identified that social cognitive theory was the most commonly reported theoretical basis. However, Webb et al. also identified the trans-theoretical model for behaviour change as being a common theoretical basis for interventions, however, this was not identified as a basis in any of the included studies in this review.

The extent that young people were involved in issue identification, needs assessment (i.e. investigating the issue of interest), development of the intervention (including development of materials), and delivery of the intervention and evaluation of the intervention varied between the studies. Only one study (Berg et al., 2009) involved young people in all five of these components and only three involved young people in four components (Madrigal at al., 2014, Ozer et al., 2013, Woodgate and Sigurdson, 2015). It is of note that these were some of the more recent, and therefore may reflect in a trend in engaging young people in health-related research. For the majority of the studies, young people's involvement was limited to programme delivery and/or programme development. In only six studies young people were involved in the issue identification process. This is arguably a crucial point as if we examine Hart's Ladder of Participation (Hart, 1992) in order for a programme to fulfil the criteria for the highest level of participation (i.e. child initiated, shared decisions with adults), young people would need to be involved in programme conceptualisation. Similarly, in Shier's (2001) model of participation, the highest level of participation stipulates that young people and adults share decision-making. It is therefore arguable that in order to obtain this, researchers/programme developers must give young people some say in what the programme will entail. However, the difficulties in achieving this level of engagement have been acknowledged in the literature as the research question and therefore often the programme has usually been initiated by an individual or individuals external to the population of interest (Minkler, 2004). In the case of this review, all of the programmes were initiated by adults who tended to be either teachers or researchers with a smaller number of studies being led by healthcare professionals or community youth workers. Nevertheless, it also has to be argued that the role of initiator is one that professionals can usefully adopt (Stoecker, 1999) and that some participation on issue identification can be achieved by establishing whether the proposed topic area is actually of relevance or importance to the population of interest (Minkler, 2004).

Overall study quality was generally considered to be poor. However, there some exceptions to this. Four of the outcome evaluations which were used to answer RQ2 were considered to be strong and took the form of well conducted cluster-randomised trials. In addition ten studies were considered to be of moderate quality and these predominantly used either non-randomised controlled trials or cluster-randomised trials. The remainder of the studies

were judged to be poor. The majority of these studies did not include a control group or make any attempt to adjust for confounding, and also did not use validated data collection tools.

Of note is that higher quality studies tended to involve young people in fewer aspects of participation. Of the studies judged to be strong, involvement of the young people was relatively limited. Two studies only involved the young people in delivery of sessions (Campbell et al., 2008; Stephenson et al., 2004) and one study only involved young people in the programme in development and session delivery (Birnbaum et al., 2002). A similar picture can be found for the moderate quality studies with five of these studies only involving young people in one component and two studies only involving young people in two components. This therefore suggests that the studies where young people had a greater degree of involvement (e.g. three or more components of development or implementation) were generally of poorer quality and it is therefore difficult to draw any firm conclusions from these studies. Conversely, studies in which young people were involved in a smaller degree appeared to be at lower risk of bias and we can potentially draw stronger conclusions. However, there are some exceptions to this. Berg et al. (2009) was judged to be of moderate quality and involved young people in all five components. Both Ozer et al. (2013; judged to be strong) and Woodgate and Sigurdson (2015; judged to be moderate) included young people in four components thus demonstrating well conducted trials in which young people are strongly involved in programme development and implementation are possible.

The qualitative studies were generally judged to be of low quality with the exception of Campbell et al. (2008), Stephenson et al. (2004) and Wallerstein and Sanchez-Merki (1994). This was primarily because poor reporting prevented any judgements about the trustworthiness of the study.

The general low quality of the studies included in this review is consistent with findings from other systematic reviews of interventions which used participatory methods (Cook, 2008, Salimi et al., 2012, O'Mara-Eves et al., 2013, Kim and Free, 2008).

4.2 Research Question 2: What is the evidence of the impact that involving young people has on health outcomes?

The 34 studies included to answer this question generally demonstrated inconsistent effects, particularly regarding actual behaviours (i.e. self-reported or using a subjective measurement) as well as predictors of behaviour (e.g. attitudes, norms, beliefs). However, there were more consistent statistically significant positive changes for tobacco and healthy eating behaviours. In addition, knowledge of the health behaviour which was targeted by the programme, generally improved post-intervention. This finding is consistent other

systematic reviews of health promotion interventions which have identified positive effects for predictors of behaviour (e.g. knowledge) rather than actual behaviour (e.g. Kim and Free, 2008, Gavine et al., 2016). Crucially, there was only a very small number of negative effects identified and these were generally confined to increase in perceptions of peer norms regarding a specific behaviour. It is arguable that taking part in the programme actually increased young people's awareness of the health risk behaviour and this is reflected in increased peer norms and it should be stressed that this did not result in any increase in actual behaviour or other predictors of behaviour.

In trying to identify the components of the more effective programmes the following was considered: the extent to which young people were involved; study quality and the theoretical basis of the programme. There was no clear relationship identified between the extent that young people were involved in the programme conceptualisation, design, delivery and evaluation and the results of the outcome evaluations. This was examined by exploring how significant positive effects related to number of intervention components. Specifically, of the nine studies which involved young people in only one aspect of participation, three studies reported all significant positive differences, six reported mixed effects and two reported no significant differences. Of the 14 studies which involved young people in two components, three studies reported all positive significant differences and 11 reported mixed effects. Of the five studies which involved young people in three components of participation, four studies reported all positive significant effects and one study reported mixed effects. These results are consistent with a systematic review by O'Mara-Eves et al. (2013) on community engagement in adults who identified that whilst community engagement approaches did demonstrate positive outcomes there was no clear evidence on whether one particular model of engagement was more effective. Interestingly, of the three studies which involved young people in four components of participation, two studies reported no significant effects (Madrigal at al., 2014, Ozer et al., 2013) and one study reported mixed effects (Woodgate and Sigurdson, 2015). Finally, the one study which involved young people in five components of participation reported mixed effects.

This analysis does come with a number of caveats. First, as the programmes which involved young people in more components tended to be more likely to allow young people to determine the health focus of the programme, this could reflect the fact these studies used more generic outcome measures, which may have lacked sensitivity to detect effects. This is pertinent, as the most consistent positive effect in the programmes which did focus on a specific health topic was knowledge of the specific health behaviour and this was not measured in any of these programmes which enabled young people to determine the focus of the study. Indeed, Minkler et al. (2003) argue that evaluation of participatory approaches may be more appropriately evaluated by focusing on intermediate outcomes of participation rather than more distal health outcomes.

Secondly, as the studies which involved young people in a greater number of components tended to be weaker and at a higher risk of bias, caution must be taken in the interpretation of these results as less robust studies have a tendency to over-estimate study results, whereas studies at low risk of bias tend to provide an effect estimate that is closer to the truth (Higgins. It is therefore not possible to draw any conclusions about the level of participation and programme effectiveness. However, it is possible to say that the higher quality studies in which young people were involved in one or two components (namely programme development and/or programme delivery) were associated with some beneficial effects, in particular knowledge and smoking and healthy eating behaviours. Also of note was a lack of discrimination in the studies between participants who were involved in programme delivery and development and participants who received the intervention. This meant that the young people involved with the intervention were generally included in the same outcome measurement group as the young people they were delivering the intervention too, thus making it impossible to infer whether taking part in the any aspect of programme development or delivery conferred any additional benefit in terms of outcomes.

Again, there was also no clear relationship between the theoretical basis of the programme and significant positive effects. However, studies which utilised social cognitive and social norms approaches did tend to be associated with studies with positive outcome evaluations. Specifically, six of the 11 programmes which incorporated a social cognitive approach demonstrated consistent significant positive effects and four other studies reported mixed effects. The apparent effectiveness of programmes underpinned by social cognitive theory is consistent with findings from a systematic review by Webb et al. (2010) which identified that health promotion programmes that utilised this approach were more likely to be effective than programmes with no theoretical basis. Of the three studies which purported to use a social norms approach, all reported positive significant effects. Studies based on previous peer education approaches generally demonstrated mixed effects with 12 of the 16 studies using this approach reporting this. This is consistent with the literature on peer education which has generally shown inconsistent intervention effects (e.g. Kim and Free, 2008, Tolli, 2012). However, the other five studies with this approach reported consistent positive effects. Interestingly, the studies which reported to use strengths-based and participatory approaches had less consistent positive effects, however, this may be reflective of measurement issues discussed above.

4.3 What are the views that young people have of being involved in the process of developing health programmes?

From the 14 studies included to answer this question, we can ascertain that taking part in the programme development and implementation was generally a positive experience for most young people and they were comfortable in their roles (e.g. as a peer leader).

Moreover, questionnaire and qualitative data collected from the young people did report that young people stated that they learnt more from participating and also had the opportunities to work with peers, develop new skills and develop confidence. Other benefits for participation included: being able to help others, strengthening college applications, practising English, developing a better understanding of their community and feeling like a grown-up. Some of these reported benefits (i.e. better understanding of community and the development of confidence) are consistent with hypothesised benefits of engagement (Wong et al., 2010). Interestingly, other previously reported benefits of participatory methods such as improving trust in professional groups (Israel et al., 2001) and increasing programme usefulness (Stevens and Hall, 1998) were not reported by the young people in these studies.

However, the young people did also report some negative aspects to participation (Bader et al., 2007, Birnbaum et al., 2002, Marko and Watt, 2011). Specifically, at times they felt like the adults involved could try and take over, and at times it could feel like an additional pressure on top of school work.

4.4 Research Question 4: What are the barriers and facilitators associated with the meaningful, appropriate and effective involvement of young people?

Despite generally enjoying participating in programme development and implementation. The qualitative data collected from the young people did highlight some barriers to their participation (see Section 3.5). Some of these barriers (e.g. logistical issues, competing interests) are not unique to participatory methods and have been identified in process evaluations of non-participatory health promotion programmes for young people (Langley et al., 2010). However, other barriers such as feeling uncomfortable in front of the other young people are arguably more specific to participatory approaches. Whilst some of the logistical barriers have also been identified in participatory approaches with adult populations (Lantz et al., 2001), interestingly, lack of trust in professionals, which has been identified as a key barrier to participatory methods in adults (Christopher et al., 2008, Israel et al., 2005), was not identified as a barrier in this review.

A number of facilitators were also identified as a means to enable the young people to participate. In particular, young people identified a need for easy-going and compassionate staff who would not take over and instead create a safe environment. Ideally these trainers would be local to the area and understand the community. This is consistent with research on participatory research with adults which has identified that in order for participatory research to be successful, the professionals and participants need to be considered equal partners in the project (Potvin et al., 2003). In addition, young people reported that the programme worked better if it contained young people from diverse backgrounds and they

did not need to approach other young people who they would not be receptive. However, other facilitators that have been credited with the success of participatory projects involving adults were not reported by the young people in these included studies. In particular, this includes the need for organizational structures (Higgins and Metzler, 2001), however, as the programmes with young people tended to be based around school or community organizations it is arguable that these act as the necessary organizational structures.

4.5 Limitations of Review Process

Despite a large number of studies identified by this review, much of the evidence was of low quality with only a handful of high quality studies. It should also be stressed that with the exception of the study by Ozer et al. (2013), the high quality studies generally involved lower levels of participation in the intervention. There is therefore a clear need for well-conducted studies which involve young people in multiple stages of programme participation. Another important issue is that studies generally did not distinguish between the young people involved in the development or implementation of the programme and those who received the programme. In order to determine whether participation confers an additional benefit above and beyond receiving the intervention, studies need to consider these groups of participants' separately.

The majority of positive intervention effects were identified for improvements in knowledge. This has several implications that need to be considered. First, despite being considered a pre-requisite for behaviour (Ajzen et al., 2011), knowledge of the health risks of a behaviour does not necessarily translate into actual behaviour (Ananth and Koopman, 2003; Silver Wallace 2002). Secondly, the studies which enabled young people to identify the issue/topic area for the programme did not include measures of knowledge on the topic selected and instead more generic outcome measurements were collected. Therefore, the apparent lack of effect in these studies may be attributable to lack of sensitivity in the outcome measurement. Due to these differences in outcome measurement it is not possible to conclude that studies which involved young people to a higher degree, are less effective than those studies which only involved young people in one or two components of programme design and implementation.

Assessment of the trustworthiness of the qualitative studies was hampered by poor reporting. Consequently, this makes it advisable to be cautious in the interpretation of those results.

Finally, limitations of the review process itself must be considered. First, the topic area of 'youth engagement/participation' is arguably fairly nebulous. Consequently, identifying search terms that were both sensitive and specific was a complex process. Whilst we endeavoured to keep this search as sensitive as possible by screening a large number of

articles, it is still feasible that some relevant articles may have been missed. Secondly, there is a risk of publication bias as the search was restricted to English language papers and it is therefore possible that some relevant studies were excluded on this basis. In addition, one study was published in a book that we did not have access to and had to be excluded. Thirdly, poor reporting of participant data was an issue in a considerable number of the trials. This meant for these papers it was not possible to compute a standard effect size (e.g. odds ratio or Cohen's *d*) making it difficult to compare programme effectiveness between studies. Finally, there was considerable heterogeneity in study design, study quality, level of participation, health focus and outcome measurement. This meant meta-analysis was not appropriate and no pooled effect size was calculated.

4.6 Implications

This review fills an existing knowledge gap around the benefits of youth participation **in the development, implementation and evaluation of programmes aiming to secure health.** Its findings will strengthen the evidence-base to foster the effective inclusion of young people in policy-making, programme development and research that affects them. The UNCRC marked a turning point in public perceptions and the recognition that young people have an 'insider' perspective (Kellett, 2005) which means that by engaging with them, we are working with experts (Vaughn et al., 2013). Other stakeholders have followed suit, for example in the European Union, efforts to coordinate youth involvement in societal matters took a turn in 2001 with the publication of a white paper to set out priority areas for regional coordination (European Commission, 2001, European Commission, 2004, Jensen et al., 2005). The WHO also issued their own call to arms (Jensen 2005) supporting the inclusion of youth in programme design and showcasing how stakeholders can enable their effective involvement. Similarly, across different countries including England (Burke, 2010) and Scotland (Stafford and Smith, 2009) government policy is also acknowledging children's right to self-determination.Since youth participation 'in health-related advocacy has increased over the past two decades, fostered at a global level by the UN and other international organisations' (Lancet 2016), these findings are all the more relevant.

All signs point to what Kingdon (2003) called a 'policy window' where the problem, proposals, and politics are coming together to foster and enable progress in the area of youth participation. This systematic review is thus extremely timely in that it provides evidence that can be used to answer critical stakeholder questions on the issue of youth engagement. If we assume that the ultimate goal of all the aforementioned international efforts is to enable young people to actively participate in society or research that affects them, then this review draws a pretty striking picture signaling a lack of high-quality research that can be used to inform policies and programmes aiming to do just that. This is a critical weakness in the evidence that affects research, policy and programme design and its effectiveness in this area. Because although better evidence is necessary for better policy-

making or programme development, it alone is not enough to elicit either since its value or robustness does not automatically make it part of the policy or political argument (National Academies Press 2012).

The evidence in this area suffers from a number of biases (e.g. geographic, setting, age of participants) and was found to mostly be of low quality. Nonetheless, we believe that increased quality can be achieved via better designed studies that involve a broader age range of young people involved in a number of stages of programme development and that consider participants independently (control and intervention groups) and in a wider number of settings (not just school). Additionally, we would encourage better scientific reporting that allows others to replicate. We support the development of reporting standards to improve transparency and research practices, as well as tools, like checklists, that enable the implementation, evaluation and replication of effective programmes. Additionally, while there was no clear association between level of participation and programme effectiveness, this was likely result of the breadth and heterogeneity in the research included, as well as inappropriate outcome indicators that are not sensitive enough. And though this sounds like a methodological excuse, it highlights an important methodological and knowledge gap in the evidence around youth involvement in health programmes.

Wong rightly captures the essence of participation and its relevance to young people: 'Youth participation has potential to promote individual and community health by satisfying developmental needs in a positive manner while also enhancing the relevance of research, policy, and practice to lived experiences of children and adolescents.' (Wong 2010, p 101). Yet, while young people have now an increased right and higher credibility to discuss and engage on matters that are relevant to them, too often the mechanisms through which we could enable such participation rely on tokenistic approaches that diminish the young people's ability to properly participate (Lancet 2016). This in turn lowers the bar and enables responsible parties to take any kind of participation over investing in activities or programmes that truly facilitate young people's understanding, contribution and role in the participatory process. This review helps to draw an evidence-informed picture of what effective youth engagement looks like in programmes aiming to secure health.

While empowerment is touted throughout the literature identified in this review, we found that every single study involved an adult *'in some aspects of the programme conceptualisation and development and* ***only in a small number of studies their role was limited to facilitating the young people to determine the focus and nature of the programme*** *(n=6)'.* It is critical that stakeholders begin to reflect on the ways in which adults influence processes aimed at involving young people. This review provides evidence that there are real limitations on the range of young people's involvement in development, implementation and evaluation of programmes. Policy-makers, researchers and programme

staff should encourage and promote programme development that more actively equips young people with the role and capacity to affect the interventions of which they are part. It will be important to give adults incentives to engage in and enable more collaborative processes.

The implications of our findings span from giving readers a typology of effectiveness to laying the groundwork for the development of evidence-informed tools that can support the replication and implementation of programmes that while engaging young people can promote health benefits to this group.

5. Conclusions

This review identified 42 distinct studies of programmes that involved young people in one or more of: issue identification, needs assessment (i.e. investigating the issue of interest), development of the intervention (including development of materials), delivery of the intervention and evaluation of the intervention. The majority of programmes were conducted in high income countries, although only five were conducted in the WHO Europe region. Programmes were exclusively targeted at adolescents (i.e. 10-19 year olds) and focused on a range of health topics with sexual health being the most common.

The outcome evaluations (n=34) reported mixed effects, with the most consistent effects being for tobacco and healthy eating behaviours, and for knowledge of the specific health behaviour of the programme. There was no clear association between level of participation and programme effectiveness. Generally, the higher quality studies involved lower levels of participation. Study quality was generally poor there was considerable heterogeneity in study design, study quality, level of participation, health focus and outcome measurement which prohibited meta-analysis. Nevertheless, young people appeared to enjoy participating in these programmes and identified a number of benefits (e.g. learning new schools, developing confidence, learning more from the programme, gaining a better understanding of their community). However, a number of barriers to participation were identified (e.g. difficulties performing in front of other students, time pressures, insufficient training, interest waning over time, logistical issues). Conversely, the following facilitators were also reported: positive relationships between young people and staff; staff that are compassionate and not authoritative, local trainers and sufficient training.

To conclude, programmes that involve young people in the implementation and development are generally viewed as positive by the young people themselves and may confer some benefits in health related knowledge and some health behaviours (e.g. smoking, healthy eating). However, more high quality studies in which young people are involved in multiple components of participation and also compare the effects between young people actually involved in the implementation and/or delivery are necessary.

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Appendix 1 Search Log

Table A1. Search Log of Electronic bibliographic databases

Database searched	Date and person searching	Search Strategy	Time period of search	No. of hits	Date of update	No of records at update	Platform used
Medline	AG 06/08/14	Saved in YPSRMedline.doc	1994-2014	27836	22/09/16	7351	Ovid
Psycinfo	AG 06/08/2014	Saved in YPSRpsycinfo.doc	1994-2014	20045	23/09/16	3829	EBSCO
CINAHL	AG 06/08/2014	Saved in YPSRCINAHL.doc	1994-2014	13208	23/09/16	3297	EBSCO
ERIC	AG 05/08/2014	ERIC	1994-2014	9573	22/09/16	984	Ovid
ASSIA	AG 06/08/2014	ASSIA	1994-2014	3728	23/09/16	452	Proquest
Cochrane Database of Systematic Reviews	AG 05/08/2014	YPSR Medline.doc	1994-2014	0		382	Cochrane Library (Wiley)
DARE	AG 06/08/2014	YPSRDARE.doc	1994-2014	37	Database no longer in use		University of York, CRD
CAMPBELL Collection	AG 06/08/2014	YPSRCAMPBELL.doc	2003-2014	54	Database not available		Campbell
Social Science Citation Index	AG 07/08/2014	YPSRSSCI	1994-2014	24962	23/09/16	1120	Web of Science (Thomson Reuters)
Social Care Online	AG 11/08/2014	YPSRSocialcare online.doc	1994-2014	5560	23/09/16	500	Social Care Institute for Excellence
CENTRAL	AG 11/08/2014	YPSRCENTRAL.doc	1994-2014	3058	23/09/16	1324	Cochrane Library (Wiley)

Appendix 2 Website Search Log

Table A2. Website Search Log

Website	Date and Person Searching	Search Strategy	Hits	Papers
Barnardos	AG 11/08/2014	Keyword search in policy and research documents. Participation, engagement, youth voice, empowerment, participatory research, action research	Participation(4), engagement(0), youth voice(0), empowerment(0), participatory research (1), action research (1). Total = 6	Involving children and young people in developing social care. SCIE Guide 11. 2006.http://www.scie.org.uk/publications/guides/guide11/index.asp
				Voices and Choices. 2002. http://www.barnardos.org.uk/what_we_do/policy_research_unit/research_and_publications/voices-and-choices/publication-view.jsp?pid=PUB-1225
				Learning from Barnardo's Voice Initiative. 2002.http://www.barnardos.org.uk/what_we_do/policy_research_unit/research_and_publications/learning-from-barnardos-voice-initiative-/publication-view.jsp?pid=PUB-1423

				Obliterating the limits: can arts projects raise pupil achievement and encourage participation in the process of change? 2001. http://www.barnardos.org.uk/what_we_do/policy_research_unit/research_and_publications/obliterating-the-limits-can-arts-projects-raise-pupil-achievement-and-encourage-participation-in-the-process-of-change/publication-view.jsp?pid=PUB-1434
				Research report phase one of the Generation 2020 project. 2005 http://www.barnardos.org.uk/what_we_do/policy_research_unit/research_and_publications/research-report-phase-one-of-the-generation-2020-project/publication-view.jsp?pid=PUB-1435
				Working with children and young people who experience running away and child sexual exploitation: An evidence-based guide for practitioners. 2013. http://www.barnardos.org.uk/what_we_do/policy_research_unit/research_and_publications/working-with-children-and-young-people-who-experience-running-away-and-child-sexual-exploitation-an-evidence-based-guide-for-practitioners/publication-view.jsp?pid=PUB-2300

Children's Parliament	AG 11/08/2014	No search function available. Primarily consultation work with children and young people. All documents searched for any form of evaluation.	1	How does your garden grow? Evaluation Report. 2013. http://www.childrensparliament.org.uk/assets/childrens-bill/CP-CYPB-Consultation-Evaluation-2013.pdf
Children's Society	AG 11/08/2014	No search function available. All documents screened for any form of participatory research or evaluation.	0	
Child and Adolescent Health Research Unit	AG 11/08/2014	No search function available. All documents screened for any form of participatory research or evaluation.	0	
Children in Scotland	AG 11/08/2014	Keyword search in policy and research documents. Participation, engagement, youth voice, empowerment, participatory research, action research	Participation(11), engagement(0), youth voice(0), empowerment(1), participatory research(0), action research(0).	Ask the children what they want' Involving children and young people in the development and implementation of improvements to enhance school food provision. 2014. http://www.childreninscotland.org.uk/html/pub_tshow.php?ref=PUB0442
				Children in Europe - Issue 24 In partnership: family participation in ECEC services. 2013. http://www.childreninscotland.org.uk/html/pub_tshow.php?ref=PUB0433
				Children in Europe - Issue 3 Parents' participation in services services for young children: how it works in Italy, Spain, Denmark and France.

				2002. http://www.childreninscotland.org.uk/html/pub_tshow.php?ref=PUB0068
				Children in Scotland - Issue 31 January 2004. http://www.childreninscotland.org.uk/html/pub_tshow.php?ref=PUB0116 . http://www.childreninscotland.org.uk/html/pub_tshow.php?ref=PUB0112
				Children in Scotland - Issue 35 May 2004. http://www.childreninscotland.org.uk/html/pub_tshow.php?ref=PUB0112
				Children in Scotland magazine subscription page. http://www.childreninscotland.org.uk/html/pub_tshow.php?ref=PUB0001
				Councils of the galaxy: Scotland, Earth. 2010. http://www.childreninscotland.org.uk/html/pub_tshow.php?ref=PUB0336
				Creating Safety child protection guidelines for Scotland's arts, screen and creative industries. 2011. http://www.childreninscotland.org.uk/html/pub_tshow.php?ref=PUB0380
				Making space award-winning designs for children. 2006. http://www.childreninscotland.org.uk/html/pub_tshow.php?ref=PUB0157
				Participants, not pawns: Consulting with children and young people on school closures (and other significant changes). 2010.

				http://www.childreninscotland.org.uk/html/pub_tshow.php?ref=PUB0347. 2011. Participation in Inclusive Education A framework for developing indicators
				A report on 'The pedagogue': - an evening of discussion. 2012. http://www.childreninscotland.org.uk/html/pub_tshow.php?ref=PUB0418
Children in Wales	AG 11/08/2014	No option to search resources. All resources under the heading 'rights' were screened for for any form of participatory research or evaluation.	0	N/A
Children in England	AG 11/08/2014	No option to do a key word search of resources. All reports were screened for for any form of participatory research or evaluation.	No option to do a key word search of resources. All reports were screened for for any form of participatory research or evaluation.	N/A
Children in Northern Ireland	AG 11/08/2014	No option to do a key word search of resources. All reports were screened for for any form of participatory research or evaluation.	No option to do a key word search of resources. All	N/A

			reports were screened for for any form of participatory research or evaluation.	
Children's Research Centre	AG 12/08/2014	No option to do a key word search of resources. Resources section contained 3 textbooks	3	Bucknall, S. (2012) Children as researchers in primary schools. London & New York: Routledge
				Kellett, M. (2005) How to develop children as researchers. London: Paul Chapman Publishing.
				Kerawalla, L. (2014) Empowered participation through inclusive inquiry. In J. Westwood, C. Larkins, D. Moxon, Y. Perry & N. Thomas (eds.) Participation, Citizenship and Intergenerational Relations in Children and Young People's Lives: Children and Adults in Conversation, Macmillan Palgrave.
CORDIS EC Library	AG 12/08/2014	Search: With exact phrase participatory research and children or adolescent or youth or teen (6). http://cordis.europa.eu/search/result_en?as_aq=&as_epq=participatory+research&as_q=children+adolescent+youth+teen&as_eq=&as_fRCN=&as_fDATE=&as_fDATEF=&as_fDATET=&as_fLANG%5BLNG%5D=&archived=0 Search: With exact phrase participatory research and	17	CERCA - Encouraging teens to have safe sex

		children or adolescent or youth or teen (12)		
				ENERGY (European energy balance research to prevent excessive weight gain among youth)
				MIGRANT CHILDREN - Children's and young people's experiences of immigration and integration in Irish society
				AIMS - Native-Born Youth of African Immigrants and Cardiovascular Risk: A Mixed Methods Study Ref.: 303525
				POSTTSUNAMI - Three years post-Tsunami: long-term effects of trauma in children aged 7-15 - a culture-sensitive approach
				Periodic Report Summary 1 - PALMS (Palm harvest impacts in tropical forests)
				Final Report Summary - TRACES (Transformative Research Activities. Cultural diversities and Education in Science)
				CERCA - Community-embedded Reproductive health Care for Adolescents
				VIRGIL - Verifying and strengthening rural access to transport services

				social sciences, action-research, participative research and methodology, peer research, youth work
				Making new local policies against social exclusion in European citi es. Ecosocial approach and social impact assessment in social work
				Children in Communication about Migration - CHICAM, Final Report, EUR 23113
				ALTERNATIVE - Developing alternative understandings of security and justice through restorative justice approaches in intercultural settings within democratic societies
				Computer-supported collaborative learning in primary and secondary education
				Periodic Report Summary - TRACES (Transformative Research Activities. Cultural diversities and Education in Science)
				POET - Pedagogies of Educational Transitions
				Health Sector Reform: Towards a More Global Approach of Child Health
Faculty of Public Health	AG 12/08/2014	Journal is indexed. Reports screened for participatory or action research or engagement with children and adolescents	0	N/A
Girl Guiding	AG 12/08/2014	No search. All research and campaigns searched for evaluation of participation in research	0	N/A

Joseph Rowentree	AG 12/08/2014	Searched for participatory research in children and adolescents		A CHILD'S-EYE VIEW OF SOCIAL DIFFERENCEhttp://www.jrf.org.uk/publications/childs-eye-view-social-difference
				CHILDREN'S INVOLVEMENT IN FAMILY DECISION-MAKINGhttp://www.jrf.org.uk/publications/childrens-involvement-family-decision-making
				http://www.jrf.org.uk/publications/mentoring-young-people-leaving-careMENTORING FOR YOUNG PEOPLE LEAVING CARE
Kings Fund	AG 13/08/14	Participation, participatory research, engagement and action research entered into search box and results screened for involvement with children and adolescents	0	
NSPCC	AG 13/08/14	Participation, participatory research and action research entered into search box	2	Children who go missing from care: a participatory project with young people as peer interviewes. http://www.nspcc.org.uk/Inform/resourcesforprofessionals/lookedafterchildren/missing-from-care-report_wdf93502.pdf
				Participation report. http://www.nspcc.org.uk/what-we-do/the-work-we-do/childline-services/participation-unit/participation-annual-report-201213_wdf100203.pdf
Online research base Northern Ireland	AG 13/08/14	Participation, participatory research and action research entered into search box	0	N/A

National Research Register NIHR	AG 13/08/14	Publuc Health projects searched for participatory or action research and engagement with children and adolescents	0	N/A
National Youth Agency	AG 13/08/14	Resouce sections participation and engagement screened for evaluation reports	1 (and 1 case study)	Doers and Shapers – Young people's volunteering and engagement in public services. http://www.nya.org.uk/resource/doers-shapers-young-peoples-volunteering-engagement-public-services/ What's changed for young people - working with local authorities (case study). http://www.nya.org.uk/resource/whats-changed-young-people-working-local-authorities/
Nuffield Foundation	AG 13/08/14	No ability to search publications. All publications screened for participatory research, action research or engagament with children and young people	0	N/A
Save the Children	AG 13/08/14	Publications searched for participatory research, action research and engagement.	5	Taking community empowerment to scale. http://www.savethechildren.org/atf/cf/%7B9def2ebe-10ae-432c-9bd0-df91d2eba74a%7D/Taking-Community-Empowerment-to-Scale.pdf
				Consultation & Participation for Local Ownership What? Why? How?. http://www.savethechildren.org/atf/cf/%7B9DEF2EBE-10AE-432C-9BD0-DF91D2EBA74A%7D/con

				sultation-local-ownership.pdf
				planning for locally led development. (case study) http://www.savethechildren.org/atf/cf/%7B9def2ebe-10ae-432c-9bd0-df91d2eba74a%7D/SAVE-THE-CHILDREN-LOCALLY-LED-PLANNING-REPORT-2011.PDF
				The children of Kabul. http://www.savethechildren.org/atf/cf/%7B9def2ebe-10ae-432c-9bd0-df91d2eba74a%7D/children_of_kabul.pdf
				Voices from Urban Africa http://www.savethechildren.org/atf/cf/%7B9def2ebe-10ae-432c-9bd0-df91d2eba74a%7D/SAVETHECHILDREN-VOICESFROMURBANAFRICA-REPORT2012.PDF
Scouting UK	AG 13/08/14	No publications section. Youth involvement section searched for participatory research	0	N/A
Public Policy Hub (UK Government)	AG 13/08/14	Website under construction - publications not available		
Scottish Government	AG 13/08/14	participatory research entered into search terms - http://www.google.com/cse?cx=007197013444011456969:ll2jctu1uq8&start=0&q=participatory%20research%20AND%20children%20more:Publications&oe=utf-8&sort=#gsc.tab=0&gsc.q=participatory%20research%20AND%	241	Top results: SEED sponsored research: Children as Researchers. http://www.scotland.gov.uk/Publications/2006/06/SprChar/Q/pno/2

		20children%20more%3APublications&gsc.page=1		
				Better Together: Scotland's Patient Experience Programme: Building on Children and Young People's Experiences. http://www.scotland.gov.uk/Publications/2009/06/12150703/4
				The Conversations Project: A Report to the Steering Group of the National Review of Services for Disabled Children and Young People. http://www.scotland.gov.uk/Publications/2012/06/1592/4
				Division of Cultural buisness http://www.scotland.gov.uk/Resource/Doc/244097/0083595.pdf
Social Issues Research Centre	AG 13/08/14	All articles and publications screened for participatory research in young people	0	n/a
Welsh Government Online		Children and Young People publications section searched for participatory research (0), action research (0), participation (1), engagement (0)		The national standards for Children and Young People's Participation. http://wales.gov.uk/topics/childrenyoungpeople/publications/participationstandards/?lang=en

Young Minds	AG 13/08/14	No research in engagement or participation but does have section on engagement and provides examples of best practice	16	N.B. case studies only accessible from http://www.youngminds.org.uk/training_services/vik/good_practice_example
Youth Scotland	AG 13/08/14	All publications screened for participatory research or engagement with young people		N.B. case studies which link youth work to health improvement file:///C:/Users/ajg16/Downloads/YouthLink%20Conference%20Case%20Study%20Booklet.pdf
WHO Child and Adolescent Health Section	AG 13/08/14	Child and adolescent health publications searchced for participation (0), participatory research (0), engagement (0), action research (2), involvement (0), youth voice (0)	2	"Young people's health as a whole-of-society response" series http://www.euro.who.int/en/health-topics/Life-stages/child-and-adolescent-health/publications/2012/young-peoples-health-as-a-whole-of-society-response-series
				Family and community practices that promote child survival, growth and development
World Bank	AG 13/08/14	Participatory research searched for in Social development (Children and Youth) and Health, nutrition and population (adolescent health, early child and children's health). Dates limited to 01/01/1994 and 14/08/2014	133	Saved to Excell spreadhseet WorldBankYPSR
Prevention Institute	AG 13/08/14	Publications searched for participatory (0), participation (1), engagement (3), action research (6)	8	Community Engagement in Design and Planning http://www.preventioninstitute.org/component/jlibrary/article/id-316/127.html
				Mobilizing Boston Residents to Prevent Violence. http://www.preventioninstitute.org/component/

				jlibrary/article/id-339/127.html
				UNITY Eight-Year Assessment: Results of an Innovative Initiative to Improve the Urban Response to Youth Violence. http://www.preventioninstitute.org/component/jlibrary/article/id-343/127.html
				Prevention models working in California. http://www.preventioninstitute.org/component/jlibrary/article/id-319/127.html
				Fostering Physical Activity for Children and Youth: Opportunities for a Lifetime of Health
				The UNITY Urban Agenda for Preventing Violence Before it Occurs: Bringing a Multi-Sector Approach to Scale in US Cities. http://www.preventioninstitute.org/component/jlibrary/article/id-263/127.html
				THRIVE: Community Tool for Health & Resilience In Vulnerable Environments. http://www.preventioninstitute.org/component/jlibrary/article/id-96/127.html
				First Steps: Taking Action Early to Prevent Violence. http://www.preventioninstitute.org/component/jlibrary/article/id-48/127.html
University of Michigan Youth and	AG 14/08/14	List of publications on participation available from http://ssw.umich.edu/offices/learning-	11	Youth Civic Engagement for Dialogue and Diversity at the Metropolitan Level

Community Group		communities/community-organiziation/youth-and-community		
				My Dreams are Not a Secret. Next Generation Press
				Youth Participation and Community Change. Hawthorne Press.
				Building Solidarity Across Difference: A Model for Critical Multicultural Practice. Journal of Community Practice.
				Voices of Youth: Metropolitan Detroit Students Speak Out on their Schools
				Youth Participation in Public Policy at the Municipal Level. Children and Youth Services Review
				Youth Participation for Educational Reform in Low-Income Communities of Color in Beyond Resistance: Youth Activism and Community Change: New Democratic Possibilities for Policy and Practice for America's Youth.
				Youth Participation in Evaluation and Research as a Way of Lifting New Voices. Children, Youth and Environments.
				Involving Young People in Community Evaluation Research. Community Youth Development.
				Young People's Participation in Research and Evaluation. American Journal of Evaluation.
				Young People as Competent Citizens.

				Community Development Journal.
				Youth Participation in Neighborhood Planning for Community Health
Youth for Europe	AG 14/08/14	No publications - list of organisations and projects. Not searchable		
Council of Europe and Young People	AG 14/08/14	Catalogue search for participatory and young people	3	PDF - Perspectives on youth, Volume 1 - 2020 - what do you see? (2014). https://book.coe.int/eur/en/youth-other-publications/5894-pdf-perspectives-on-youth-volume-1-2020-what-do-you-see.html
				https://edoc.coe.int/en/bioethics/5506-bioethical-issues-educational-fact-sheets-pdf-2009-.html. https://edoc.coe.int/en/bioethics/5506-bioethical-issues-educational-fact-sheets-pdf-2009-.html
				Have your say! - Manual on the Revised European Charter on the Participation of Young People in Local and Regional Life (2008). https://book.coe.int/eur/en/youth-other-publications/4009-have-your-say-manual-on-the-revised-european-charter-on-the-participation-of-young-people-in-local-and-regional-life.html
European Youth Forum	AG 14/08/14	Publications searched for participatory work with young people	0	

European Network for Youth Centres	AG 14/08/14	No search function. Only publications are annual reports	0	
UNICEF	AG 14/08/14	Publications database (has publications from 2001) searched for participation (2), participatroy (1), action research (0), engagement (0)	3	The State of the World's Children 2011: Adolescence – An Age of Opportunity. http://www.unicef.org/publications/index_57468.html.
				The State of the World's Children 2003 - Child Participation. http://www.unicef.org/publications/index_4810.html
				The State of the World's Children 2012: Children in an Urban World
FreeChild Project	AG 14/08/14	No search function. Have tools on how to promote youth participation but no evaluation.	0	N/A
National Collaboration for Youth	AG 14/08/14	All resources searched for participation, participatory research, action research, engagement	0	N/A
ChapinHall	AG 14/08/14	All reports in youth development and afterschool initatives, and community change section screened for participatory research in children and young people	0	N/A
Child Welfare Information Gateway/ Evidence-Based Practices in Child Welfare	AG 14/08/14	Participation, participatory, action research, engagement searched	0	N/A

Scotland's Commissioner for Children and Young People	AG 14/08/14	Participation section	4	Children and Young People's Views on Participation and Principles for Practice. http://www.sccyp.org.uk/downloads/Adult%20Reports/Childrens_participation_report_120313.pdf
				Children and Young People's Participation in Scotland: Frameworks, standards and principles for practice. http://www.sccyp.org.uk/downloads/Adult%20Reports/National_Quality_Standards_and_a_Framework_for_Participation_for_Scotland_-_final_29.8.pdf
				Participants, not pawns: guidance on consulting with children and young people on school closures (and other significant changes).http://www.sccyp.org.uk/uploaded_docs/participants%20not%20pawns.pdf
				Our say: young people's awareness and understanding of educational maintenance allowance in Scotland. http://www.sccyp.org.uk/uploaded_docs/adult%20reports/our%20say%20-%20young%20researchers%202009.pdf
Child Public Health	AG 14/08/14	Publications section searched for participation, engagement, involvement, action research	0	N/A

Youth Portal for Latin America and the Caribbean	AG 14/08/14	Searched for reports on participation	3	Youth participation and representation in politics: Building a stronger democracy in Ecuador. http://www.youthlac.org/content/view/941/87/
				Join Crossing Borders Global Studies in Denmark. http://www.youthlac.org/content/view/580/104/
				Helping Young People Affected by Crisis. http://www.youthlac.org/content/view/559/98/
Caribbean Youth Council	AG 14/08/14	No documents/reports available	0	N/A
Asian Youth Council	AG 14/08/14	No documents/reports available	0	N/A
World Assembly of Youth	AG 14/08/14	All documents screened for participatory research	0	N/A
Commonwealth Youth Council	AG 14/08/14	No documents/reports available	0	N/A
Structured Dialogue on Youth	AG 15/08/14	Three studies listed on website	3	Working with young people: The value of youth work in the European Union. http://bookshop.europa.eu/en/working-with-young-people-pbNC0414172/
				Access of young people to culture. http://bookshop.europa.eu/en/access-of-young-people-to-culture-pbNC0113224/

				Assessing practices for using indicators in fields related to youth. http://bookshop.europa.eu/en/assessing-practices-for-using-indicators-in-fields-related-to-youth-pbNC0113223/
European Youth Portal	AG 15/08/14	No documents/reports available	0	N/A
African Youth Council	AG 15/08/14	No documents/reports available	0	N/A
Pacific Youth Council	AG 15/08/14	Documents searched for participatory research	0	N/A
Australia Youth Affairs Coalition	AG 15/08/14	Searched for participation and participatory, engagement and action research	No documents pub;ished but does have link to a range of documents on youth participation http://www.ayac.org.au/participationguides.html	

Appendix 3 Search Terms

ASSIA:

SU.EXACT("Adolescent girls") OR
SU.EXACT("Adolescent boys") OR
AB (adolescent*) OR
SU.EXACT("Children") OR
AB(child*) OR
AB(minor) OR
AB(preadolescent*) OR
AB (youngster) OR
AB (girl*) OR
AB (boy*)
AB(kid) OR
SU.EXACT("Young people") OR
AB (young person*) OR
SU.EXACT("Young adults") OR
AB (youth) OR
AB (teen*) OR
AB (school child) OR
AB (school*) OR
SU.EXACT("comprehensive schools") OR
SU.EXACT("independent schools") OR
SU.EXACT("elementary schools") OR
SU.EXACT("Neighbourhood schools") OR
SU.EXACT("junior schools") OR
SU.EXACT("junior secondary schools") OR
SU.EXACT("middle schools") OR
SU.EXACT("out of school time") OR
SU.EXACT("public schools") OR
SU.EXACT("schools") OR
SU.EXACT("secondary schools") OR
SU.EXACT("high schools")OR
SU.EXACT("primary schools") OR
SU.EXACT(“community”) OR
SU.EXACT("community centres”) OR
AB (communit*)

AND

SU.EXACT("Community power") OR
SU.EXACT("Community planning") OR
SU.EXACT("Community based programmes") OR
SU.EXACT("Community cooperatives") OR

SU.EXACT("Community participation") OR
SU.EXACT("Community based research") OR
SU.EXACT("Community action") OR
SU.EXACT("Community based action research") OR
SU.EXACT("Community organizing") OR
SU.EXACT("Participation") OR
SU.EXACT("Citizen participation") OR
SU.EXACT("Social participation") OR
SU.EXACT("Student participation") OR
SU.EXACT("Collaborative learning") OR
SU.EXACT("Collaborative approach") OR
SU.EXACT("Collaborative group work") OR
SU.EXACT("Collaborative decision making") OR
OR SU.EXACT("Collaboration") OR
AB(engag*) OR
AB(collaborat*) OR
AB(involv*) OR
AB(empower*) OR
AB(engage*) OR
AB(engagement) OR
SU.EXACT("Engagement") OR
SU.EXACT("Collaboration") OR
SU.EXACT("Involvement") OR
SU.EXACT("Empowerment") OR
SU.EXACT("Partnerships") OR
SU.EXACT("Development projects") OR
SU.EXACT("Consultation groups") OR
SU.EXACT("Consultation")
AB("youth voice") OR
AB("youth participat*") OR
AB("youth engag*")
AB ("emancipatory")
AB ("photo elicitation")
AB ("photo voice")
AB ("participatory")
AB ("youth empowerment strategies")
AB ("action research")

AND
SU.EXACT("Health") OR
SU.EXACT("Mental health")
SU.EXACT("Health Behaviour") OR
AB(health*) OR
AB(health development) OR

AB(health outcome*)
SU.EXACT("Health equity")
AB("Health equity")
SU.EXACT("Health inequalities") OR
SU.EXACT("Health indicators") OR
AB(health disparit*) OR
SU.EXACT("Social inequalities")
SU.EXACT("Social deprivation")
AB(social determinant) OR
SU.EXACT("Social capital")
AB(Social capital)
AB (social cohesion)
SU.EXACT("community identity”) OR
SU.EXACT("community power”) OR
SU.EXACT("community solidarity”) OR
SU.EXACT("sense of community”) OR
SU.EXACT("Perceived participation") OR
SU.EXACT("Isolation") OR
AB (participation levels)
AB(active citizens*)
AB(wellbeing)
SU.EXACT("Psychosocial well being")
SU.EXACT("Social well being")
SU.EXACT("Spiritual well being")
SU.EXACT("psychological well being")
AB ("emotional well being")
AB ("subjective well being")
AB ("social action")
AB ("social change")
AB ("physical well being")
AB ("mental well being")

Limits: Date (1994+), Language (English)

Campbell C2 Database

(schoolchild or girl or boy or adolescent or young person or young people or preadolescen$ or youth or teen$ or youngster or kid or school$ or secondary school or high school or middle school or elementary school or primary school or school child or public school or independent school or junior school or out of school time or comprehensive school or neighbourhood school or junior secondary school or community or community centre or community center or neighborhood school) Title

AND

(community-based participatory research or community power or Community planning or Community based participatory program$ or Community cooperatives or Community participation or AB Community based research or Community action or Community based action research or Community organizing or social participation or Citizen participation or Student participation or Collaborative learning or Collaborative approach or Collaborative group work or Collaborative decision making or involvement or empower$ or youth voice or youth participat$ or engag$ or youth engag$ or participator or participation or emancipatory or photo elicitation or photo voice or action research or youth empowerment strategies) Title

AND
(health$ or health development or health outcome$ or health equity or health inequity or health inequalities or health indicators or health disparit$ or social deprivation or social inequalities or social capital or social cohesion or community identity or community power or community solidarity or sense of community or percieved participation or social determinants of health or social responsibility or health behaviour or social alienation participation levels or social responsibility or active citizens$ or wellbeing or social wellbeing or spiritual wellbeing or psychological wellbeing or subjective wellbeing or physical wellbeing or mental wellbeing or social change or social action or mental health or health behaviour or social alienation) Title
No Limits

CENTRAL
Title, Abstract, Keywords (schoolchild or girl or boy or adolescent or young person or young people or preadolescen$ or youth or teen$ or youngster or kid or school$ or secondary school or high school or middle school or elementary school or primary school or school child or public school or independent school or junior school or out of school time or comprehensive school or neighbourhood school or junior secondary school or community or community centre or community center or neighborhood school or minors)
AND
Title, Abstract, Keywords (community-based participatory research or community power or Community planning or Community based participatory program$ or Community cooperatives or Community participation or AB Community based research or Community action or Community based action research or Community organizing or social participation or Citizen participation or Student participation or Collaborative learning or Collaborative approach or Collaborative group work or Collaborative decision making or involvement or empower$ or youth voice or youth participat$ or engag$ or youth engag$ or participator or participation or emancipatory or photo elicitation or photo voice or action research or youth empowerment strategies)
AND

Title, Abstract, Keywords (health$ or mental health or health development or health outcome$ or health equity or health inequity or health inequalities or health indicators or health disparit$ or social deprivation or social inequalities or social capital or social cohesion or community identity or community power or community solidarity or sense of community or perceived participation or social determinants of health or social responsibility or health behaviour or social alienation or participation levels or social responsibility or active citizens$ or wellbeing or social wellbeing or spiritual wellbeing or psychological wellbeing or subjective wellbeing or physical wellbeing or mental wellbeing or social change or social action)
Limit to yr="1994 - 2014"

CINAHL
(MH “adolescence”) OR (MH “child”) OR (MH “minors”) OR MH (“young adult”) OR (AB schoolchild) OR (AB girl) OR (AB boy) OR (AB adolescent) OR (AB young person) OR (AB young people) OR (AB preadolescen*) OR (AB youth) OR (AB teen*) OR (AB Youngster) OR (AB kid) OR (MH “schools”) OR (AB school*) OR (AB secondary school) OR (AB high school) OR (AB middle school) OR (AB elementary school) OR (AB primary school) OR (AB school child) OR (AB public school) OR (AB independent school) OR (AB junior school) OR (AB out of school time) OR (AB comprehensive school) OR (AB neighbourhood school)) OR (AB neighborhood school) OR (AB junior secondary school) OR (AB community) OR (AB community center) OR (AB community centre)
AND
(AB “community-based participatory research") OR (AB “community power”) OR (AB "Community planning") OR (AB "Community based participatory programmes") OR (AB "Community cooperatives") OR (AB "Community participation") OR (AB "Community based research") OR (AB "Community action") OR (AB "Community based action research") OR (AB "Community organizing") OR (AB “social participation”) OR (AB "Citizen participation") OR (MH “action research”) (AB "Student participation") OR (AB "Collaborative learning") OR (AB "Collaborative approach") OR (AB "Collaborative group work") OR (AB "Collaborative decision making") OR (AB involvement) OR (AB empower*) OR (AB "youth voice") OR (AB "youth participat*") OR (AB engag*) OR (AB "youth engag*") OR (AB participatory) OR (AB participation) OR (AB "emancipatory") OR (AB "photo elicitation") OR (AB "photo voice") OR (AB “action research”) OR (AB “youth empowerment strategies”)
AND

(MH “health”) OR (MH "Health Behavior") OR (AB health*) OR (AB health development) OR (AB health outcome*)OR (AB "health equity") OR (AB "health inequity") OR (AB "Health inequalities") OR (AB "Health indicators") OR (AB “health disparit*”) OR (AB "social deprivation") OR (AB "social inequalities") OR (AB “social determinants of health”) OR (AB “Social capital”)OR AB (“social cohesion”) OR (AB "community identity”) OR (AB"community power”) OR (AB "community solidarity”) OR (AB "sense of community”) OR (AB "Perceived

participation") OR (AB “social alienation”) OR (AB “participation levels”) OR (AB “social responsibility”) OR (AB “active citizens*”) OR (AB wellbeing) OR (AB "Psychosocial wellbeing") OR (AB "Social wellbeing") OR (AB "Spiritual wellbeing") OR (AB "psychological wellbeing") OR AB ("emotional wellbeing") OR AB ("subjective wellbeing") OR (AB “social action”) OR (AB “social change”) OR (MH “mental health”) OR AB ("physical wellbeing") OR AB ("mental wellbeing")
Limiters - Published Date: 19940101-20141231; English;

DARE
(schoolchild or girl or boy or adolescent or young person or young people or preadolescen$ or youth or teen$ or youngster or kid or school$ or secondary school or high school or middle school or elementary school or primary school or school child or public school or independent school or junior school or out of school time or comprehensive school or neighbourhood school or junior secondary school or community or community centre or community center or neighborhood school) Title, Abstract, Keywords
AND
(community-based participatory research or community power or Community planning or Community based participatory program$ or Community cooperatives or Community participation or AB Community based research or Community action or Community based action research or Community organizing or social participation or Citizen participation or Student participation or Collaborative learning or Collaborative approach or Collaborative group work or Collaborative decision making or involvement or empower$ or youth voice or youth participat$ or engag$ or youth engag$ or participator or participation or emancipatory or photo elicitation or photo voice or action research or youth empowerment strategies) Title, Abstract, Keywords

AND
(health$ or health development or health outcome$ or health equity or health inequity or health inequalities or health indicators or health disparit$ or social deprivation or social inequalities or social capital or social cohesion or community identity or community power or community solidarity or sense of community or percieved participation or social determinants of health or social responsibility or health behaviour or social alienation participation levels or social responsibility or active citizens$ or wellbeing or social wellbeing or spiritual wellbeing or psychological wellbeing or subjective wellbeing or physical wellbeing or mental wellbeing or social change or social action or mental health or health behaviour or social alienation) Title, Abstract, Keywords
Limits: 1994-2014

ERIC
1 Early Adolescents/ or Adolescents/ or Late Adolescents/
2 Children/
3 High School Students/
4 Young Adults/

5 Neighborhood Schools/ or Public Schools/ or Elementary Schools/ or Private Schools/ or Rural Schools/ or Schools/ or Urban Schools/ or Junior High Schools/ or High Schools/ or State Schools/ or Community Schools/ or Middle Schools/

6 school child.ab.

7 (girl or boy or young person or young people).ab.

8 (preadolescen* or adolescen* or teen*).ab.

9 (youth or youngster or kid or school* or secondary school or primary school or middle school or elementary school or high school or public school or independent school or junior school or out of school time or comprehensive school or neighborhood school or neighbourhood school or community or community centre or community center or junior secondary school).ab.

10 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9

11 Participatory Research/ or Community Involvement/

12 Social Action/

13 Student Participation/

14 (community-based participatory research or community power or citizen participation or community planning or Community based participatory programmes or community co-operatives or community participation or community based research or Community based action research or community action or Community organizing or social participation or participation or participatory or student participation or collaborative learning or collaborative approach or collaborative group or collaborative decision making or collaborat* or involvement or engag* or empower* or youth voice or youth engag* or emancipatory or photo elicitation or youth empowerment strategies or action research or photo voice).ab.

15 11 or 12 or 13 or 14

16 Mental Health/ or Health Behavior/ or Health/

17 Well Being/

18 Social Action/ or Social Capital/ or Social Change/

19 social determinants of health.mp. [mp=abstract, title, heading word, identifiers]

20 (health* or health development or health outcome* or health equity or health inequity or health inequalities or health indicators or health disparit* or social deprivation or social inequalities or social capital or social cohesion or community identity or community power or community solidarity or sense of community or percieved participation or social alienation or participation levels or social responsibility or active citizens* or wellbeing or psychosocial wellbeing or social wellbeing or spiritual wellbeing or psychological wellbeing or emotional wellbeing or subjective wellbeing or mental wellbeing or social change or social action).mp. [mp=abstract, title, heading word, identifiers]

21 16 or 17 or 18 or 19 or 20

22 10 and 15 and 21

23 limit 22 to (english language and yr="1994 - 2014")

Medline (Ovid)

(schoolchild or girl or boy or adolescent or young person or young people or preadolescen$ or youth or teen$ or youngster or kid or school$ or secondary school or high school or middle school or elementary school or primary school or school child or public school or independent school or junior school or out of school time or comprehensive school or neighbourhood school or junior secondary school or community or community centre or community center or neighborhood school).ab OR (adolescent or child or minors or young adult or schools).sh

AND

(community-based participatory research or community power or Community planning or Community based participatory program$ or Community cooperatives or Community participation or AB Community based research or Community action or Community based action research or Community organizing or social participation or Citizen participation or Student participation or Collaborative learning or Collaborative approach or Collaborative group work or Collaborative decision making or involvement or empower$ or youth voice or youth participat$ or engag$ or youth engag$ or participator or participation or emancipatory or photo elicitation or photo voice or action research or youth empowerment strategies).ab OR (community-based participatory research or social participation).sh

AND

(health$ or health development or health outcome$ or health equity or health inequity or health inequalities or health indicators or health disparit$ or social deprivation or social inequalities or social capital or social cohesion or community identity or community power or community solidarity or sense of community or perceived participation or social determinants of health or social responsibility or health behaviour or social alienation participation levels or social responsibility or active citizens$ or wellbeing or social wellbeing or spiritual wellbeing or psychological wellbeing or subjective wellbeing or physical wellbeing or mental wellbeing or social change or social action).ab OR (health or mental health or health behaviour or social determinants of health or social alienation or social responsibility).sh

Limit to (english language and yr="1994 - 2014")

Psycinfo (EBSCO)

(AB adolescen*) OR (AB child*) OR (AB minor) OR (AB young adult) OR (AB schoolchild) OR (AB girl) OR (AB boy) OR (AB young person) OR (AB young people) OR (AB preadolescen*) OR (AB teen*) OR (AB youngster) OR (AB kid) OR (DE “communities”) OR (DE “secondary education”) OR (DE “elementary schools”) OR (DE “middle school students”) OR (DE “middle schools”) OR (DE “schools”) OR (DE “middle school education”) OR (DE “junior high school students”) OR (DE “high schools”) OR (DE “high school students) OR (DE “elementary school students”) OR (DE “after school programs”) OR (AB primary school) OR (AB secondary school) OR (DE “public school education”) OR (DE “private school education”) OR (AB “out of school time”) OR (AB comprehensive school) OR (AB youth) OR (AB neighbourhood school))OR (AB neighborhood school) OR (AB community centre) OR (AB community) OR (AB community center)

AND

(DE “student engagement”) OR (DE “action research”) OR (DE “community involvement”) OR (DE “involvement”) OR (DE “collaboration”) OR (DE “empowerment”) OR (AB “community-based participatory research”) OR (AB engage*) OR (AB involvement) OR (AB empower*) OR (AB

collaborat*) OR (AB participatory action research) OR (AB “community power”) OR (AB "Community planning") OR (AB "Community based participatory programmes") OR(AB "Community cooperatives") OR (AB "Community participation") OR (AB "Community based research") OR (AB "Community action") OR (AB "Community based action research") OR (AB "Community organizing") OR (DE “social participation”) OR(AB "Citizen participation") OR (AB "Student participation") OR (AB "Collaborative learning") OR (AB "Collaborative approach") OR (AB "Collaborative group work") OR (AB "Collaborative decision making") OR (AB "youth voice") OR (AB "youth participat*") OR (AB "youth engag*") OR (AB "participatory") OR (AB "participation") OR (AB "emancipatory") OR (AB "photo elicitation") OR (AB "photo voice")OR (AB "action research") OR (AB "youth empowerment strategies") OR (AB “social participation”)
AND
(DE “health”) OR (DE "Health disparities") OR (AB health) OR (AB "health development") OR (AB health equity) OR (DE "equity (Social)") OR (AB health outcome*) OR (AB health inequity) OR (AB "health inequalities") OR (AB "health indicator") OR (AB health disparit*) OR (AB "social determinant") OR (DE "social capital") OR (AB "social capital") OR (AB "social inequalities") OR (DE "social deprivation") OR (AB "social cohesion") OR (DE "community involvement") OR (AB "community identity") OR (AB "community power”) OR (AB "community solidarity”) OR (AB "Perceived participation") OR (DE "social isolation") OR (AB isolation) OR (AB "participation levels") OR (AB "active citizens*") OR (AB wellbeing) OR (AB "Psychosocial wellbeing") OR (AB "Spiritual wellbeing") OR (AB "psychological wellbeing") OR (AB "Social wellbeing") OR AB ("emotional wellbeing") OR AB ("subjective wellbeing") OR AB ("social change") OR AB ("social action”) OR (DE “mental health”) OR (DE “physical health”) OR AB ("physical wellbeing") OR AB ("mental wellbeing")
Limiters - Published Date: 19940101-20141231; English;

Social Science Citation Index

Limit to (english language and yr="1994 - 2014")

1. TS = (adolescent or young person or young people or preadolescen* or youth or teen or youngster or kid)
2. TS = (school or community)
3. 1 OR 2 (436, 892)
4. TS = ((participatory or action) AND (research))
5. TS = (empowerment OR engagement or collaborat* or involvement or participation)
6. TS = (“youth voice” or “youth engagement” or “youth empowerment strategies”)
7. 4 OR 5 OR 6 (204, 965)
8. TS = (health or “health development” or “health outcome” or “health indicators” or “health behaviour”)
9. TS = (“social deprivation” or “social inequalities” or “social determinants of health” or “health equity” or “health inequity” or “health inequalities” or “health disparit*”)
10. TS = (wellbeing or social wellbeing or spiritual wellbeing or psychological wellbeing or subjective wellbeing or physical wellbeing or mental wellbeing)
11. TS = (“social capital” or “social cohesion” or “social alienation” or” social responsibility” or “active or citizenship” or “community identity” or “community power” or “community solidarity” or “sense of community”)
12. 8 OR 9 OR 10 OR 11 (456, 970)
13. 3 AND 7 AND 12

Social Care Online

SubjectTerms:'"children"' including this term only
- OR SubjectTerms:'"adolescence"' including this term only
- OR SubjectTerms:'"young people"' including this term only
- OR SubjectTerms:'"schools"' including narrower terms
- OR SubjectTerms:'"communities"' including this term only
- AND SubjectTerms:'"participatory research"' including this term only
- OR SubjectTerms:'"action research"' including this term only
- OR SubjectTerms:'"community development"' including this term only
- OR SubjectTerms:'"participation"' including this term only
- OR SubjectTerms:'"collaboration"' including this term only
- OR SubjectTerms:'"empowerment"' including this term only
- OR SubjectTerms:'"user led research"' including this term only
- AND PublicationYear:'1994 2014'

Appendix 4 Data Extraction tool

EPPI-Centre data extraction and coding tool for education studies V2.0

Purpose and use of this tool

This tool is designed to help those conducting systematic reviews on educational topics identify extract and code information about a particular research study that is to be included in a systematic review.

It is designed to help the reviewer obtain all the necessary information to

- assess the quality of the study or its internal validity
- Identify the relevant contextual information that may have affected the results obtained in the specific study
- Identify the contextual information about a study that will be relevant to any assessment of the generalizability of findings in the individual study
- Identify relevant information about the design , execution and context of a study for the purpose of synthesizing (bringing together) results from all the studies that are included in a particular review

The tool is designed to be used to extract data from a single primary study. That is the report(s) of a piece of research i.e. not a review (systematic or otherwise), a scholarly paper, treatise or opinion piece.

The study may be reported in more than one paper for which a single data extraction is completed

Each separate study included in a review will require a separate data extraction

For the purposes of producing a 'map' review groups will usually include questions from sections A,B,C, D, E (if relevant), G.

Questions B2 and G3 must be included in the coding questions for the map

Additional questions used will depend on the purpose of the map and the type of review. The questions to be used should be agreed with the funder and the EPPI-Centre prior to starting coding

Other sections and questions are completed only on studies included in the 'in-depth review'

Section A: Administrative details

A.1 Name of the reviewer	A.1.1 Details
A.2 Date of the review	A.2.1 Details
A.3 Please enter the details of each paper which reports on this item/study and which is used to complete this data extraction. *(1): A paper can be a journal article, a book, or chapter in a book, or an unpublished report.*	A.3.1 Paper (1) *Fill in a separate entry for further papers as required.* A.3.2 Unique Identifier: A.3.3 Authors: A.3.4 Title: A.3.5 Paper (2) A.3.6 Unique Identifier: A.3.7 Authors: A.3.8 Title:
A.4 Main paper. Please classify one of the above papers as the 'main' report of the study and enter its unique identifier here. *NB(1): When only one paper reports on the study, this will be the 'main' report.* *NB(2): In some cases the 'main' paper will be the one which provides the fullest or the latest report of the study. In other cases the decision about which is the 'main' report will have to be made on an arbitrary basis.*	A.4.1 Unique Identifier:
A.5 Please enter the details of each paper which reports on this study but is NOT being used to complete this data extraction. *NB A paper can be a journal article, a book, or chapter in a book, or an unpublished report.*	A.5.1 Paper (1) *Fill in a separate entry for further papers as required.* A.5.2 Unique Identifier: A.5.3 Authors: A.5.4 Title: A.5.5 Paper (2) A.5.6 Unique Identifier: A.5.7 Authors: A.5.8 Title:
A.6 If the study has a broad focus and this data extraction focuses on just one component of the study, please specify this here.	A.6.1 Not applicable (whole study is focus of data extraction) A.6.2 Specific focus of this data extraction (please specify)

A.7 Identification of report (or reports) *Please use AS MANY KEYWORDS AS APPLY.*	A.7.1 Citation *Please use this keyword if the report was identified from the bibliographic list of another report.* A.7.2 Contact *Please use this keyword if the report was found through a personal/professional contact.* A.7.3 Handsearch *Please use this keyword if the report was found through handsearching a journal.* A.7.4 Unknown *Please use this keyword if it is unknown how the report was found.* A.7.5 Electronic database *Please use this keyword if the report was found through searching on an electronic bibliographic database.* *In addition, if the report was found on an electronic database please use ONE OR MORE of the following keywords to indicate which database it was found on:*
A.8 Status *Please use ONE keyword only*	A.8.1 Published *Please use this keyword if the report has an ISBN or ISSN number.* A.8.2 Published as a report or conference paper *Please use this code for reports which do not have an ISBN or ISSN number (eg. 'internal' reports; conference papers)* A.8.3 Unpublished *e.g. thesis or author manuscript*
A.9 Language (please specify)	A.9.1 Details of Language of report *Please use as many keywords that apply* *If the name of the language is specified/know then please use the name as a keyword. For example:* *Dutch* *English*

	French *If non-English and you cannot name the language:* *non English*

Section B: Study Aims and Rationale

B.1 What are the broad aims of the study? *Please write in authors' description if there is one. Elaborate if necessary, but indicate which aspects are reviewers' interpretation. Other, more specific questions about the research questions and hypotheses are asked later.*	B.1.1 Explicitly stated (please specify) B.1.2 Implicit (please specify) B.1.3 Not stated/unclear (please specify)
B.2 What is the purpose of the study? *N.B. This question refers only to the purpose of a study, not to the design or methods used.* *A: Description* *Please use this code for studies in which the aim is to produce a description of a state of affairs or a particular phenomenon, and/or to document its characteristics. In these types of studies there is no attempt to evaluate a particular intervention programme (according to either the processes involved in its implementation or its effects on outcomes), or to examine the associations between one or more variables. These types of studies are usually, but not always, conducted at one point in time (i.e. cross sectional). They can include studies such as an interview of head teachers to count how many have explicit policies on continuing professional development for teachers; a study documenting student attitudes to national examinations using focus groups; a survey of the felt needs of parents using self-completion questionnaires, about whether they want a school bus service.* *B: Exploration of relationships* *Please use this code for a study type which examines relationships and/or statistical associations between variables in order to build theories and develop hypotheses. These studies may describe a process or processes (what goes on) in order to explore how a particular state of affairs might be produced, maintained and changed.*	B.2.1 A: Description B.2.2 B: Exploration of relationships B.2.3 C: What works? B.2.4 D: Methods development B.2.5 E: Reviewing/synthesising research

These relationships may be discovered using qualitative techniques, and/or statistical analyses. For instance, observations of children at play may elucidate the process of gender stereotyping, and suggest the kinds of interventions which may be appropriate to reduce any negative effects in the classroom. Complex statistical analysis may be helpful in modelling the relationships between parents' social class and language in the home. These may lead to the development of theories about the mechanisms of language acquisition, and possible policies to intervene in a causal pathway. *These studies often consider variables such as social class and gender which are not interventions, although these studies may aid understanding, and may suggest possible interventions, as well as ways in which a programme design and implementation could be improved. These studies do not directly evaluate the effects of policies and practices.* *C: What works* *A study will only fall within this category if it measures effectiveness - i.e. the impact of a specific intervention or programme on a defined sample of recipients or subjects of the programme or intervention.* *D: Methods development* *Studies where the principle focus is on methodology.* *E: Reviewing/Synthesising research* *Studies which summarise and synthesise primary research studies.*	
B.3 Why was the study done at that point in time, in those contexts and with those people or institutions? *Please write in authors' rationale if there is one. Elaborate if necessary, but indicate which aspects are reviewers' interpretation.*	B.3.1 Explicitly stated (please specify) B.3.2 Implicit (please specify) B.3.3 Not stated/unclear (please specify)
B.4 Was the study informed by, or linked to, an existing body of empirical and/or theoretical research? *Please write in authors' description if there is one. Elaborate if necessary, but indicate which aspects are reviewers' interpretation.*	B.4.1 Explicitly stated (please specify) B.4.2 Implicit (please specify) B.4.3 Not stated/unclear (please specify)

B.5 Which of the following groups were consulted in working out the aims of the study, or issues to be addressed in the study? *Please write in authors' description if there is one. Elaborate if necessary, but indicate which aspects are reviewers' interpretation. Please cover details of how and why people were consulted and how they influenced the aims/issues to be addressed.*	B.5.1 Researchers (please specify) B.5.2 Funder (please specify) B.5.3 Head teacher/Senior management (please specify) B.5.4 Teaching staff (please specify) B.5.5 Non-teaching staff (please specify) B.5.6 Parents (please specify) B.5.7 Pupils/students (please specify) B.5.8 Governors (please specify) B.5.9 LEA/Government officials (please specify) B.5.10 Other education practitioner (please specify) B.5.11 Other (please specify) B.5.12 None/Not stated B.5.13 Coding is based on: Authors' description B.5.14 Coding is based on: Reviewers' inference
B.6 Do authors report how the study was funded?	B.6.1 Explicitly stated (please specify) B.6.2 Implicit (please specify) B.6.3 Not stated/unclear (please specify)
B.7 When was the study carried out? *If the authors give a year, or range of years, then put that in. If not, give a 'not later than' date by looking for a date of first submission to the journal, or for clues like the publication dates of other reports from the study.*	B.7.1 Explicitly stated (please specify) B.7.2 Implicit (please specify) B.7.3 Not stated/unclear (please specify)
B.8 What are the study research questions and/or hypotheses? *Research questions or hypotheses operationalise the aims of the study. Please write in authors'description if there is one. Elaborate if necessary, but indicate which aspects are reviewers' interpretation.*	B.8.1 Explicitly stated (please specify) B.8.2 Implicit (please specify) B.8.3 Not stated/ unclear (please specify)

Section C: Study Policy or Practice Focus

C.1 What is/are the topic focus/foci of the study?	C.1.1 Assessment (please specify) C.1.2 Classroom management (please specify) C.1.3 Curriculum (see next question below)

	C.1.4 Equal opportunities (please specify) C.1.5 Methodology (please specify) C.1.6 Organisation and management (please specify) C.1.7 Policy (please specify) C.1.8 Teacher careers (please specify) C.1.9 Teaching and learning (please specify) C.1.10 Other (please specify) C.1.11 Coding is based on: Authors' description C.1.12 Coding is based on: Reviewers' inference
C.2 In which country or countries was the study carried out? *Provide further details where relevant e.g. region or city.*	C.2.1 Explicitly stated (please specify) C.2.2 Not stated/unclear (please specify)
C.3 Please describe in more detail the specific phenomena, factors, services or interventions with which the study is concerned. *The questions so far have asked about the aims of the study and any named programme under study, but this may not fuly capture what the study is about. Please state or clarify here.*	C.3.1 Details
C.4 Do the authors describe the study as participatory?	C.3.1 Explicitly stated C.3.2 Implicit C.3.3 Not stated/ unclear
C.4.1 If explicitly stated how have the authors described their definition/approach to youth participation	C.4.1 Details
C.4.2 If implicitly stated why is this study interpreted as being participatory research (i.e. methods, participants)	C.4.2 Details

Section D: Actual sample

If there are several samples or levels of sample, please complete for each level

D.1 Who or what is/ are the sample in the study? *Please use AS MANY codes AS APPLY to describe the nature of the sample of the report. Only indicate a code if the report specifically characterises the sample focus in terms of the categories indicated below*	D.1.1 Children *Please use this code if a population focus of the study is on children aged 5-10 years* D.1.2 Adolescents *Please use this code if young people aged 10-18 years is the focus of the study*
D.2 What was the total number of participants in the study (the actual sample)? *if more than one group is being compared, please give numbers for each group*	D.2.1 Not applicable (e.g study of policies, documents etc) D.2.2 Explicitly stated (please specify) D.2.3 Implicit (please specify) D.2.4 Not stated/ unclear (please specify)
D.3 What is the proportion of those selected for the study who actually participated in the study? *Please specify numbers and percentages if possible.*	D.3.1 Not applicable (e.g. review) D.3.2 Explicitly stated (please specify) D.3.3 Implicit (please specify) D.3.4 Not stated/unclear (please specify)
D.4 Which country/countries are the individuals in the actual sample from? *If UK, please distinguish between England, Scotland, N. Ireland and Wales, if possible. If from different countries, please give numbers for each.* *If more than one group is being compared, please describe for each group.*	D.4.1 Not applicable (e.g. study of policies, documents, etc.) D.4.2 Explicitly stated (please specify) D.4.3 Implicit (please specify) D.4.4 Not stated/unclear (please specify)
D.5 What is the sex of the individuals in the actual sample? *Please give the numbers of the sample that fall within each of the given categories. If necessary refer to a page number in the report (e.g. for a useful table).* *If more than one group is being compared, please describe for each group.*	D.5.1 Not applicable (e.g. study of policies, documents etc) D.5.2 Single sex (please specify) D.5.3 Mixed sex (please specify) D.5.4 Not stated/unclear (please specify) D.5.5 Coding is based on: Authors' description D.5.6 Coding is based on: Reviewers' inference
D.6 What is the socio-economic status of the individuals within the actual sample? *If more than one group is being compared, please describe for each group.*	D.6.1 Not applicable (e.g. study of policies, documents etc) D.6.2 Explicitly stated (please specify) D.6.3 Implicit (please specify) D.6.4 Not stated/unclear (please specify)

D.7 What is the ethnicity of the individuals within the actual sample? *If more than one group is being compared, please describe for each group.*	D.7.1 Not applicable (e.g. study of policies, documents etc) D.7.2 Explicitly stated (please specify) D.7.3 Implicit (please specify) D.7.4 Not stated/unclear (please specify)
D.8 Please specify any other useful information about the study participants.	D.8.1 Details

Section E: Programme or Intervention description

E.1 If a programme or intervention is being studied, does it have a formal name?	E.1.1 Not applicable (no programme or intervention) E.1.2 Yes (please specify) E.1.3 No (please specify) E.1.4 Not stated/ unclear (please specify)
E.2 Content of the initiative *Describe the intervention in detail, whenever possible copying the authors' description from the report word for word. If specified in the report, also describe in detail what the control/ comparison group(s) were exposed to.*	E.2.1 Details
E.3 Aim(s) of the initiative	E.3.1 Not stated E.3.2 Not explicitly stated (Write in, as worded by the reviewer) E.3.3 Stated (Write in, as stated by the authors)
E.4 Year initiative started *Where relevant*	E.4.1 Details
E.5 Duration of the initiative *Choose the relevant category and write in the exact intervention length if specified in the report* *When the intervention is ongoing, tick 'OTHER' and indicate the length of intervention as the length of the outcome assessment period*	E.5.1 Not stated E.5.2 Not applicable E.5.3 Unclear E.5.4 One day or less (please specify) E.5.5 1 day to 1 week (please specify) E.5.6 1 week (and 1 day) to 1 month (please specify) E.5.7 1 month (and 1 day) to 3 months (please specify) E.5.8 3 months (and 1 day) to 6 months (please specify)

	E.5.9 6 months (and 1 day) to 1 year (please specify) E.5.10 1 year (and 1 day) to 2 years (please specify) E.5.11 2 years (and 1 day) to 3 years (please specify) E.5.12 3 years (and 1 day) to 5 years (please specify) E.5.13 more than 5 years (please specify) E.5.14 Other (please specify)
E.6 Person providing the initiative (tick as many as appropriate)	E.6.1 Not stated E.6.2 Unclear E.6.3 Not applicable E.6.4 Counsellor E.6.5 Health professional (please specify) E.6.6 parent E.6.7 peer E.6.8 Psychologist E.6.9 Researcher E.6.10 Social worker E.6.11 Teacher/lecturer E.6.12 Youth worker E.6.13 Community worker E.6.14 Other (specify)
E.7 Number of people recruited to provide the initiative (and comparison condition) (e.g. teachers or health professionals)	E.7.1 Not stated E.7.2 Unclear E.7.3 Reported (include the number for the providers involved in the intervention and comparison groups, as appropriate)
E.8 How were the people providing the initiative recruited? (Write in) Also, give information on the providers involved in the comparison group(s), as appropriate.	E.8.1 Not stated E.8.2 Stated (write in)
E.9 Was special training given to people providing the initiative? *Provide as much detail as possible*	E.9.1 Not stated E.9.2 Unclear E.9.3 Yes (please specify) E.9.4 No

Section F: Results and conclusions
In future this section is likely to incorporate material from EPPI reviewer to facilitate reporting numberical results

F.1 How are the results of the study presented? *e.g. as quotations/ figures within text, in tables, as appendices*	F.1.1 Details
F.2 What are the results of the study as reported by the authors? *Before completing data extraction you will need to consider what type of synthesis will be undertaken and what kind of 'results' data is required for the synthesis* *Warning! Failure to provide sufficient data here will hamper the synthesis stage of the review.* *Please give details and refer to page numbers in the report(s) of the study, where necessary (e.g. for key tables)*	F.2.1 Details
F.3 What do the author(s) conclude about the findings of the study? *Please give details and refer to page numbers in the report of the study, where necessary*	F.3.1 Details

Section G: Study Method

G.1 Study Timing *Please indicate all that apply and give further details where possible* *-If the study examines one or more samples but each at only one point in time it is cross-sectional* *-If the study examines the same samples but as they have changed over time, it is a retrospective, provided that the interest is in starting at one timepoint and looking backwards over time* *-If the study examines the same samples as they have changed over time and if data are collected forward over time, it is prospective provided that the interest is in starting at one timepoint and looking forward in time*	G.1.1 Cross-sectional G.1.2 Retrospective G.1.3 Prospective G.1.4 Not stated/ unclear (please specify)
G.2 when were the measurements of the variable(s) used as outcome measures made, in relation to the intervention *Use only if the purpose of the study is to*	G.2.1 Not applicable (not an evaluation) G.2.2 Before and after

measure the effectiveness or impact of an intervention or programme i.e its purpose is coded as 'What Works' in Section B2 - *If at least one of the outcome variables is measured both before and after the intervention, please use the 'before and after' category.*	G.2.3 Only after G.2.4 Other (please specify) G.2.5 Not stated/unclear (please specify)
G.3 What is the method used in the study? *NB: Studies may use more than one method please code each method used for which data extraction is being completed and the respective outcomes for each method.* *A=Please use this code if the outcome evaluation employed the design of a randomised controlled trial. To be classified as an RCT, the evaluation must:* *i). compare two or more groups which receive different interventions or different intensities/levels of an intervention with each other; and/or with a group which does not receive any intervention at all* *AND* *ii) allocate participants (individuals, groups, classes, schools, LEAs etc) or sequences to the different groups based on a fully random schedule (e.g a random numbers table is used). If the report states that random allocation was used and no further information is given then please keyword as RCT. If the allocation is NOT fully randomised (e.g allocation by alternate numbers by date of birth) then please keyword as a non-randomised controlled trial* *B=Please use this code if the evaluation compared two or more groups which receive different interventions, or different intensities/levels of an intervention to each other and/or with a group which does not receive any intervention at all BUT DOES NOT allocate participants (individuals, groups, classes, schools, LEAs etc) or sequences in a fully random manner. This keyword should be used for studies which describe groups being allocated using a quasi-random method (e.g allocation by alternate numbers or by date of birth) or other non- random method*	G.3.1 A=Random experiment with random allocation to groups G.3.2 B=Experiment with non-random allocation to groups G.3.3 C=One group pre-post test G.3.4 D=one group post-test only G.3.5 E=Cohort study G.3.6 F=Case-control study G.3.7 G=Statistical survey G.3.8 H=Views study G.3.9 I=Ethnography G.3.10 J=Systematic review G.3.11 K=Other review (non systematic) G.3.12 L=Case study G.3.13 M= Document study G.3.14 N=Action research G.3.15 O= Methodological study G.3.16 P=Secondary data analysis

C=Please use this code where a group of subjects e.g. a class of school children is tested on outcome of interest before being given an intervention which is being evaluated. After receiving the intervention the same test is administered again to the same subjects. The outcome is the difference between the pre and post test scores of the subjects. *D=Please use this code where one group of subjects is tested on outcome of interest after receiving the intervention which is being evaluated* *E=Please use this code where researchers prospectively study a sample (e.g learners), collect data on the different aspects of policies or practices experienced by members of the sample (e.g teaching methods, class sizes), look forward in time to measure their later outcomes (e.g achievement) and relate the experiences to the outcomes achieved. The purpose is to assess the effect of the different experiences on outcomes.* *F=Please use this code where researchers compare two or more groups of individuals on the basis of their current situation (e.g 16 year old pupils with high current educational performance compared to those with average educational performance), and look back in time to examine the statistical association with different policies or practices which they have experienced (e.g class size; attendance at single sex or mixed sex schools; non school activities etc).* *G= please use this code where researchers have used a quesionnaire to collect quantitative information about items in a sample or population e.g parents views on education* *H= Please use this code where the the researchers try to understand phenonmenon from the point of the 'worldview' of a particular, group, culture or society. In these studies there is attention to subjective meaning, perspectives and experience'.* *I= please use this code when the researchers present a qualitative description of human social*	

phenomena, based on fieldwork *J= please use this code if the review is explicit in its reporting of a systematic strategy used for (i) searching for studies (i.e it reports which databases have been searched and the keywords used to search the database, the list of journals hand searched, and describes attempts to find unpublished or 'grey' literature; (ii) the criteria for including and excluding studies in the review and, (iii) methods used for assessing the quality and collating the findings of included studies.* *K= Please use this code for cases where the review discusses a particular issue bringing together the opinions/findings/conclusions from a range of previous studies but where the review does not meet the criteria for a systematic review (as defined above)* *L= please use this code when researchers refer specifically to their design/ approach as a 'case study'. Where possible further information about the methods used in the case study should be coded* *M=please use this code where researchers have used documents as a source of data e.g newspaper reports* *N=Please use this code where practitioners or institutions (with or without the help of researchers) have used research as part of a process of development and/or change. Where possible further information about the research methods used should be coded* *O=please use this keyword for studies which focus on the development or discussion of methods; for example discussions of a statistical technique, a recruitment or sampling procedure, a particular way of collecting or analysing data etc. It may also refer to a description of the processes or stages involved in developing an 'instrument' (e.g an assessment procedure).* *P= Please use this code where researchers have used data from a pre-existing dataset e.g The British Household Panel Survey to answer their 'new' research question.*	

Section H: Methods-groups

H.1 If Comparisons are being made between two or more groups*, please specify the basis of any divisions made for making these comparisons *Please give further details where possible* **If no comparisons are being made between groups please continue to Section I (Methods - sampling strategy)*	H.1.1 Not applicable (not more than one group) H.1.2 Prospective allocation into more than one group *e.g allocation to different interventions, or allocation to intervention and control groups* H.1.3 No prospective allocation but use of pre-existing differences to create comparison groups *e.g. receiving different interventions or characterised by different levels of a variable such as social class* H.1.4 Other (please specify) H.1.5 Not stated/ unclear (please specify)
H.2 How do the groups differ?	H.2.1 Not applicable (not in more than one group) H.2.2 Explicitly stated (please specify) H.2.3 Implicit (please specify) H.2.4 Not stated/ unclear (please specify)
H.3 Number of groups *For instance, in studies in which comparisons are made between group, this may be the number of groups into which the dataset is divided for analysis (e.g social class, or form size), or the number of groups allocated to, or receiving, an intervention.*	H.3.1 Not applicable (not more than one group) H.3.2 One H.3.3 Two H.3.4 Three H.3.5 Four or more (please specify) H.3.6 Other/ unclear (please specify)
H.4 If prospective allocation into more than one group, what was the unit of allocation? *Please indicate all that apply and give further details where possible*	H.4.1 Not applicable (not more than one group) H.4.2 Not applicable (no prospective allocation) H.4.3 Individuals H.4.4 Groupings or clusters of individuals (e.g classes or schools) please specify H.4.5 Other (e.g individuals or groups acting as their own controls - please specify) H.4.6 Not stated/ unclear (please specify)

H.5 If prospective allocation into more than one group, which method was used to generate the allocation sequence?	H.5.1 Not applicable (not more than one group) H.5.2 Not applicable (no prospective allocation) H.5.3 Random H.5.4 Quasi-random H.5.5 Non-random H.5.6 Not stated/unclear (please specify)
H.6 If prospective allocation into more than one group, was the allocation sequence concealed? *Bias can be introduced, consciously or otherwise, if the allocation of pupils or classes or schools to a programme or intervention is made in the knowledge of key characteristics of those allocated. For example, children with more serious reading difficulty might be seen as in greater need and might be more likely to be allocated to the 'new' programme, or the opposite might happen. Either would introduce bias.*	H.6.1 Not applicable (not more than one group) H.6.2 Not applicable (no prospective allocation) H.6.3 Yes (please specify) H.6.4 No (please specify) H.6.5 Not stated/unclear (please specify)
H.7 Study design summary *In addition to answering the questions in this section, describe the study design in your own words. You may want to draw upon and elaborate on the answers already given.*	H.7.1 Details

Section I: Methods - Sampling strategy

I.1 Are the authors trying to produce findings that are representative of a given population? *Please write in authors' description. If authors do not specify, please indicate reviewers' interpretation.*	I.1.1 Explicitly stated (please specify) I.1.2 Implicit (please specify) I.1.3 Not stated/unclear (please specify)
I.2 What is the sampling frame (if any) from which the partipants are chosen? *e.g.telephone directory, electoral register, postcode, school listings etc.* *There may be two stages - e.g. first sampling schools and then classes or pupils within them.*	I.2.1 Not applicable (please specify) I.2.2 Explicitly stated (please specify) I.2.3 Implicit (please specify) I.2.4 Not stated/unclear (please specify)
I.3 Which method does the study use to select people, or groups of people (from the sampling frame)? *e.g. selecting people at random, systematically - selecting, for example, every 5th person,*	I.3.1 Not applicable (no sampling frame) I.3.2 Explicitly stated (please specify) I.3.3 Implicit (please specify) I.3.4 Not stated/unclear (please specify)

purposively, in order to reach a quota for a given characteristic.	
I.4 Planned sample size *If more than one group, please give details for each group separately.* *In intervention studies, the sample size will have a bearing upon the statistical power, error rate and precision of estimate of the study.*	I.4.1 Not applicable (please specify) I.4.2 Explicitly stated (please specify) I.4.3 Not stated/unclear (please specify)
I.5 How representative was the achieved sample (as recruited at the start of the study) in relation to the aims of the sampling frame? *Please specify basis for your decision.*	I.5.1 Not applicable (e.g. study of policies, documents, etc.) I.5.2 Not applicable (no sampling frame) I.5.3 High (please specify) I.5.4 Medium (please specify) I.5.5 Low (please specify) I.5.6 Unclear (please specify)
I.6 If the study involves studying samples prospectively over time, what proportion of the sample dropped out over the course of the study? *If the study involves more than one group, please give drop-out rates for each group separately. If necessary, refer to a page number in the report (e.g. for a useful table).*	I.6.1 Not applicable (e.g. study of policies, documents, etc.) I.6.2 Not applicable (not following samples prospectively over time) I.6.3 Explicitly stated (please specify) I.6.4 Implicit (please specify) I.6.5 Not stated/unclear (please specify)
I.7 For studies that involve following samples prospectively over time, do the authors provide any information on whether, and/or how, those who dropped out of the study differ from those who remained in the study?	I.7.1 Not applicable (e.g. study of policies, documents, etc.) I.7.2 Not applicable (not following samples prospectively over time) I.7.3 Not applicable (no drop outs) I.7.4 Yes (please specify) I.7.5 No
I.8 If the study involves following samples prospectively over time, do authors provide baseline values of key variables, such as those being used as outcomes, and relevant socio-demographic variables?	I.8.1 Not applicable (e.g. study of policies, documents, etc.) I.8.2 Not applicable (not following samples prospectively over time) I.8.3 Yes (please specify) I.8.4 No

Section J: Methods - recruitment and consent

J.1 Which methods are used to recruit people into the study? *e.g. letters of invitation, telephone contact, face-to-face contact.*	J.1.1 Not applicable (please specify) J.1.2 Explicitly stated (please specify) J.1.3 Implicit (please specify) J.1.4 Not stated/unclear (please specify) J.1.5 Please specify any other details relevant to recruitment and consent
J.2 Were any incentives provided to recruit people into the study?	J.2.1 Not applicable (please specify) J.2.2 Explicitly stated (please specify) J.2.3 Not stated/unclear (please specify)
J.3 Was consent sought? *Please comment on the quality of consent, if relevant.*	J.3.1 Not applicable (please specify) J.3.2 Participant consent sought J.3.3 Parental consent sought J.3.4 Other consent sought J.3.5 Consent not sought J.3.6 Not stated/unclear (please specify)

Section K: Methods - Data Collection

K.1 Which variables or concepts, if any, does the study aim to measure or examine?	K.1.1 Explicitly stated (please specify) K.1.2 Implicit (please specify) K.1.3 Not stated/ unclear
K.2 Please describe the main types of data collected and specify if they were used to (a) to define the sample; (b) to measure aspects of the sample as findings of the study? *Only detail if more specific than the previous question*	K.2.1 Details
K.3 Which methods were used to collect the data? *Please indicate all that apply and give further detail where possible*	K.3.1 Curriculum-based assessment K.3.2 Focus group interview K.3.3 One-to-one interview (face to face or by phone) K.3.4 Observation K.3.5 Self-completion questionnaire K.3.6 self-completion report or diary K.3.7 Examinations K.3.8 Clinical test K.3.9 Practical test

	K.3.10 Psychological test (e.g I.Q test) K.3.11 Hypothetical scenario including vignettes K.3.12 School/ college records (e.g attendance records etc) K.3.13 Secondary data such as publicly available statistics K.3.14 Other documentation K.3.15 Not stated/ unclear (please specify) K.3.16 Please specify any other important features of data collection K.3.17 Coding is based on: Author's description K.3.18 Coding is based on: Reviewers' interpretation
K.4 Details of data collection intruments or tool(s). *Please provide details including names for all tools used to collect data, and examples of any questions/items given. Also, please state whether source is cited in the report*	K.4.1 Explicitly stated (please specify) K.4.2 Implicit (please specify) K.4.3 Not stated/ unclear (please specify)
K.5 Who collected the data? *Please indicate all that apply and give further detail where possible*	K.5.1 Researcher K.5.2 Head teacher/ Senior management K.5.3 Teaching or other staff K.5.4 Parents K.5.5 Pupils/ students K.5.6 Governors K.5.7 LEA/Government officials K.5.8 Other educational practitioner K.5.9 Youth worker K.5.10 Community worker K.5.11 Other (please specify) K.5.12 Not stated/unclear K.5.13 Coding is based on: Author's description K.5.12 Coding is based on: Reviewers' inference
K.6 Do the authors' describe any ways they addressed the repeatability or reliability of their data collection tools/methods? *e.g test-re-test methods*	K.6.1 Details

(where more than one tool was employed, please provide details for each)	
K.7 Do the authors describe any ways they have addressed the validity or trustworthiness of their data collection tools/methods? *e.g mention previous piloting or validation of tools, published version of tools, involvement of target population in development of tools.* *(Where more than one tool was employed, please provide details for each)*	K.7.1 Details
K.8 Was there a concealment of which group that subjects were assigned to (i.e. the intervention or control) or other key factors from those carrying out measurement of outcome - if relevant? *Not applicable - e.g analysis of existing data, qualitative study.* *No - e.g assessment of reading progress for dyslexic pupils done by teacher who provided intervention* *Yes - e.g researcher assessing pupil knowledge of drugs - unaware of whether pupil received the intervention or not.*	K.8.1 Not applicable (please say why) K.8.2 Yes (please specify) K.8.3 No (please specify)
K.9 Where were the data collected? *e.g school, home*	K.9.1 Educational Institution (please specify) K.9.2 Home (please specify) K.9.3 Other institutional setting (please specify) K.9.4 Community K.9.4 Not stated/ unclear (please specify)

Section L: Methods - data analysis

L.1 What rationale do the authors give for the methods of analysis for the study? *e.g. for their methods of sampling, data collection or analysis.*	L.1.1 Details
L.2 Which methods were used to analyse the data? *Please give details (e.g., for in-depth interviews, how were the data handled?)* *Details of statistical analyses can be given next.*	L.2.1 Explicitly stated (please specify) L.2.2 Implicit (please specify) L.2.3 Not stated/unclear (please specify) L.2.4 Please specify any important analytic or statistical issues

L.3 Which statistical methods, if any, were used in the analysis?	L.3.1 Details
L.4 Did the study address multiplicity by reporting ancillary analyses, including sub-group analyses and adjusted analyses, and do the authors report on whether these were pre-specified or exploratory?	L.4.1 Yes (please specify) L.4.2 No (please specify) L.4.3 Not applicable
L.5 Do the authors describe strategies used in the analysis to control for bias from confounding variables?	L.5.1 Yes (please specify) L.5.2 No L.5.3 Not applicable
L.6 For evaluation studies that use prospective allocation, please specify the basis on which data analysis was carried out. *'Intention to intervene' means that data were analysed on the basis of the original number of participants, as recruited into the different groups.* *'Intervention received' means data were analysed on the basis of the number of participants actually receiving the intervention.*	L.6.1 Not applicable (not an evaluation study with prospective allocation) L.6.2 'Intention to intervene' L.6.3 'Intervention received' L.6.4 Not stated/unclear (please specify)
L.7 Do the authors describe any ways they have addressed the repeatability or reliability of data analysis? *e.g. using more than one researcher to analyse data, looking for negative cases.*	L.7.1 Details
L.8 Do the authors describe any ways that they have addressed the validity or trustworthiness of data analysis? *e.g. internal or external consistency, checking results with participants.* *Have any statistical assumptions necessary for analysis been met?*	L.8.1 Details
L.9 If the study uses qualitative methods, how well has diversity of perspective and content been explored?	L.9.1 Details
L.10 If the study uses qualitative methods, how well has the detail, depth and complexity (i.e. the richness) of the data been conveyed?	L.10.1 Details
L.11 If the study uses qualitative methods, has analysis been conducted such that context is preserved?	L.11.1 Details

Section M: Quality of study - reporting

M.1 Is the context of the study adequately described? *Consider your previous answers to these questions (see Section B):* *why was this study done at this point in time, in those contexts and with those people or institutions? (B3)* *Was the study informed by, or linked to an existing body of empirical and/or theoretical research? (B4)* *Which groups were consulted in working out the aims to be addressed in this study? (B5)* *Do the authors report how the study was funded? (B6)* *When was the study carried out? (B7)*	M.1.1 Yes (please specify) M.1.2 No (please specify)
M.2 Are the aims of the study clearly reported? *Consider your previous answers to these questions (See module B):* *What are the broad aims of the study? (B1)* *What are the study research questions and/or hypothesis? (B8)*	M.2.1 Yes (please specify) M.2.2 No (please specify)
M.3 Is there an adequate description of the sample used in the study and how the sample was identified and recruited? *Consider your answer to all questions in sections D (Actual Sample), I (Sampling Strategy) and J (Recruitment and Consent).*	M.3.1 Yes (please specify) M.3.2 No (please specify)
M.4 Is there an adequate description of the methods used in the study to collect data? *Consider your answers to the following questions (See Section K)* *What methods were used to collect the data? (K3)* *Details of data collection instruments and tools (K4)* *Who collected the data? (K5)*	M.4.1 Yes (please specify) M.4.2 No (please specify)

Where were the data collected? (K9)	
M.5 Is there an adequate description of the methods of data analysis? *Consider your answers to previous questions (see module L)* *Which methods were used to analysis the data? (L2)* *What statistical method, if any, were used in the analysis? (L3)* *Did the study address multiplicity by reporting ancillary analyses (including sub-group analyses and adjusted analyses), and do the authors report on whether these were pre-specified or exploratory? (L4)* *Do the authors describe strategies used in the analysis to control for bias from counfounding variables? (L5)*	M.5.1 Yes (please specify) M.5.2 No (please specify)
M.6 Is the study replicable from this report?	M.6.1 Yes (please specify) M.6.2 No (please specify)
M.7 Do the authors state where the full, original data are stored?	M.7.1 Yes (please specify) M.7.2 No (please specify)
M.8 Do the authors avoid selective reporting bias? (e.g. do they report on all variables they aimed to study, as specified in their aims/research questions?)	M.8.1 Yes (please specify) M.8.2 No (please specify)

Section N: Quality of the study - Weight of evidence

N.1 Are there ethical concerns about the way the study was done? *Consider consent, funding, privacy, etc.*	N.1.1 Yes, some concerns (please specify) N.1.2 No (please specify)
N.2 Were students and/or parents appropriately involved in the design or conduct of the study? *Consider your answer to the appropriate question in module B.1*	N.2.1 Yes, a lot (please specify) N.2.2 Yes, a little (please specify) N.2.3 No (please specify)
N.3 Is there sufficient justification for why the study was done the way it was? *Consider answers to questions B1, B2, B3, B4*	N.3.1 Yes (please specify) N.3.2 No (please specify)

N.4 Was the choice of research design appropriate for addressing the research question(s) posed?	N.4.1 yes, completely (please specify) N.4.2 No (please specify)
N.5 Have sufficient attempts been made to establish the repeatability or reliability of data collection methods or tools? *Consider your answers to previous questions:* *Do the authors describe any ways they have addressed the reliability or repeatability of their data collection tools and methods (K7)*	N.5.1 Yes, good (please specify) N.5.2 Yes, some attempt (please specify) N.5.3 No, none (please specify)
N.6 Have sufficient attempts been made to establish the validity or trustworthiness of data collection tools and methods? *Consider your answers to previous questions:* *Do the authors describe any ways they have addressed the validity or trustworthiness of their data collection tools/ methods (K6)*	N.6.1 Yes, good (please specify) N.6.2 Yes, some attempt (please specify) N.6.3 No, none (please specify)
N.7 Have sufficient attempts been made to establish the repeatability or reliability of data analysis? *Consider your answer to the previous question:* *Do the authors describe any ways they have addressed the repeatability or reliability of data analysis? (L7)*	N.7.1 Yes (please specify) N.7.2 No (please specify)
N.8 Have sufficient attempts been made to establish the validity or trustworthiness of data analysis? *Consider your answer to the previous question:* *Do the authors describe any ways they have addressed the validity or trustworthiness of data analysis? (L8, L9, L10, L11)*	N.8.1 Yes, good (please specify) N.8.2 Yes, some attempt (please specify) N.8.3 No, none (please specify)
N.9 To what extent are the research design and methods employed able to rule out any other sources of error/bias which would lead to alternative explanations for the findings of the study? *e.g. (1) In an evaluation, was the process by which participants were allocated to, or otherwise received the factor being evaluated, concealed and not predictable in advance? If not, were sufficient substitute procedures employed with adequate rigour to rule out any alternative explanations of the findings which arise as a result?*	N.9.1 A lot (please specify) N.9.2 A little (please specify) N.9.3 Not at all (please specify)

e.g. (2) Was the attrition rate low and, if applicable, similar between different groups?	
N.10 How generalisable are the study results?	N.10.1 Details
N.11 In light of the above, do the reviewers differ from the authors over the findings or conclusions of the study? *Please state what any difference is.*	N.11.1 Not applicable (no difference in conclusions) N.11.2 Yes (please specify)
N.12 Have sufficient attempts been made to justify the conclusions drawn from the findings, so that the conclusions are trustworthy?	N.12.1 Not applicable (results and conclusions inseparable) N.12.2 High trustworthiness N.12.3 Medium trustworthiness N.12.4 Low trustworthiness
N.13 Weight of evidence A: Taking account of all quality assessment issues, can the study findings be trusted in answering the study question(s)? *In some studies it is difficult to distinguish between the findings of the study and the conclusions. In those cases, please code the trustworthiness of these combined results/conclusions.*	N.13.1 High trustworthiness N.13.2 Medium trustworthiness N.13.3 Low trustworthiness
N.14 Weight of evidence B: Appropriateness of research design and analysis for addressing the question, or sub-questions, of this specific systematic review.	N.14.1 High N.14.2 Medium N.14.3 Low
N.15 Weight of evidence C: Relevance of particular focus of the study (including conceptual focus, context, sample and measures) for addressing the question, or sub-questions, of this specific systematic review	N.15.1 High N.15.2 Medium N.15.3 Low
N.16 Weight of evidence D: Overall weight of evidence *Taking into account quality of execution, appropriateness of design and relevance of focus, what is the overall weight of evidence this study provides to answer the question of this specific systematic review?*	N.16.1 High N.16.2 Medium N.16.3 Low

Appendix 5 Characteristics of included studies

Table A3. Characteristics of included studies

First author and year	RQ	No. of partic-ipants	Age	Country	Health topic	Programme name	Theoretical/ empirical basis	Content	Training	Adult involved in programme	Young person involve-ment	EPHPP	EPPI qual score
Ager 2008	1,2, 4	7	10-12	USA	Substanc e misuse	Youth Video Project	SB	After training the young people developed substance misuse prevention films. The children would present their findings to their parents and the community and come up with action plans (NB the action plans were not described in the video).	YP only. Short programme	Parents, community stakeholders & four area adult residents	NA, PD	Weak	Low
Al-Sheyab 2012a	1,3, 4	34	12-17	Jordan	Asthma	Adolescent Asthma Action programme (Triple A)	Based on Gibson et al. 1998	Peer leaders trained to deliver lessons that focused on knowledge, empowerment and leadership and helped year 10 students to develop songs, dramas, poems for year 7-8 students.	YP and teachers. Short programme.	Researchers	PD, DS	N/A	Low
Al-Sheyab 2012b	1,2	285	13-17	Jordan	Asthma	Adolescent Asthma Action programme (Triple A)	Based on Gibson et al. 1998	Peer leaders trained to deliver lessons that focused on knowledge, empowerment and leadership and helped year 10 students to develop songs, drams, poems for year 7-8 students.	YP and researchers. Short programme	Health workers	PD, DS	Mod.	N/A

First author and year	RQ	No. of partic-ipants	Age	Country	Health topic	Programme name	Theoretical/ empirical basis	Content	Training	Adult involved in programme	Young person involve-ment	EPHPP	EPPI qual score
Alstead 1999	1,2	1425	15-17	USA	Sexual health	Condom Promotion Programme	Previous similar programmes	Focus groups with young people and youth workers were conducted to understand how to effectively communicate condom use to young people. This information was given to an advertising agency who developed materials and were then given back to the young people for feedback. All stages were also checked by an advisory group which also contained young people. Free condom bins were placed in 22 community service agencies, record stores and clothing stores.	None described	Add agency staff, community stakeholders, public health department officials and researchers	PD	Weak	N/A
Bader 2007	1,3, 4	20	11-16	Israel	Violence and suicide	No name	PAR	Participants conducted a needs assessment using photography and then selected an issue, planned a project and carried it out	None described	Researchers	II, PD, DS	N/A	Low

First author and year	RQ	No. of partic-ipants	Age	Country	Health topic	Programme name	Theoretical/ empirical basis	Content	Training	Adult involved in programme	Young person involve-ment	EPHPP	EPPI qual score
Berg 2009	1,2, 3,4	316	13-18	USA	Sexual health and illegal activities	Youth Action Research for Prevention Project (YARP)	ET, SCT,	Young people attended a summer school in which they learned research methods, agreed upon a topic and then developed their collective action plans and programs. They also developed and promoted positive youth action programs in schools and youth serving agencies, throughout the school year. These included running workshops, developing resources (e.g. films, booklets, radio announcements) and running a job advice service	YP only. Extended programme.	Researchers	II, NA, PD, DS, EP	Mod	Low
Beshers 2007	1,2	15	13-18	USA	Sexual health	ZAP (Zero Adolescent Pregnancy)	PEP, previous (unevaluate d) version of programme	Interested teens are interviewed and selected for a range of qualities to be peer educators. Peer educators make visits to local schools to make classroom presentations to students in grades 4 to 8 and informal one-on-one contacts with students in grades 7-12.	YP only. Extended programme.	Researchers	DS	Weak	N/A

First author and year	RQ	No. of partic-ipants	Age	Country	Health topic	Programme name	Theoretical/ empirical basis	Content	Training	Adult involved in programme	Young person involve-ment	EPHPP	EPPI qual score
Birnbaum 2002	1,2, 3,4	3523	12-13	USA	Healthy eating	TEENs	PEP, cognitive develop-ment	Curriculum consisted of sessions led by peer leaders and consisted of a scripted call-in radio show (with student actors), discussion led by the peers and taste testing. Also included sessions on investigating fat in foods. Students were also given parent packs. The environmental component consisted of promoting fruit and veg and low fat food through activities such as tasting, increasing availability of good tasting healthy food, posters and prize raffles	YP only. Short programme.	Teacher and researchers	PD, DS	Strong	N/A

First author and year	RQ	No. of partic-ipants	Age	Country	Health topic	Programme name	Theoretical/ empirical basis	Content	Training	Adult involved in programme	Young person involve-ment	EPHPP	EPPI qual score
Bogart 2011	1,2	673	13	USA	Healthy eating	Students for Nutrition and eXercise (SNaX)	SCT, ET	After training peer leaders distribute healthy samples (cafeteria food and water) and bookmarks with educational messages to other students during lunchtime and covered different topics related to nutrition and physical activity. Peer leaders organised a quiz relating to each topic. Peer leaders were trained to role-play a motivational interviewing style to discuss healthy eating and physical activity with their peers at lunchtime. Based on research with students, sliced fruit was introduced, printed cafeteria signage with nutritional information was provided	YP and research staff. Short programme.	Researchers, Food services staff, teachers	DS	Weak	N/A

First author and year	RQ	No. of partic-ipants	Age	Country	Health topic	Programme name	Theoretical/ empirical basis	Content	Training	Adult involved in programme	Young person involve-ment	EPHPP	EPPI qual score
Bogart 2014	1,2	3211	12-13	USA	Healthy eating	SNAX	PAR, SCT, ET	Combined school-wide environmental changes, multimedia, school policies to provide healthier food and student advocacy. Peer leaders were trained to promote and model healthy behaviours and engage other students in discussions to change eating and physical activity norms. A different group of students were recruited each week to be peer leaders and each peer leader was asked to recruit a partner for lunchtime activities which involved wearing SNAX t-shirts and giving out promotional items, handouts, carrying out tatse tests.	YP and researchers Short programme.	Researchers and cafeteria staff	DS	Mod.	N/A

First author and year	RQ	No. of partic-ipants	Age	Country	Health topic	Programme name	Theoretical/ empirical basis	Content	Training	Adult involved in programme	Young person involve-ment	EPHPP	EPPI qual score
Campbell 2008	1,2, 3,4	10261	11-12	England and Wales	Tobacco	ASSIST (A Stop Smoking in Schools Trial)	DIT	E.2.1 Details The ASSIST programme had five key components: 1. Nomination of influential peers. 2. Recruitment. Meeting with nominees to explain peer supporter role and to obtain their agreement to attend the training. 3. Training. 4. Support. Four follow-up visits in school during the ten week period in which peer supporters undertook conversations about smoking out smoking with their peers when travelling to and from school, in breaks, at lunchtime 5. Acknowledgement. Presentation of certificates and gift vouchers to peers.	YP only. Extended programme.	Health promotion trainers and trial co-ordinators	YP only. Extended program me.	Strong	High
Caron 2004	1,2	1031	14-16	Canada	Sexual health	Protection Express Programme	TPB, SCT, PEP	Peer educators worked in teams of five to develop educational presentations on one of five topics: postponing sexual intercourse, communication and assertiveness in relationships, equality in relationships, conditions to a healthy relationship, and condom use.	YP only. Extended programme.	Teacher, school nurse, undergradua te student in sexology	PD, DS	Weak	N/A

First author and year	RQ	No. of partic-ipants	Age	Country	Health topic	Programme name	Theoretical/ empirical basis	Content	Training	Adult involved in programme	Young person involve-ment	EPHPP	EPPI qual score
Carroll 1999	1,2	356	16	Canada	Youth violence	Youth Action Committee	SB	Leaders consulted with their peers to select topics on violence prevention which would be discussed at noon-hour discussions at school which were co-facilitated with an adolescent and health professional. Youths also produced a 2hr talkshow in collaboration with a community television network.	YP only. Extended programme.	Public Health Nurses	II, PD, DS	Weak	N/A
Coleman 2011	1,2	94	10-16	USA	Type II Diabetes	No name	PEP	Peer educators were given training in type II diabetes and designed and ran a health fair for fifth grade students. this included interactive stations (e.g. games) and cooking/smoothie making demonstrations	YP only. Short programme.	Not specified	PD, DS	Weak	N/A
Ferrera 2015	1,3, 4	23	14-19	USA	Barriers to accessing care and health literacy	Youth Health Service Corps (YHSC)	PAR, PEP, SB	Young people attend weekly health education seminars at the University Medical Centre and local hospitals. The participants then provide education outreach to at least 10 friends and family members.	YP only. Short programme.	Medical students, researchers, leaders from the community-based organizations	PD, DS	N/A	Low

First author and year	RQ	No. of partic-ipants	Age	Country	Health topic	Programme name	Theoretical/ empirical basis	Content	Training	Adult involved in programme	Young person involve-ment	EPHPP	EPPI qual score
Gibson 1998	1,2	803	12-16	Australia	Asthma	Triple A (Adolescent Asthma Action) program	PEP	Peer leaders received training and gave lessons to year 10 students which involved group discussions, videos, games, and problem-solving sessions. The year 10 students then developed brief performances delivered to year 7 students, school staff, parents and invited community guests at a half day event.	YP and teachers. Short programme.	Researchers and teachers	PD, DS	Weak	N/A
Goldberg 2000	1,2	3207	15	USA	Steroid misuse	The adolescents Training and Learning to Avoid Steroids Programme (ATLAS).	NS	Classroom curriculum and weight room training skills. The classroom curriculum was facilitated by coaching staff and/or surrogates. Approx. 60% of classroom curriculum was given in small student groups (6-8 students) by trained as peer facilitators. Participants investigated claims of supplements, created health promotion messages and practiced drug refusal through role playing. Sports nutrition and weight training guides were given to participants. Parents were given an enhanced nutrition guide.	YP and teachers. Short programme.	Coaches and trainers	DS	Mod.	N/A

First author and year	RQ	No. of partic-ipants	Age	Country	Health topic	Programme name	Theoretical/ empirical basis	Content	Training	Adult involved in programme	Young person involve-ment	EPHPP	EPPI qual score
Goslar 2009	1,2	9081	14-18	USA	Seatbelt use	The Battle of the Belts	SB, SN	Each school provided with a resource manual and selected students were instructed to develop their own activities (included posters, presentations, walkathon, contests, safety trivia week).Students could have advice from teachers and trauma centre representatives. Students were also trained to make observations of seatbelt use. School with biggest improvement won $500	YP only. Short programme.	Teacher and trauma centre representative	PD, DS, PE	Weak	N/A
Hamdan 2005	1,2, 3	397	14-18	USA	Healthy eating	Trying Alternative Cafeteria Options in Schools (TACOs)	PEP, SN	Peers developed and implemented the following activities: media campaign, public service announcements, poster contest, raffle event, t-shirt contest, promotional campaign, challenge game and conducting a student survey, Other activities not peer led were: newspaper adverts, conduction of a self-assessment surveys, coupons and provision of fruit and vegetables and a taste test	None described	Researchers, teachers and foodservice staff	NA, PD, DS	Weak	N/A

First author and year	RQ	No. of partic-ipants	Age	Country	Health topic	Programme name	Theoretical/ empirical basis	Content	Training	Adult involved in programme	Young person involve-ment	EPHPP	EPPI qual score
Kohlstadt 2015	1,3	22	12-18	USA	Healthy eating	NutriBee	PEP	This paper was focused on the development of Bee Quest which forms part of the wider NutriBee intervention. Bee Quest involves peers developing questions for the game that relates to an original project related to nutrition. Each project involved each project included 3 parts: original project in the form of a video, slide presentation, essay, artwork, or computer application; a bio-sketch from the peer inventor; and a project-specific quiz called "Bee Questions"	None described	Youth workers called coaches. Could also get advice from mentors, parents, teachers	NA, PD	Weak	N/A

First author and year	RQ	No. of partic-ipants	Age	Country	Health topic	Programme name	Theoretical/ empirical basis	Content	Training	Adult involved in programme	Young person involve-ment	EPHPP	EPPI qual score
Lindqvist 2014	1,2	27	15-16	Sweden	Physical fitness	No name	SCT, SB	Intervention consisted of empowerment inspired intervention concerning the behavioural contracts, the encouraging texts, and information for parents. Students were divided into pairs and asked to make a mutual written contract that included a goal for PA and a promise to support each other. They also agreed to send a SMS to each other once a day for a month to encourage PA. The students decided on the main headlines for the brochure for parents and worked in smaller groups to create the content.	YP only. Short programme.	Researchers and teachers	PD, DS	Mod.	N/A

First author and year	RQ	No. of partic-ipants	Age	Country	Health topic	Programme name	Theoretical/ empirical basis	Content	Training	Adult involved in programme	Young person involve-ment	EPHPP	EPPI qual score
Madrigal 2014	1,4	16	14-18	USA	Environ mental health	No name	PAR	Adapted from key elements of the Youth Empowerment Program (YES!) and the Youth Justice Board Project. Training sessions on participatory research, including photovoice. Youth also assisted in the planning and execution of sessions to their peers. Students then developed and implemented action plans to address some of the issues identified. The first of these was a 5K walk/run in w second was to develop and implement a recycling programme at the high school.	YP only. Short programme.	Community members and youth worker	II, NA, PD, DS	N/A	Low
Mahat 2010	1,2	143	13-15	USA	Sexual health	Teens for Aids Prevention (TAP)	SCT, PEP	Peer educators completed a needs assessment and delivered a modified HIV/AIDs prevention programme which included HIV/AIDS information, exercises on value clarification, and communication skill building through group discussion, videos, role-play and games.	YP only. Short programme.	Teachers, researchers and nursing students	NA, PD, DS	Weak	N/A

First author and year	RQ	No. of partic-ipants	Age	Country	Health topic	Programme name	Theoretical/ empirical basis	Content	Training	Adult involved in programme	Young person involve-ment	EPHPP	EPPI qual score
Marko 2011	1,3, 4	8	NS	Canada	Marijuana use when driving	Drugged Driving Kills project: Why Drive High?	PAR	Social marketing campaign by youth advisors (YA) and adult facilitators. The YA roles and responsibilities emphasized skill assessment, development of pertinent information on social marketing theory, youth facilitation techniques, working with the media, specific evaluation training, and conflict resolution in preparation to conduct a social marketing campaign.	YP only. Short programme.	Professionals in youth mentorship and a researcher	PD, DS	N/A	Low
McGuire 2006	1,2	86	16	USA	Sexual health	Postponing sexual involvement (PSI)	PEP	Abstinence based sexuality education program focusing primarily on sexual refusal skills taught by peers.	YP only. Short programme.	The Office of Adolescent Health, School Staff, Researchers	DS	Weak	N/A
McKinney 2014	1,2	159	16	USA	Healthy eating and fitness	NuFit	PAR, SCT	Used an adapted version of existing programmes Y.E.S and EatFit curriculum. Y.E.S is a peer education programme running in the school and the peers ran the EatFit curriculum with some input from facilitators NuFit curriculum was enhanced with more interactive activities including games, blind taste tests and filmed student-run cooking demonstrations.	YP only. Extended programme.	Student health centre Staff and community board members	DS	Mod.	N/A

First author and year	RQ	No. of partic-ipants	Age	Country	Health topic	Programme name	Theoretical/ empirical basis	Content	Training	Adult involved in programme	Young person involve-ment	EPHPP	EPPI qual score
Merakou 2006	1,2	1150	17	Greece	Sexual health	No name	PEP, DIT	Following initial training the peer educators worked in their schools to develop activities: teen-aids club; posters; a stamp produced by all the peer educators was put on all the materials they gave out; giving a presentation on HIV/AIDs to every class and a day against AIDs was organised and the local community was invited.	YP and teachers. Extended programme.	Teachers and school-team co-ordinators	PD, DS	Weak	N/A
Menna 2015	1,2	560	15-18	Ethiopia	Sexual health	No name	PEP	Peer educators were given training and then then educated their peers in sessions two times a week. Sessions lasted 40 minutes and were conducted after school or in free periods. Throughout the intervention period, supportive supervisions were done by the principal investigator in collaboration with the respective directors and/or deputy directors of the schools.	YP only. Short programme.	Researchers, nurses, school directors and deputy directors	DS	Weak	N/A
Midford 2000	1,2	72	15-16	Australia	Alcohol	Youth alcohol forum	None stated	Peers took place in a youth forum which involved training and the development of community action plans for dealing with alcohol problems. They then implemented their action plans in the community	YP only. Extended programme.	Health professionals	PD, DS	Weak	N/A

First author and year	RQ	No. of partic-ipants	Age	Country	Health topic	Programme name	Theoretical/ empirical basis	Content	Training	Adult involved in programme	Young person involve-ment	EPHPP	EPPI qual score
Onyango-Ouma 2005	1,2	80	10-15	Kenya	Malaria and diarrhoea	No name	PAR	Students worked as health communicators in the school, in the local community and in their families. Teachers were trained in PAR based on the Child to Child approach (Bailey et al.) which involved 6 stages: (1) Choosing the right idea and understanding it well, (2) Investigating and finding out more, (3) Reporting, discussing and planning, (4) Taking action (individually and together), (5) Discussing the results of the action, (6) Doing it better and sustaining the action. NB topic area had already been selected so children did not participate in phase 1.	YP and teachers. Extended programme.	Teachers	PD, DS	Weak	N/A

First author and year	RQ	No. of partic-ipants	Age	Country	Health topic	Programme name	Theoretical/ empirical basis	Content	Training	Adult involved in programme	Young person involve-ment	EPHPP	EPPI qual score
O'Reilly 2016	1,2, 3,4	30	15-17	Ireland	Mental health	It's Time to Start Talking (ITTST)	SCT, DIT ,TPB PEP	Peer educators trained to deliver a 40 minute workshop the content of which was developed in consultation with young people. The workshop aims to promote positive attitudes to mental health by exploring holistic definitions of mental health; (b) promote help-seeking by encouraging young people to talk to someone they trust when feeling worried, sad, or down; and (c) help young people to identify trusted informal sources of support and to provide information about how to access formal support.	YP only. Short programme.	Mental health staff, researchers	PD, DS	Weak	N/A
Ozer 2013	1,2	401	16	USA	Empowe rment and issues of student's choice	YPAR	SB	Following the training the students identified and addressed problems and this was facilitated by teachers. Problems included school drop-out, sexual health, cyber-bullying, improving school lunch. Students then engaged in research using a range of methods. In the action phase, the teacher-facilitators helped students to actions that they could take start to address the problem.	YP and teachers. Extended programme.	Teachers and researchers	II, NA, PD, DS	Strong	N/A

First author and year	RQ	No. of partic-ipants	Age	Country	Health topic	Programme name	Theoretical/ empirical basis	Content	Training	Adult involved in programme	Young person involve-ment	EPHPP	EPPI qual score
Pearlman 2002	1,2	235	15-17	USA	Sexual health	No name	PEP	Peer leaders received training and developed and implemented HIV outreach activities in their schools and communities. these included putting on skits and hosting “safety net parties.” which are group skill-building activities that helps youth talk about methods of protection to reduce the risk of HIV infection in a safe setting.	YP only. Short programme.	Not clear - described as adult advisor	PD, DS	Weak	N/A
Peña 2008	1,2	589	10-14	Nicargua	Sexual health	Entre Amigas	PEP	Promoters (peer counsellors) were trained and had responsibility for 10 girls known as amigas. The activities in the peer groups consisted of dancing, puppet performances, and discussions of different topics related to self-esteem, reproductive health, STIs, and HIV/AIDs. Mothers were invited to attend the peer group sessions.	YP and research staff. Short programme	Researchers and mothers	PD, DS	Weak	N/A

First author and year	RQ	No. of partic-ipants	Age	Country	Health topic	Programme name	Theoretical/ empirical basis	Content	Training	Adult involved in programme	Young person involve-ment	EPHPP	EPPI qual score
Perry 2009	1,2	14063	11-15	India	Tobacco	Project MYTRI (Mobilizing Youth for Tobacco-Related Initiatives in India)	SCT, PEP	Four primary components: • Behavioural component of 13 peer-led classroom activities. The sessions were designed to be enjoyable and interactive (e.g. games) • School posters • Parent postcards delivered by the students • Peer led health activism which included competitions between classrooms and schools	YP and teachers. Short programme.	Teachers and researchers	DS	Mod.	N/A
Petrova 2015	1,2	706	14-18	USA	Mental health	Sources of Strength	SCT	Three phases: (1) school community preparation, (2) nomination and training of student Peer leaders, and (3) peer leader messaging. A research team member help peers develop two types of presentations: peer leader modelling which involved telling a personal narrative about using 2+ sources of strength; and peer leader modelling + interactive activity (naming of adults) which included students to write the names of adults who they would go to for help if concerned about a suicidal friend	YP only. Short programme.	Reseachers	PD, DS	Mod.	N/A

First author and year	RQ	No. of partic-ipants	Age	Country	Health topic	Programme name	Theoretical/ empirical basis	Content	Training	Adult involved in programme	Young person involve-ment	EPHPP	EPPI qual score
Stephenson 2004		10103	13-14	UK	Sexual health	Peer-led sex and relationships education	PEP	Following a needs assessment with junior students, senior students were trained and developed their own lesson plans which involved interactive sessions including group work, role play and games.	YP only. Extended programme.	Health promotion practitioners	DS	High	Med.
Stewart 2008	1,3, 4	Not stated	12-18	Canada	Health literacy	TPTH (full title not stated)	PAR	Four stages: 1) facilitate student investigation into topics they perceive to be of importance, 2) develop strategies to address these concerns, 3) develop leadership skills and research expertise, 4) develop an understanding of how PAR can be used to develop school and community-based initiatives.	None described	Teacher and researchers	II, NA, PD	N/A	Low

First author and year	RQ	No. of partic-ipants	Age	Country	Health topic	Programme name	Theoretical/ empirical basis	Content	Training	Adult involved in programme	Young person involve-ment	EPHPP	EPPI qual score
Tencati 2002	1,2, 3	116	14-16	USA	Tobacco, alcohol and other drugs	TACCLE (Teens Activists for Community Change and Leadership Education)	SCT, SB, PAR	Teens underwent training and groups chose one issue and devised an action plan which consisted of the following steps: define the problem by conducting community assessments to determine (a) what teens knew about their issue, (b) the issue's effect on the community, (c) current action being taken on the issue, (d) what teens still needed to learn about the issue, and (e) how teens proposed to conduct their community assessment to answer these questions. The teens then documented the problem by collecting and analysing results. They then used this to develop advocacy actions and identified outcome methods.	YP and researchers. Extended programme.	Site staff and college students	NA, PD, DS	Weak	N/A

First author and year	RQ	No. of partic-ipants	Age	Country	Health topic	Programme name	Theoretical/ empirical basis	Content	Training	Adult involved in programme	Young person involve-ment	EPHPP	EPPI qual score
Wallerstein 1994	1,3, 4	20	14-18	USA	Alcohol, substanc e misuse and violence	ASAP	SCT, PAR	Three stages: 1) Small groups of students interview individuals who have experienced medical, social or legal consequences due to alcohol, drug problems or interpersonal violence. Facilitators take role as co-learners and model behaviours and promote participatory discussion. 2) Discussion of patient stories and other material such as videos, photos, student stories. Life skills, communication skills and problem solving skills are introduced to improve efficacy. 3) Group actions emerge and takes the form of peer teaching, recommendations targeted at change alcohol environment, filmed and participated in a video and create plays.	Health workers only	graduate students	NA, PD, DS	N/A	Med.

First author and year	RQ	No. of partic-ipants	Age	Country	Health topic	Programme name	Theoretical/ empirical basis	Content	Training	Adult involved in programme	Young person involve-ment	EPHPP	EPPI qual score
Winklby 2004	1,2	813	17	USA	Tobacco	No name	SN, PAR	Curriculum consisted of 3 phases: 1. Dispelled misconceptions about smoking by engaging students in activities. 2. Daylong youth advocacy institute. Aimed to develop advocacy skills, present the results of their community assessments, and choose an advocacy project to carry out. 3. Assisted participants in developing, implementing, and evaluating their community-advocacy projects.	YP only. Extended programme.	Researchers	PD, DS, PE	Mod.	N/A
Woodgate 2015	1,2, 3	26	12-13	Canada	Cardiova scular health	Health Experts and Research Team (HEART)	SB	The participants were responsible for identifying, initiating, leading, and monitoring activities that addressed health promotion in four areas: smoking, physical inactivity, nutrition, and obesity. Studies created a group idea by choosing the name and designing the logo.	YP and teachers. Short programme.	teacher, researchers	NA, PD, DS, EP	Mod.	Low

Abbreviations: YP = young people;,PAR = Participatory Action Research, SCT = Social Cognitive Theory, PEP = peer education programmes, SB = strengths based approach, SN = social norms, TPB = theory of planned behaviour, DIT = diffusion of innovation theory, II = issue identification, PD = programme development, DS = delivery of sessions, NA = needs assessment, EP = evaluation of programme, EPHPP = Effective Public Health Practice Project tool, qual = qualitative, Mod = moderate, Med = medium

Appendix 6 Outcome measures

Table A4. Outcome measures

First Author and Year	Behaviour Measured	Behavioural Predictors	Generic measures
Ager 2008	• Self-report drug use	• Attitudes towards drugs • Knowledge of drugs	None measured
Al-Sheyab 2012a	None measured	• Self-efficacy to resist smoking, • Knowledge of asthma management	• Health-related quality of life
Alstead 1999	None measured	• Attitudes and norms to condom use	None measured
Berg 2009	• None measured	• Disapproval of drug use • Perceived drug risk • Attitudes to drug use • Peer norms for drug use • Drug self-efficacy	• Collective efficacy
Beshers 2007	None measured	• Sexual health knowledge • Attitudes to intercourse • Norms towards intercourse and condoms • Self-efficacy for condom use and intercourse refusal • Perceived HIV susceptibility	• Confidence in ability to do peer education • Comfort doing peer education
Birnbaum 2002	• self-report fruit and vegetable consumption • Self-report lower fat food consumption	• Behavioural, normative and control beliefs towards healthy eating • Intentions to eat healthily • Self- assessment of current healthy eating behaviour.	None measured

Bogart 2011	• Cafeteria records on:
	  ○ Sports and fruit drinks
	  ○ Fruit
	• Healthy entres
		• Cafeteria attitudes	None measured

First Author and Year	Behaviour Measured	Behavioural Predictors	Generic measures

Bogart 2014	• Cafeteria records on:
	  ○ Vegetables
	  ○ Fruit
	  ○ School meals
	  ○ Snacks
	• Self-report water consumption
		• Cafeteria attitudes
		• Healthy eating knowledge
		• Attitudes towards water
		• Knowledge on physical activity
			None measured

Campbell 2008	• Self-report smoking in the last week	• None measured	None measured
Caron 2004	• Self-report condom use • Self-report intercourse postponement	• Attitudes to intercourse and condoms • Normative beliefs on intercourse and condoms • Perceived behavioural control for postponing intercourse and condoms • Self-efficacy for postponing intercourse and condoms • Anticipated regret towards postponing sexual intercourse and condom use • Intention to use condoms	None measured
Coleman 2011	None measured	• Knowledge of diabetes	None measured
Gibson 1998	None measured	• Knowledge towards asthma • Attitudes towards asthma	• Only measured in students with asthma so excluded
Goldberg 2000	• Self-report drug use • Self-report steroid use	• Attitudes towards drugs • Beliefs towards drugs • Knowledge of drugs • Attitudes towards alcohol • Beliefs towards alcohol • Knowledge of alcohol • Attitudes towards steroids • Beliefs towards steroids • Knowledge of steroids • Intent to use steroids	None measured

First Author and Year	Behaviour Measured	Behavioural Predictors	Generic measures
Goslar 2009	• Seatbelt use	None measured	None measured
Hamdan 2005	• Self-report eating behaviours	• Attitudes to healthy eating • Social norms around eating	None measured
Lindqvist 2014	• Self-report moderate or vigorous physical activity	• None measured	None measured
Madrigal 2014	• Participatory behaviour within the community	None measured	• Self-efficacy • Presentation skills • Socio-political skills • Participatory behaviour • Motivation and influence • Leadership efficacy
Mahat 2010	None measured	• HIV/AIDs knowledge • Self-efficacy for limiting HIV risk	None measured
McGuire 2006	None measured	None measured	• Pre- and post-test community belonging • Social Responsibility
McKinney 2014	• Self-report sedentary behaviour	• Knowledge of sedentary behaviour • Attitudes to sedentary behaviour	None measured
Merakou 2006	None measured	• HIV knowledge • Attitudes to HIV Beliefs of HIV	None measured

First Author and Year	Behaviour Measured	Behavioural Predictors	Generic measures
Menna 2015	• Self-report use of condoms • Self-report initiation of sexual intercourse • Self-report HIV testing • Self-report no. of sexual partners • Self-report condom use	• HIV/AIDs knowledge • Willingness to go for HIV testing.	None measured
Midford 2000	• Self-report alcohol consumption	• Alcohol knowledge	None measured
Onyango-Ouma 2005	• Hygiene practices	• Hygiene knowledge	None measured
O'Reilly 2016	None measured	• Self-stigma of seeking help for mental health issues • Perception of stigmatization by others for seeking help • Mental health knowledge	• Self-esteem • Presentation skills • Team working skills • Decision making skills
Ozer 2013	None measured	None measured	• Self-efficacy
Pearlman 2002	• Self-report sexual risk taking behaviour	• HIV/AIDs knowledge	• Self-efficacy • Knowledge of presenting skills
Peña 2008	None measured	• HIV knowledge	• Self-esteem

First Author and Year	Behaviour Measured	Behavioural Predictors	Generic measures
Perry 2009	• Self-report cigarette smoking in last 30 days • Self-report bidi smoking in last 30 days • Self-report chewing tobacco in last 30 days	• Intention to smoke or chew tobacco • Knowledge of the health effects and tobacco control policies • Beliefs about social consequences of tobacco use • Reasons to use or not use tobacco • Perceived prevalence of tobacco use • Support of tobacco control policies	None measured
Petrova 2015	None measured	• Coping with distress and suicide • Perceptions of adult support Suicidal ideation	None measured
Stephenson 2004	• Self-report unprotected sex before 16 years • Self-report quality of sexual experience • Self-report use of condoms/contraception at last sexual encounter	• Knowledge about sexual health facilities • Attitudes towards condoms and sexual behaviours • Self-efficacy towards use of condoms and sexual refusal	None measured
Tencati 2002	• Self-report marijuana use in the last 30 days • Self-report alcohol use in last 30 days • Self-report tobacco use in last 30 days	None measured	• Self-efficacy • Sense of community • Leadership competence
Winkleby 2004	• Self-report cigarette smoking • Smoking using carbon dioxide levels	None measured	None measured
Woodgate 2015	None measured	None measured	• 5 constructs of Positive Youth development (caring, character competence, connection and confidence)

Appendix 7 Results of included studies

Table A5. Results of included studies

Study	Outcome	Study results reported by authors (unless stated is mean [standard deviation])	Difference Size (Cohen's d, 95% CI)	Summary of results
Studies focused on sexual health				
Alstead et al. (1999)	• Proportion sexually active • Proportion using condoms	• 41% at baseline and "level remained stable" • 75% at baseline, 68% at follow-up (in those exposed) and 69% in those not exposed. NS	• Data not available • Data not available	• No sig. difference • No sig. difference
Beshers et al. (2007)	• Knowledge of sexual health • Barriers to condom use • Attitudes to intercourse • Attitudes to condom use • Perceived norms for intercourse • Perceived norms for condom use • Self-efficacy intercourse refusal • Self-efficacy condom use • Perceived susceptibility to HIV • Confidence in ability to do peer education • Comfort with peer education	• M = I: 32.47, C: 31.60, p = 0.30 • M = I: 1.24, C: 1.71 p = 0.41 • M = I: 2.93, C: 2.77, p = 0.52 • M = I: 3.96, C: 3.91, p = 0.52 • M = I: 2.13, C: 2.40, p = 0.36 • M = I: 3.09, C: 3.56, p = 0.04 • M = I: 2.76, C: 2.71, p = 0.67 • M = I: 2.51, C: 2.69, p = 0.25 • M = I: 1.35, C: 1.27, p = 0.54 • M = I: 1.40, C: 1.88, p = 0.05 • M = I: 1.24, C: 1.71, p = 0.011	• Data not available • Data not available • Data not available • Data not available • Data not available • Data not available • Data not available • Data not available • Data not available • Data not available • Data not available	• No sig. difference • No sig. difference • No sig. difference • No sig. difference • No sig. difference • Sig. –ve difference • No sig. difference • No sig. difference • No sig. difference • No sig. difference • No sig. difference
Campbell et al. (2008)	• Proportion of weekly smokers at post 1 • Proportion of weekly smokers at 1 yr • Proportion of weekly smokers at 2 yrs	• I: 334/5058, C: 403/4753 • I: 630/5044, C: 736, 4865 • I: 941/4966, C: 1022, 4700	• OR = 0·76 (95% CI 0·66–0.89) • OR = 0·82 (95% CI 0·72–0·90) • OR = 0·72 (95% CI 0·65–0.8)	• Sig. +ve difference • Sig. +ve difference • Sig. +ve difference
Caron et al. (2004)	• Postponing sexual intercourse.	• Snr and Jrs: No data provided. NS between groups.	• Data not available • Data not available	• No sig. difference

Study	Outcome	Study results reported by authors (unless stated is mean [standard deviation])	Difference Size (Cohen's d, 95% CI)	Summary of results
	• Intention to postpone intercourse	• Snr: No data provided. NS between groups. Jnr, M = I: 3.48, C: 2.97, p <0.001.	• Data not available	• Jnr = sig. +ve difference (Snr NS)
	• Perceived behavioural control intercourse (indirect measure)	• Snr: No data provided. NS between groups. Jnr, M= I: 4.16, C: 4.61, p < 0.02.	• Data not available	• Jnr = sig. +ve difference (Snr NS
	• Attitudes to postponing intercourse (direct measure)	• Snr, M = I: 3.38, C: 2.99, p <.001, Jnr, M = I: 3.53, C: 3.07 p <.001	• Data not available	• Sig. +ve difference
	• Attitudes to postponing intercourse (indirect measure)	• Snr, M = I: 3.80, C: 3.31, p <.001, Jnr, M = I: 4.11 C: 3.93 p <.03	• Data not available	• Sig. +ve difference
	• Perceived behavioural control (direct) postponing intercourse	• Snr, M = I: 4.36 C: 3.96 p <.001, Jnr, M = I: 4.11 C: 3.93 p < .02	• Data not available	• Sig. +ve difference
	• Personal normative beliefs postponing intercourse	• Snr, M = I: 3.11, C: 2.64, p <.01, Jnr, M = I: 3.88 C: 3.58 p <.02	• Data not available	• Sig. +ve difference
	• Role beliefs postponing intercourse	• Snr, M = I: 4.16, C: 3.83, p <.001, Jnr, M = I: 4.11 C: 3.76 p <.001	• Data not available	• Sig. +ve difference
	• Self-efficacy postponing intercourse	• Snr, M = I: 4.19, C: 3.76, p <.001, Jnr, M = I: 4.12 C: 3.84 p <.001	• Data not available	• Sig. +ve difference
	• Anticipated regret intercourse	• Snr: No data provided. NS between groups. Jnr, M= I: 3.44, C: 2.99, p < 0.001.	• Data not available	• Sig. +ve difference
	• Perceived behavioural control (indirect) condom use	• Snr, M = I: 4.62, C: 4.12, p <.001, Jnr, M = I: 4.50 C: 4.47 p <.02	• Data not available	• Sig. +ve difference
	• Perceived self-efficacy condom use	• Snr, M = I: 4.46, C: 3.84, p <.001, Jnr, M = I: 4.38 C: 4.20 p <.02.	• Data not available	• Sig. +ve difference
	• Attitudes to condom use (direct measure)	• Snr, M = I: 4.44, C: 4.21, p <.05, Jnr, M = I: 4.48 C: 4.28 p <.01	• Data not available	• Sig. +ve difference
	• Attitudes to condom use (indirect measure)	• Snr, M = I: 4.69, C: 4.49, p <.05, Jnr, M = I: 4.54 C: 4.40, p <.02	• Data not available	• Sig. +ve difference
	• Personal normative beliefs condom use	• Snr, M = I: 4.70, C: 4.42, p <.01, Jnr, M = I: 4.76 C: 4.61, p <.02	• Data not available	• Sig. +ve difference
	• Anticipated regret condom use	• Snr, M = I: 3.91, C: 3.63, p <.03, Jnr, M = I: 4.15, C: 3.99, p <.05	• Data not available	• Sig. +ve difference

Study	Outcome	Study results reported by authors (unless stated is mean [standard deviation])	Difference Size (Cohen's d, 95% CI)	Summary of results
	• Perceived behavioural control (direct) condom use • Role beliefs condom use • Condom use intention •	• Snr, M = I: 4.59, C: 4.26, p <.01, Jnr, M = I: 4.66 C: 4.49, p <.01 • Snr, M = I: 4.68, C: 4.46, p <.05, Jnr, M = I: 4.75 C: 4.58, p <.001 • Snr, M = I: 4.45, C: 4.09, p <.02, Jnr, M = I: 4.70 C: 4.51, p <.001	• Data not available • Data not available •	• Sig. +ve difference • Sig. +ve difference • Sig. +ve difference
Mahat and Scoloveno, (2010)	• HIV/AIDs knowledge • Self-efficacy	• M (SD) = Pre: 20.8 (5.1), Post: 25.6 (3.5) • M (SD) = Pre: 29.4 (5.8), Post: 31.7 (4.4)	• d = 1.10 (95% CI 0.81 – 1.39) • d = 0.45 (95% CI 0.81 – 1.39)	• Sig. +ve effect • Sig. +ve effect
Menna et al. (2015)	• HIV/AIDs knowledge • Consistent condom use in last 12M • Willingness to go for HIV testing •	• % of students with high scores at post = I: 82.1%, C: 72.0%. • % of students at post = I: 53.5%, C: 31.2% • % of students at post = I: 59.6%, C: 54.5%	• aOR = 1.20(95% CI 0.77.1.87) • aOR = 4.73(95% CI 1.40-16.0) • aOR = 1.23(95% CI 0.75-2.02)	• No sig. difference • Sig. +ve difference • No sig. difference
Merakou and Kourea-Kremastinou (2011)	• Knowledge about HIV • Beliefs and attitudes to high risk HIV behaviour • Attitudes to HIV carriers • Personal sexual practices	• No. of items with sig. increases in correct scores = 1: 6/11, C: 5/11 • No. of items with sig. increases in correct scores = 1: 5/8, C: 2/8 • No. of items with sig. increases in correct scores = 1: 1/5, C: 1/5 • No. of items with sig. increases in correct scores = 1: 3/4, C: 0/4	• Data not available • Data not available • Data not available • Data not available	• No sig. difference • Sig. +ve difference • No sig. difference • Sig. +ve difference •
McGuire and Gamble (2006)	• Community belonging • Social responsibility	• Pre-post test change t(66)=1.39, NS • Pre-post test change t(66)= 2.28, p<0.05	• d = 0.34 (95% CI -0.14-0.82) • d = 0.55 (95% CI 0.07-1.04)	• No sig. difference • Sig. +ve difference
Pearlman et al. (2002)	• HIV/AIDs knowledge • Perception as change agent • Sexual risk taking.	• t=3.12, p = .002 • t=3.24, p = .001 • NS. No data presented • NS. No data presented	• d=0.48 (95% CI: 0.18 – 0.80) • d=0.51 (95% CI: 0.20 – 0.82) • Data not available • Data not available	• Sig. +ve effect • Sig. +ve effect • No sig. effect • No sig. effect

Study	Outcome	Study results reported by authors (unless stated is mean [standard deviation])	Difference Size (Cohen's d, 95% CI)	Summary of results
	• Knowledge of planning and presenting skills • Self-efficacy	• NS. No data presented	• Data not available	• No sig. effect •
Peña et al. (2008)	• Self-esteem • Gender norms	• Raw data not reported • Raw data not reported	• OR = 1.73, 95% CI: 1.1-2.7 • OR = 2.8, 95% CI 1.2-6.2	• Sig. +ve difference • Sig. +ve difference
Stephenson et al. (2004)	• Knowledge of STI prevention	• % girls at 6M = I: 67%, C: 61.8%; 18M = I: 82.3%, C: 77.8%. • % boys at 6M = I: 52.7%, C: 47.8%; 18M = I: 68.7%,C: 64.1%.	• aOR = 1.27 (95% CI 1.01-1.59); aOR = 1.34 (95% CI 0.97-1.84); • aOR = 1.24 (95% CI 0.96-1.60); aOR = 1.31 (95% CI 1.02-1.68).	• Sig. +ve effect for girls at 6M and boys at 18M. No other sig. effects.
	• Saying no to unwanted sex	• % girls at 6M = I: 70.6%, C: 75.3%; 18M = I: 79.7%, C: 83.7%. • % boys at 6M = I: 59.6%, C: 59.5%; 18M = I: 67.3%,C: 68.6%.	• aOR = 0.86 (95% CI 0.71-1.04); aOR = 0.86 (95% CI 0.74-1.00); • aOR = 0.99 (95% CI 0.87-1.11); aOR = 1.01 (95% CI 0.84-1.21).	• No sig. effects
	• Had intercourse	• % girls at 6M = I: 12.1%, C: 13.9%; 18M = I: 37.8%, C: 43.3%. • % boys at 6M = I: 12.2%, C: 11.8%; 18M = I: 31.9%,C: 34.2%.	• aOR = 0·92 (95% CI 0·75–1·11); aOR = 0·82 (95% CI 0·68–0·98) ; • aOR = 1·06 (95% CI 0·74–1·52); aOR = 0·92 (95% CI 0·65–1·28)	• Sig. +ve effect for girls at 18M only. No other sig. effects
	• No unintended pregnancy by 18M	• % girls = I: 97.7%, C: 96.7%	• aOR = 1·40 (95% CI 0·97–2·02)	• No sig. effect
	• No regret at first sex	• % girls at 6M = I: 56.6%, C: 56.9%; 18M = I: 64.0%, C: 64.4%.	• aOR = 0·95 (0·63–1·41); aOR = 0·93 (0·70–1·24);	• No sig. effects

Study	Outcome	Study results reported by authors (unless stated is mean [standard deviation])	Difference Size (Cohen's d, 95% CI)	Summary of results
	• Used contraceptive at first sex • Ability to identify local sexual health services	• % boys at 6M = I: 83.2%, C: 80%; 18M = I: 82.1%,C: 80.7%. • % girls at 6M = I: 79.1%, C: 76.3%; 18M = I: 82.4%, C: 81.8%. • % boys at 6M = I: 85.7%, C: 80.8%; 18M = I: 83.9%,C: 85%. • % girls at 6M = I: 48.4%, C: 51.3%; 18M = I: 61.1%, C: 68.3%. • % boys at 6M = I: 35.5%, C: 37.6%; 18M = I: 36.5%,C:41%.	• aOR = 1·18 (0·65–2·16; aOR = 1·03 (0·68–1·56) • aOR= 1·14 (0·81–1–62); aOR = 0·90 (0·73–1·11); • aOR = 1·63 (0·99–2·67); aOR = 1·01 (0·68–1·49 • aOR= 1·02 (0·75–1·37); aOR = 0·82 (0·53–1·25); • aOR = 0·99 (0·72–1·35); aOR = 0·91 (0·65–1·27)	• No sig. effects • No sig. effects
Studies focused on tobacco				
Campbell et al., 2008	• Proportion of weekly smokers at post 1 • Proportion of weekly smokers at 1 yr • Proportion of weekly smokers at 2 yrs	• I: 334/5058, C: 403/4753 • I: 630/5044, C: 736, 4865 • I: 941/4966, C: 1022, 4700	• OR = 0·76 (95% CI 0·66–0.89) • OR = 0·82 (95% CI 0·72–0·90) • OR = 0·72 (95% CI 0·65–0.8)	• Sig. +ve difference • Sig. +ve difference • Sig. +ve difference
Perry et al., 2009	• Cigarette smoking • Bidi smoking • Any tobacco use • Intentions to chew tobacco • Intentions to smoke • Knowledge of health effects • Reasons to not use tobacco • Normative beliefs • Self-efficacy	• p<.05 • p<.01 • p<.04. Any tobacco consumption increased by 68% in C and decreased by 17% in I. • p<.03 • p<.01 • p<.05 • p<.05 • p<.05 • p<.05	• Data not available • Data not available • Data not available • Data not available • Data not available • Data not available • Data not available • Data not available • Data not available	• Sig. +ve effect • Sig. +ve effect • Sig. +ve effect • Sig. +ve effect • Sig. +ve effect • Sig. +ve effect • Sig. +ve effect • Sig. +ve effect • Sig. +ve effect

Study	Outcome	Study results reported by authors (unless stated is mean [standard deviation])	Difference Size (Cohen's d, 95% CI)	Summary of results
	• Knowledge of control policies • Social susceptibility • Perceived prevalence smoking • Perceived prevalence chewing tobacco	• p<.05 • p<.05 • p<.05 • p<.05	• Data not available • Data not available • Data not available • Data not available	• Sig. +ve effect • Sig. +ve effect • Sig. –ve effect • Sig. –ve effect
Winkleby et al. (2004)	• Current smoking status at post-test (non-smokers) • Current smoking status at post-test (light smokers) • Current smoking status at post-test (regular smokers) • Perceived incentive value • Perceived self-efficacy • Outcome expectancies • Current smoking status at 6M (non-smokers) • Current smoking status at 6M (light smokers) • Current smoking status at 6M (regular smokers)	• Net change (I-C) = 0.2%, p=.93 • Net change (I-C) = 5.1%, p = .13 • Net change (I-C) = -5.3%, p <.001 • Mean (SD) change = I: 0.4(0.1), C: 0.0 (0.1) • Mean (SD) change = I: 0.2(0.1), C: 0.0 (0.1) • Mean (SD) change = I: 0.3(0.1), C: 0.0 (0.1) • Net change (I-C) = -0.4%, p=.92 • Net change (I-C) = 0.3%, p=.95 • Net change (I-C) = 0.1%, p=.97	• Data not available • Data not available • Data not available • d = 4 (95% CI 3.75 - 4.25) • d = 2 (95% CI 1.82 – 2.18) • d = 3 (95% CI 2.79 – 3.21) • Data not available • Data not available • Data not available	• No sig. difference • No sig. difference • Sig. +ve difference • Sig. +ve difference • Sig. +ve difference • Sig. +ve difference • No sig. difference • No sig. difference • No sig. difference
Studies focused on alcohol				
Midford et al., 2002	• Alcohol consumption • Alcohol knowledge • Alcohol attitudes	• % of students: harmful levels = 25.7% pre and 37.1% post; hazardous levels = 11.4% pre and 20.0% post; low levels 62.9% pre and 42.9% post. • M: pre = 10.36, post = 12.74, post 2 = 12.12. p (pre and post) <.0001), p (post and post 2) = 0.017. • Responses only represented graphically for each item. Authors state that for 7 out of 16 items	• OR (drinking at harmful or hazardous levels) = 0.39 (95% CI 0.14-1.11) • Data not available • Data not available	• Sig. –ve difference • Sig. +ve effect at post 1 only • No overall sig. difference

Study	Outcome	Study results reported by authors (unless stated is mean [standard deviation])	Difference Size (Cohen's d, 95% CI)	Summary of results
		there was a +ve sig difference at post and for 1 item at post 2		
Studies focused on substance misuse				
Ager et al., 2008	• Drug knowledge • Drug attitudes • Attachment to community	• M(SD) = Pre: 6.00 (2.00), Post: 12.20 (3.49) • M(SD) = Pre: 3.93 (0.42), Post: 4.14 (0.76) • M(SD) = Pre: 2.33 (1.51), Post: 3.50 (1.76)	• d = 2.18 (95% CI 0.75 – 3.61) • d = 0.28 (95% CI -0.97 – 1.52) • d = 0.71 (95% CI -0.45 – 1.88)	• Sig. +ve difference • No sig. difference • No sig. difference
Berg et al. (2009)	• Perception of peer drug use • Approval of drug use • Educational expectations • Collective efficacy • Alcohol use • No. of sexual partners • Marijuana use	• No raw data. Decreased at T3 (p = .049). • No raw data. Decreased at T3 (p = .084) • No raw data. Increased at T3 (p = .091) • No raw data. Increased at T3 (p = .05) • No raw data. NS • No raw data. NS • No raw data. Decreased at T4 (p <.001).	• Data not available • Data not available • Data not available • Data not available • Data not available • Data not available • Data not available	• Sig. +ve difference • No sig. difference • No sig. difference • No sig. difference • No sig. difference • No sig. difference • Sig. +ve difference
Tencati et al., 2002	• Smoked cigarettes within last 30 days. • Drank alcohol within last 30 days • Smoked marijuana in last 30 days • Perceived incentive value • Outcome expectancies • Perceived self-efficacy • Perceived policy control • Leadership competence	• % girls = pre: 10%, post 6.7% • % boys = pre: 13%, post 13% • % girls = pre: 18.9%, post 21.1% • % boys = pre: 30.4%, post 26.1% • % girls = pre: 4.4%, post 3.3% • % boys = pre: 4.4%, post 4.4% • M girls = pre: 4.2, post = 4.5, p = 0.001[$] • M boys = pre: 3.9, post = 4.0, p = 0.33[$] • M girls = pre: 3.0, post = 3.0, p = 0.96[$] • M boys = pre: 2.8, post = 3.0, p = 0.44[$] • M girls = pre: 3.3, post = 3.6, p = 0.02[$] • M boys = pre: 3.2, post = 4.7, p = 0.06 • M girls = pre: 3.2, post = 3.3, p = 0.69[$] • M boys = pre: 3.2, post = 3.4, p = 0.25[$] • M girls = pre: 3.4, post = 3.5, p = 0.26[$] • M boys = pre: 3.3, post = 3.6, p = 0.02[$] • M girls = pre: 3.8, post = 3.7, p = 0.07[$]	• OR = 0.65 (95% CI 0.22-1.87) • OR = 1 (95% CI 0.19-5.38) • OR = 1.15 (95% CI 0.56-2.37) • OR = 0.82 (95% CI 0.23-2.89) • OR = 0.74 (95% CI 0.16-3.38) • OR = 1 (95% CI 0.06 -15.78) • Data not available • Data not available • Data not available • Data not available • Data not available • Data not available • Data not available • Data not available • Data not available • Data not available • Data not available • Data not available • Data not available • Data not available • Data not available	• No sig. difference • No sig. difference • No sig. difference • No sig. difference • No sig. difference • No sig. difference • Sig. +ve difference • No sig. difference • No sig. difference • No sig. difference • Sig. +ve difference • No sig. difference • No sig. difference • No sig. difference • No sig. difference • Sig. +ve difference • No sig. difference

Study	Outcome	Study results reported by authors (unless stated is mean [standard deviation])	Difference Size (Cohen's d, 95% CI)	Summary of results
	• Sense of community	M boys = pre: 3.6, post = 3.8, p = 0.06[$]	• Data not available	• No sig. difference
Studies focused on asthma				
Al-Sheyab et al. 2012a	• Health-related quality of life • Self-efficacy to resist smoking • knowledge of asthma self-management	• M(SD) = I: 5.42 (0.14), C: 4.07 (0.14) • M(SD) = I: 11.35 (0.57), C: 6.90 (0.58) • M(SD) = I: 7.14 (0.20), C: 5.52 (0.20)	• d = 9.64, (95% CI 8.75-10.53) • d = 7.74 (95% CI = 7-8.47) • d = 8.1 (95% CI = 7.33-8.86)	• Sig. +ve difference • Sig. +ve difference • Sig. +ve difference
Gibson et al. (1998)	• Asthma knowledge • Asthma attitudes (tolerance) • Asthma attitudes (internal control) • Asthma attitudes (external control) • Asthma attitudes (chance)	• M(SD) = I pre: 10.97 (4.33), post: 14.38 (4.01), p <.0001, C pre: 12.02 (4.06), post: 12.30 (4.1), p>.05. • M (95% CI) = 1: 4.36 (4.28-4.44), C: 4.35 (4.24-4.45) • M (95% CI) = 1: 4.46 (4.36-4.55), C: 4.33 (4.21-4.45) • M (95% CI) = 1: 2.86 (2.75-2.97), C: 3.01 (2.87-3.14) • M (95% CI) = 1: 3.44 (3.31-3.57), C: 3.03 (2.86-3.20)	• d = 0.51 (95% CI 0.34-0.68) • Data not available • Data not available • Data not available • Data not available	• Sig. +ve difference • No sig. difference • No sig. difference • No sig. difference • No sig. difference
Studies focused on physical activity				
Lindqvist et al., 2014	• Levels of physical activity	• M(SD) change in min/day = I: 4.9 (28.9), C: -25.4 (23.0)	• d = 1.17 (95% CI 0.54-1.80)	• Sig. +ve difference
Studies focused on healthy eating				
Birnbaum et al., 2002	• Daily servings of fruit and veg • Lower fat food consumption	• M (SD) Post = PL: 5.8 (.05), env: 4.44 (.04), env + curr: 4.95 (.04), C: 4.8 (.03) • M (SD) Post = PL: 6.54 (.16), env: 5.85 (.10), env + curr: 6.32 (.12), C: 5.85 (.12)	• For all treatment groups vs control: d = 0.003 (95% CI -.06 – 0.07). For peer leaders versus all other groups d = 0.21 (95% CI 0.71 – 0.34) • For all treatment groups vs control: d = 0.08 (95% CI 0.01 – 0.15). For peer leaders	• Sig. difference for peer leaders only • Sig. beneficial difference

Study	Outcome	Study results reported by authors (unless stated is mean [standard deviation])	Difference Size (Cohen's d, 95% CI)	Summary of results
			versus all other groups d = 0.17 (95% CI 0.04 – 0.31	
	• Beliefs towards healthy eating	• NS. No data reported	• No data available	• No sig. difference
	• Intentions to eat healthily	• NS. No data reported	• No data available	• No sig. difference
	• Assessment of current healthy eating behaviour	• NS. No data reported	• No data available	• No sig. difference
Bogart et al. (2011)	• Cafeteria attitudes	• Mean (SD) I = Pre: 3.52 (1.78), Post: 4.07 (1.68). C = Pre: 3.45 (1.60), Post: 3.37 (1.60). b = 0.71, p <.001.	• Data not available	• Sig. +ve difference
	• Soda consumption	• % of students in I = Pre: 36.1%, Post: 35.2%. C = Pre: 37.2%, Post: 43.9%. b = -0.38. p = NS	• Data not available	• Sig. +ve difference
	• Sports/fruit drink consumption	• % of students in I = Pre: 33.3%, Post: 21.3%. C = Pre: 32.6%, Post: 26.0%. b = -0.19. p = .50	• Data not available	• Sig. +ve difference
	• Change in fruit consumption during intervention	• % change: I 23.7% p <.001, C -13.2% p <.001	• Data not available	• Sig. +ve difference
	• Change in fruit consumption after intervention	• % change: I 17.6% p <.001, C -4.9% p <.01	• Data not available	• Sig. +ve difference
	• Change in healthy entrée consumption during intervention	• % change: I 1.1% p <.001, C -0.8% p <.001	• Data not available	• Sig. +ve difference
	• Change in healthy entrée consumption after intervention	• % change: I 1.9% p <.001, C -0.5% p <.01	• Data not available	• Sig. +ve difference
Bogart et al., 2014	• Cafeteria attitudes	• M (SD) = I: 4.03 (1.46), C: 3.93 (1.40)	• b (SE) = 0.13 (.05), p <.05	• Sig. +ve difference
	• Tap water attitudes	• M (SD) = I: 8.64 (2.3), C: 8.48 (2.34)	• b (SE) = 0.2 (.09), p <.05	• Sig. +ve difference
	• Knowledge about healthy eating/ physical activity	• M (SD) = I: 2.15 (1.19), C: 2.06 (1.13)	• b (SE) = 0.12 (.04)	• Sig. +ve difference
	• Intentions to drink tap water	• M (SD) = I: 3.37 (1.30), C: 3.30 (1.25)	• b (SE) = 0.1 (.05), p <.05	• Sig. +ve difference
	• Intentions to drink from a refillable bottle	• M (SD) = I: 2.76 (1.33), C: 2.63 (1.27)	• b (SE) = 0.11 (.05), p <.05	• Sig. +ve difference
	• Tap water consumption	• M (SD) = I: 2.26 (2.44), C: 2.01 (2.27)	• b (SE) = 0.18 (.09), p <.05	• Sig. +ve difference
	• Refillable bottle use	• M (SD) = I: 2.70 (2.40), C: 2.54 (2.28)	• b (SE) = 0.12 (.09) NS	• No sig. difference

Study	Outcome	Study results reported by authors (unless stated is mean [standard deviation])	Difference Size (Cohen's d, 95% CI)	Summary of results
	• Fruit servings	• M (SD) pre = I: .45 (.25), C: .54 (.17), during = I: .54(.21), C: .55(.15), post = I: .45 (.18), C: 49 (.13)	• During: b (SE) = 0.07 (.03), p <.01, Post: b (SE) = 0.4 (.02), NS.	• Sig. +ve difference post only
	• Vegetable servings	• M (SD) pre = I: .18 (.08), C: .20 (.09), during = I: .18(.04), C: .19(.09), post = I: .15 (.05), C: .19 (.10)	• During: b (SE) = 0.07 (.03), p <.01, NS. Post: b (SE) = 0.4 (.02), NS.	• No sig. difference
	• All lunches	• M (SD) pre = I: .54 (.17), C: .53 (.12), during = I: .54(.17), C: .49(.08), post = .I: 49 (.15), C: .45 (.10)	• During: b (SE) = 0.05 (.02), p <.001. Post: b (SE) = 0.04 (.12), p<.01.	• Sig. +ve difference
Hamdan et al., 2005	• Eating more low fat foods	• % agree = Highly involved: 67.9%, less involved: 26.5%	• OR = 5.79 (95% CI 3.12–10·75)	• Sig. +ve difference
	• Did not change diet	• % agree = Highly involved: 20.8%, less involved: 60.7%	• OR = -164.52 (95% CI NaN–NaN)	• Sig. +ve difference
	• Pay more attention to diet	• % agree = Highly involved: 69.2%, less involved: 35.8%	• OR = 3.92 (95% CI 2.12-7.26)	• Sig. +ve difference
	• Did not eat more fruit and veg	• % agree = Highly involved: 5.7%, less involved: 55.7%	• OR = 15.48 (95% CI 5.69-42.08)	• Sig. +ve difference
	• Did not improve attitude to low fat foods	• % agree = Highly involved: 1.9%, less involved: 56%	• OR = 28.86 (95% CI 7.96-104.7)	• Sig. +ve difference
	• Improved attitudes to fruit and veg	• % agree = Highly involved: 88.5%, less involved: 49.7%	• OR = 7.35 (95% CI 3.15-17.12)	• Sig. +ve difference
	• Friends thought cool to be part of TACOs	• % agree = Highly involved: 65.4%, less involved: 32.7%	• OR = 3.79 (95% CI 2.07-6.9)	• Sig. +ve difference
	• Cool to eat low fat foods at school	• % agree = Highly involved: 84.9%, less involved: 58.7%	• OR = 3.87 (95% CI 1.8-8.33)	• Sig. +ve difference
	• Not noticed more students eating low fat foods	• % agree = Highly involved: 26.4%, less involved: 70.2%	• OR = 6.57 (95% CI 3.5 – 12.33)	• Sig. +ve difference
	• No impact on students eating low fat foods in the cafeteria	• Highly involved: 9.4%, less involved: 62.9%	• OR = 16.34 (95% CI 8.4-31.63)	• Sig. +ve difference

Study	Outcome	Study results reported by authors (unless stated is mean [standard deviation])	Difference Size (Cohen's d, 95% CI)	Summary of results
McKinney et al. (2014)	• Healthy food choices knowledge • Nutrition behaviours (aggregate) • No. of days physically active • High sedentary score • Nutrition attitudes (aggregate) • Fitness attitudes (aggregate)	• M (SD) change = I: 0.91 (2.1), C: -0.2 (2.1). NS. • Mean % agreeing at post-test = 1: 86%, C: 85% • M (SD) change = I: 0.4 (2.0), C: -0.16 (1.8). NS. • % at post = I: 10%, C: 18% • Mean % agreeing at post-test = 1: 71%, C: 59.5% • Mean % agreeing at post-test = 1: 74.75%, C: 69.75	• Data not available • OR = 1.08 (95% CI 0.38-3.01) • Data not available • OR = 0.51 (95% CI 0.18-1.45) • OR = 1.67 (95% CI 0.78-3.56) • OR = 1.3 (95% CI 0.6-2.94)	• No sig. difference • No sig. difference • No sig. difference • No sig. difference • No sig. difference • No sig. difference
Studies focused on steroid use prevention				

Study	Outcome	Study results reported by authors (unless stated is mean [standard deviation])	Difference Size (Cohen's d, 95% CI)	Summary of results
Goldberg et al., 2000	• Intent to use steroids	• Post-test, p <.04; 1 year, p <.02[$]	• Data not available	• Sig. +ve difference
	• Strength training self-efficacy	• Post-test, p <.001; 1 year, p <.001[$]	• Data not available	• Sig. +ve difference
	• Ability to turn down drug offers	• Post-test, p =.004; 1 year, p <.03[$]	• Data not available	• Sig. +ve difference
	• Knowledge of steroids' effects	• Post-test, p <.001; 1 year, p <.001[$]	• Data not available	• Sig. +ve difference
	• Knowledge of alcohol's effects	• Post-test, p =.007; 1 year, p <.001[$]	• Data not available	• Sig. +ve difference
	• Knowledge of supplements/exercise	• Post-test, p <.001; 1 year, p <.001[$]	• Data not available	• Sig. +ve difference
	• Perceived coach tolerance of steroids	• Post-test, p <.001; 1 year, p <.02[$]	• Data not available	• Sig. +ve difference
	• Perceived peer tolerance of drugs	• Post-test, p =.35; 1 year, p <.44[$]	• Data not available	• No sig. difference
	• Normative beliefs about steroids	• Post-test, p <.38; 1 year, p <.34[$]	• Data not available	• No sig. difference
	• Self-esteem	• Post-test, p <.02; 1 year, p <.06[$]	• Data not available	• 1 sig. +ve difference
	• Impulsivity	• Post-test, p <.001; 1 year, p <.12[$]	• Data not available	• 1 sig. +ve difference
	• Perceived harm of steroid use	• Post-test, p <.001; 1 year, p <.001[$]	• Data not available	• Sig. +ve difference
	• -ve attitudes to steroid users	• Post-test, p <.007; 1 year, p <.11[$]	• Data not available	• 1 sig. +ve difference
	• Perceived susceptibility	• Post-test, p <.001; 1 year, p =.001[$]	• Data not available	• Sig. +ve difference
	• Knowledge of marijuana	• Post-test, p <.001; 1 year, p <.11[$]	• Data not available	• 1 sig. +ve difference
	• Concern about what friends think	• Post-test, p =.003; 1 year, p <.30[$]	• Data not available	• 1 sig. +ve difference
	• Reasons for using steroids	• Post-test, p = 001; 1 year, p =.001[$]	• Data not available	• Sig. +ve difference
	• Reasons for not using steroids	• Post-test, p <.001; 1 year, p <.27[$]	• Data not available	• 1 sig. +ve difference
	• Supplement use	• Post-test, p <.15; 1 year, p =.009[$]	• Data not available	• 1 sig. +ve difference
	• Lifetime steroid use	• Post-test, p <.04; 1 year, p <.07[$]	• Data not available	• Sig. +ve difference
	• Illicit substance use	• Post-test, p <.01; 1 year, p <.02[$]	• Data not available	• Sig. +ve difference
	• Alcohol and substance use	• Post-test, p =.009; 1 year, p <.04[$]	• Data not available	• Sig. +ve difference
	• Driving under the influence	• Post-test, p =.13; 1 year, p =.004[$]	• Data not available	• 1 sig. +ve difference
Studies focused on type 2 diabetes prevention				
Coleman et al., 2011	• Definition of diabetes	• % correct = Pre: 23%, Post: 45%	• OR = 4.51 (95% CI 2-10.21)	• Sig. +ve difference
	• Identification of T1 diabetes	• % correct = Pre: 23%, Post: 40%	• OR = 3.27 (95% CI 1.49 –7.32)	• Sig. +ve difference

Study	Outcome	Study results reported by authors (unless stated is mean [standard deviation])	Difference Size (Cohen's d, 95% CI)	Summary of results
	• Identification of T2 diabetes • Identification of signs of diabetes • Knowledge of fruit and vegetable consumption • Knowledge of BMI • Knowledge of portion sizes	• % correct = Pre: 21%, Post: 52% • % correct = Pre: 10%, Post: 39% • % correct = Pre: 57%, Post:82% • % correct = Pre: 0%, Post: 5% (p was ns) • % correct = Pre: 18%, Post: 24% (p was ns)	• OR=9.16(95% CI 3.79-2 22.15) • OR = -30.0 (95% CI NaN) • OR = 2.98 (95% CI 1.33– 6.69) • Data not available • Data not available	• Sig. +ve difference • Sig. +ve difference • Sig. +ve difference • No sig. difference • No sig. difference
Studies focused on seatbelt use				
Goslar et al., 2009	• Seatbelt use in car occupants	• % wearing belt = Pre: 62.69%, post =79.28%	• OR = 0.44 (95% CI 0.38 – 0.50)	• Sig. +ve difference
Studies focused on mental health				
Petrova et al., 2015	• Help seeking from adults at school • Reject code of silence • Maladaptive coping • Sources of strength coping • Adult help for suicidal youths • Trusted adults at school • Named trusted adult	• Est (SE)= 0.115 (.036), p <.01 • Est (SE)= 0.078 (.028), p <.01 • Est (SE)= -0.057 (.031). NS • Est (SE)= 0.053 (.034). NS • Est (SE)= 0.068 (.029), p <.05 • Est (SE)= 0.066 (.035). NS • Est (SE)= 0.235 (.105), NS	• Data not available • Data not available • Data not available • Data not available • Data not available • Data not available • Data not available	• Sig. +ve difference • Sig. +ve difference • No sig. difference • No sig. difference • Sig. +ve difference • No sig. difference • No sig. difference
O'Reilly et al., 2016	• Self-esteem • Self-stigma help-seeking • Perception of stigmatization by others for help-seeking • Mental health knowledge	• M(SD) = T1: 18.19(6.10), T2: 20.81 (5.11), T3: 20.86 (6.33) • M(SD) = T1: 24.27(7.15), T2: 19.96 (5.13), T3: 18.65 (6.301) • M(SD) = T1: 8.00(4.07), T2: 7.35 (2.70), T3: 7.00 (2.84) • M(SD) = T1: 14.64(3.68), T2: 17.16 (2.12), T3: 18.11 (1.66)	• d = 0.4 (95% CI -0.04-0.84) • d = -0.64 (95% CI -1.09- -0.29) • d =-0.19 (95% CI -0.63-0.25) • d = 0.89 (95% CI 0.44-1.35)	• No sig. difference • Sig. +ve difference • No sig. difference • Sig. +ve difference

Study	Outcome	Study results reported by authors (unless stated is mean [standard deviation])	Difference Size (Cohen's d, 95% CI)	Summary of results
	• Presentation skills • Team-working skills • Decision making skills • Problem-solving skills	• M(SD) = T1: 3.46(1.03), T2: 3.62(.64), T3: 4.0 (.57) • M(SD) = T1: 4.04(.72), T2: 4.27 (.78), T3: 4.46 (.58) • M(SD) = T1: 3.96(.66), T2: 4.04(.66), T3: 4.12 (.77) • M(SD) = T1: 3.96(.66), T2: 3.92(.69), T3: 4.15 (.61)	• d = 0.46 (95% CI 0.01-0.9) • d = 0.4 (95% CI -0.04-0.84) • d = 0.15 (95% CI -0.29-0.59) • d = 0.09 (95% CI -0.35-0.53)	• Sig. +ve difference • No sig. difference • No sig. difference • No sig. difference
Studies with a generic focus				
Madrigal et al., 2014	• Work well with other students on a project • Make a difference in improving city • Can make good presentations on issues care about to students • Can make good presentations on issues care about to teachers • Can develop a research tool • Can use results to develop recommendations • Often a leader in a group • Good at organizing people • Good at getting other people to follow ideas • Important to try and improve community • Students should work to improve school • Made presentations to groups don't know • Spoken with adults at school about issues to improve	• M (SD) = Pre: 4.5 (0.5), post: 4.7 (0.5) • M (SD) = Pre: 4.3 (0.6), post: 4.1 (0.6) • M (SD) = Pre: 3.6 (0.7), post: 4.2 (0.7) • M (SD) = Pre: 3.6 (1.0), post: 4.3 (0.7) • M (SD) = Pre: 4.1 (0.5), post: 4.0 (0.7) • M (SD) = Pre: 3.9 (0.6), post: 4.2 (0.6) • M (SD) = Pre: 3.8 (0.8), post: 4.0 (0.7) • M (SD) = Pre: 3.9 (0.7), post: 3.9 (0.7) • M (SD) = Pre: 3.8 (0.7), post: 3.9 (0.6) • M (SD) = Pre: 4.5 (0.6), post: 4.6 (0.6) • M (SD) = Pre: 4.5 (0.5), post: 4.5 (0.6) • M (SD) = Pre: 4.1 (1.0), post: 4.1 (0.8) • M (SD) = Pre: 3.2 (1.1), post: 3.7 (1.0)	• d = 0.4 (95% CI -0.32-1.12) • d = -0.33 (95% CI -1.05-0.39) • d = 0 (95% CI -0.28-0.28) • d = 0.81 (95% CI 0.67-1.56) • d = -0.20 (95% CI -0.92-0.51) • d = 0.5 (95% CI -0.32-1.23) • d = 0.27 (95% CI -0.45-0.98) • d = 0 (95% CI -0.72-0.72) • d = 0.15 (95% CI -0.56-0.87) • d = 0.17 (95% CI -0.55-0.88) • d = 0 (95% CI -0.72-0.72) • d = 0 (95% CI -0.72-0.72) • d = 0.48 (95% CI -0.25-1.2)	• No sig. difference • No sig. difference • No sig. difference • Sig. +ve difference • No sig. difference • No sig. difference • No sig. difference • No sig. difference • No sig. difference • No sig. difference • No sig. difference • No sig. difference • No sig. difference

Study	Outcome	Study results reported by authors (unless stated is mean [standard deviation])	Difference Size (Cohen's d, 95% CI)	Summary of results
	• If issues come up at school, we do something about it. • If issues come up in the city, we do something about it.	• M (SD) = Pre: 3.7 (0.8), post: 3.5 (1.2) • M (SD) = Pre: 3.7 (0.7), post: 3.7 (0.50)	• d = -0.2 (95% CI -0.91-0.52) • d = 0 (95% CI -0.72-0.72)	• No sig. difference • No sig. difference
Ozer et al., 2013	• Participatory behaviour • Perceived control • Socio-political behaviour • Motivation to influence • Self-esteem	• T1 M(SD) = I: 2.5 (.59), C: 2.5 (.58) T2 M (SD) = I: 2.6 (.53), C: 2.5 (.51) • T1 M(SD) = I: 2.8 (.58), C: 2.9 (.54) T2 M (SD) = I: 2.9 (.49), C: 2.8 (.49) • T1 M(SD) = I: 2.6 (.53), C: 2.6 (.45) T2 M (SD) = I: 2.7 (.43), C: 2.7 (.49) • T1 M(SD) = I: 3.1 (.61), C: 3.1 (.52) T2 M (SD) = I: 3.0 (.61), C: 3.1 (.52) • T1 M(SD) = I: 3.1 (.54), C: 3.1 (.56) T2 M (SD) = I: 3.2 (.54), C: 3.2 (.48)	• d = 0 (95% CI -0.2-0.2) d = 0.19 (95% CI -0.9-0.48) • d = 0 (95% CI -0.25-0.25) d = 0.2 (95% CI -0.1-0.51) • d = 0 (95% CI -0.21-0.21) d = 0 (95% CI -0.28-0.28) • d = 0 (95% CI -0.21-0.21) d = -0.19 (95% CI -0.47-0.09) • d = -0.18 (95% CI -0.39-0.03) d = 0 (95% CI -0.28-0.28)	• No sig. difference • No sig. difference • No sig. difference • No sig. difference • No sig. difference • No sig. difference • No sig. difference • No sig. difference • No sig. difference • No sig. difference
Woodgate and Sigurdson, 2015	• Caring (PYD) • Character (PYD) • Competence (PYD) • Connection (PYD) • Confidence (PYD)	• M(SD) = Pre: 69.9 (16.67), Post: 71.49 (18.55) • M(SD) = Pre: 77.3 (15.96), Post: 75.33 (9.70) • M(SD) = Pre: 69.73 (16.24), Post: 69.27 (9.87) • M(SD) = Pre: 78.24 (11.00), Post: 77.67 (9.94) • M(SD) = Pre: 82.58 (12.87), Post: 74.69 (12.79)	• d = 0.09 (95% CI -0.53-0.7) • d = -0.15 (95% CI -0.77-0.47) • d = -0.03 (95% CI -0.65-0.59) • d = -0.05 (95% CI -0.67-0.57) • d = -0.62 (95% CI -1.25-0.02)	• No sig. difference • No sig. difference • No sig. difference • No sig. difference • No sig. difference
Studies focused on diarrhoea and malaria prevention				
Onyango-Ouma et al., 2005	• Hygiene knowledge • Hygiene practices	• M (SD) = T1-T2: 5.51 (4.55), p <.001 • M (SD) = T2-T3: 0.81 (3.5), NS	• Data not available • Data not available	• Sig. +ve difference • No sig. difference