Mediation, mentoring and peer-support to reduce youth knife and gun-enabled violence: protocol for a systematic review

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BACKGROUND

The greatest threats to the lives of young people living in Europe are: road traffic collisions, suicide and violence against the person (World Health Organisation, 2010). Driving cars and riding motorcycles are almost a rite of passage for many young men, and the independence of travel and the possibility of providing transport for one's family and friends, may be for many the first marker of entering adulthood. Road traffic crashes, an unintentional violence where kinetic energy is out of control, claimed the lives of 370 young people aged 15-24 years in England & Wales in 2012, many of whom were killed as motor vehicle drivers or passengers. Another major threat to these young lives is suicide: 348 young people aged 15-24 years died in 2012 from intentional self-harm (i.e. violence against the self), with a further 118 deaths due to "undetermined intent". Assaults, a violence that is inflicted against other people, is the third of these threats to young life: 43 young people aged 15-24 years died from assault in 2012. In all of these violent causes of death, the deaths of young men outnumber those of young women by a factor of four. Sadly, these premature deaths of young people still in their prime are but a small fraction of the many thousands of young people who survive to live with debilitating injuries, scars and psychological trauma. This systematic review will address the third of these three causes, violence inflicted against others, and is specifically concerned with young people inflicting violence using weapons such as knives and guns.

Youth violence

Although Teddy boys with flick-knives may be a long since forgotten concern of the 1950s, young men in 21st Century Britain remain disproportionately involved as both the victims and perpetrators of knife (and gun) violence. Young men are at a higher risk of being a victim of violence compared with women and compared with men of other ages (Rubin *et al*. 2008). Young men are also more likely to be perpetrators of violence: more than 85% of violent offenders are male and more than 85% of violent offenders are between the ages of 16 to 29 years (Rubin *et al*. 2008). Young people carry knives primarily for four reasons: to increase capacity to cause harm, fear of violence, to facilitate robbery, and for self-image (World Health Organisation, 2010). A vicious circle can therefore develop, where the carrying of weapons by youth for self-protection may be seen by other youth as threatening, causing them to respond by starting to carry weapons (Silvestri *et al*. 2009). The development of

interventions to prevent youth knife and gun-enabled violence thus requires an understanding of individual circumstances, and the complex social meanings of youth carrying weapons, including street credibility, self-esteem and respect.

Prevalence

Measuring the true scope of the problem using crime statistics has been problematic, with offences involving the use of a knife or other sharp instrument only being collected for a selection of serious violent offences, including: robbery, violence against the person, burglary, sexual offences and domestic violence. The reporting of "knife enabled" offences began in London in 2003 and in the rest of England and Wales in 2007. However, estimating changes to rates of youth knife crime depends critically on the completeness of police data, and many offences may either go unreported, or undetected. Recent crime statistics suggest that there were nearly 30,000 selected violent offences involving a knife or other sharp instrument in 2011-2012, including 200 homicides (all ages). According to NHS data, 4,490 people were admitted to English hospitals during 2011-2012 for injuries due to assault by a sharp object (Berman, 2012).

Knife carrying and knife crime are also significant problems for children and younger teenagers. Police data suggest that 17% of the nearly 20,000 out-of-court disposals given for possession of a knife or offensive weapon in 2011-2012 were to juvenile (ages 10 to 17 years) offenders (Berman, 2012). Data from a MORI survey found that 45% of boys and 16% of girls aged 11 to 16 years admitted to carrying a knife (Youth Justice Board for England & Wales, 2009). Children are also victims of knife crime: the Crime Survey for England & Wales suggested that a knife or other sharp instrument was used in 11% of violent incidents involving a weapon against children (Berman, 2012).

Police responses

The increase in teenage knife murders and hospital admissions due to knife wounds reached such a level in 2008 that Britain created its "Knife Czar" together with the Tackling Knives Action Programme (TKAP). This programme was based on the Police National Intelligence Model, and included components of: enforcement, hot spots policing, patrolling and targeting of offenders. Coinciding with creation of TKAP was enhanced police activity nationally,

increased use of knife arches at building entrances, a reduction to the youngest age from 17 to 16 years at which possession of a knife would bring an offender before a court, test purchases of knives from retailers, and sharing of data with police by Accident & Emergency departments. By 2010 there had been a 24% reduction in A&E attendances for knife wounds and a 17% reduction in crimes involving knives. However, the TKAP Programme Head urged caution that longer-term solutions to wider societal issues were needed, including an understanding of the risk factors for violent behaviours (Hitchcock, 2010).

Although knives are the more prevalent weapon in violent crimes, in part due to their widespread availability (they are found in every kitchen) the use of firearms is not without its share of public concern and media attention. In the US, where around 45% of households legally own at least one gun, most research on the carrying of guns suggests that multi-component strategies are more effective than single-focus interventions. In the UK, the Metropolitan Police launched its Trident Gang Crime Command in 2012 with a specific responsibility for tackling gang violence in London. Tasked with investigating all non-fatal shootings, and to proactively tackle wider gang crime, Trident's police officers work with London boroughs to deliver interventions that aim to prevent young people from becoming involved in gang crime and youth violence.

Youth involvement in gangs does not imply carrying a knife or other weapon, but is a related cause for public concern. Following widespread riots in the UK in summer 2011 the *Ending Gang and Youth Violence* cross government report declared a need to do more to prevent young people joining gangs or getting involved in violent activity. One "pathway out of violence" promised by the Ending Gang and Youth Violence report is to explore the potential for placing youth workers in A&E departments to pick up and refer young people at risk of serious violence (Home Office, 2011). These interventions see attendance at A&E as "*a teachable moment, a time of introspection and vulnerability after an injury event, and may be an opportune time to intervene with assault-injured youths to reduce violence*" (Cheng TL *et al*. 2008). The provision of mediation, mentoring and peer-support interventions recognises that many social and psychological factors drive youth violence and gang membership. This multi-disciplinary approach is necessary to understand both individual and group behaviour, and effectively counteract these emotionally complex scenarios that can provide many

positive experiences for young people, such as: friendship, respect, a sense of belonging, and for some youth, may provide a substitute family (Silvestri *et al*. 2009).

Prevention

While it is clear that youth violence poses a serious threat to the health and well-being of the young people in the UK, and the population as a whole, there is less evidence on what strategies are effective in reducing knife and gun-enabled crime among young people. Many initiatives in the UK have followed a 'hot spots approach' which targets areas identified as being at particular risk of violence, while other initiatives have followed a 'public health approach' which attempts to address societal and attitudinal aspects (Silvestri *et al*. 2009). Popular 'hot spots approach' interventions include targeted stop and search (in particular known gang members or serious offenders), knife amnesties, and reminding retailers of their duty not to sell knives to minors. 'Public health' interventions include early intervention for at-risk youth, multi-agency co-ordination, educational and recreational programmes, and social marketing campaigns. The US Office of Juvenile Justice and Delinquency Prevention has reported that public health approaches may well be the most promising preventive strategies (Silvestri *et al*. 2009).

Mediation for youth violence prevention

In the US, where gun-enabled violence greatly exceeds that in the UK, programmes have been developed with components that treat violence as if treating an infectious disease, specifically aimed to "block the social transmission of violence." Medical doctor Gary Slutkin returned to Chicago after years in Africa dealing with the devastating impact of many curable infectious diseases, and saw that homicide was rampant in his home city. By applying methods learned from epidemiology, his ideas helped to design violence prevention programmes such as *CeaseFire* or *Cure Violence* which aim to prevent gang violence from escalating (Whitehill *et al*. 2013). These programmes deploy 'Violence Interrupters', who are members of communities trained in mediation skills, to diffuse conflicts within the communities before shootings occur. People who are trained to become the 'Violence Interrupters' are usually from gangs, or have been involved in high risk activities such as drug dealing, to increase their "credibility" in the eyes of the youth between whom they mediate to find peaceful solutions. Other components of these programmes may include the use of outreach workers based in

the communities, who help to manage individual cases, connecting with social services, or finding educational or employment opportunities. The *Ceasefire* programme has been reported to be successful in reducing gun-enabled violence in parts of Chicago and Baltimore, where immediate, nonviolent resolution was reported for 65% of mediated conflicts, and an additional 23% were at least temporarily resolved without violence (Whitehill *et al*. 2013). Although conceived as a 'gun violence' prevention programme, by learning about its components (e.g., mediation, violence interrupters and outreach) and processes, and exploring the potential mechanisms of action, it may be possible to adapt, or develop, similar approaches that may be effective in preventing knife-enabled violence.

Mentoring for youth violence prevention

A review of violence prevention strategies by the Centers for Disease Control and Prevention suggested that programmes with the most promising results tended to include combinations of interventions, with 'mentoring' being one strategy (Thornton TN *et al*. 2002). Mentoring is a relationship between a more experienced person (mentor) and a young person (mentee), where the mentor takes a personal interest in providing advice, guidance and encouragement in the development of their mentee. Mentoring relationships might include social and recreational activities, such as field trips. Maintaining commitment from mentors and ensuring a good match with a mentee requires regular contact, with many programmes contacting mentors monthly by telephone (Thornton TN *et al*. 2002). In the US an estimated 3 million youth receive the advice or guidance of a community volunteer in one of 5,000 mentoring programmes. The young person is paired with a volunteer from the community with the aim of developing a supportive relationship that is conducive to the young person receiving guidance for positive development. School-based mentoring programmes also exist in the US (e.g. Norwalk Mentor Program) and are considered to be safer, due to supervision by school teachers and administrators (Thornton TN *et al*. 2002). Intended outcomes are improved self-esteem, attitudes, and school attendance.

Young offenders who receive mentoring may be more likely to see a life free of crime and stay out of trouble (Karcher MJ *et al*. 2006). Traditionally mentoring has involved one-to-one relationship but may have advantages when experienced in a group, for example by providing a safe environment for youth to practice social skills, to give and receive feedback from peers.

Three different types of mentoring are defined by Karcher *et al*. (2006) including: 'developmental' mentoring where the aim is to use a strong relationship between mentor and mentee to promote the young person's social, emotional and academic development; 'instrumental' mentoring, where the aim is to teach specific skills, such as decreasing risk-taking behaviours, by providing guidance and advice; and also 'intergenerational' mentoring, where mentors are adults aged 55 years or over (which is argued to have advantages due to their greater wealth of experience and wisdom).

Peer support for youth violence prevention

Peer support approaches have been based on social learning theory, recognising that young people frequently turn to their peers for information and advice, and the importance of social networks in youth development. Similarities between peer and 'recipient' can increase the persuasiveness of messages (Milburn, 1995). Young people may be more likely to hear and personalise messages (and might therefore change their attitudes and behaviours) if they perceive the 'messenger' to be similar to themselves, facing the same concerns and pressures. Peers might carry more credibility, which can help position them as important role models for positive change.

Peer-based approaches in youth violence prevention may offer benefits for both peer and the recipient of peer engagement. For example, in 'peer modelling', peers from a youth's community have carried out case management duties typical of a case manager (e.g., outreach, assessment, planning, monitoring, advocacy), whilst providing peer-led skill-based training activities and positive incentives aimed to encourage a healthier lifestyle (Albrecht and Peters, 1997). Another example of peer workers is exemplified in the peer-led programme *Caught in the Crossfire*, where peers met with victims of violence for a set period of time post-injury, to provide practical support to keep youth connected to the medical, judicial and educational systems, and to help them to keep moving forward with their lives (e.g., help with job or school preparation and placement; transportation to medical appointments or court hearings; referral to mental health counselling) (Shibru D *et al*., 2007; Becker MG *et al*., 2004). For peers, undertaking training and taking on the role of helper is often perceived as a meaningful experience coupled with personal and professional growth,

and may also lead to increases in social interaction and acceptance between heterogeneous peers (Milburn, 1995).

AIMS OF THE REVIEW

Our systematic review will provide a comprehensive account of the range of violence prevention programmes for young people (aged up to 25 years) who have either been involved in, or are identified as being at high-risk of youth knife or gun-enabled (weapon-based) violence, and that have included one or more components of: mediation, mentoring, or peer support. For each programme, we will describe: participant characteristics, setting, recruitment methods, theoretical basis used in the design of the intervention components, intervention aims, characteristics (i.e., components, content, mode, and delivery), processes and outcomes. This descriptive piece will provide a global overview of the number, type and content of youth violence prevention programmes designed and delivered for the period 1990 to 2014.

Quantitative analyses will also be conducted to assess intervention effectiveness, influential mediators and costs. Specifically, where well-designed controlled evaluations of programmes have been conducted, we will include estimates of the effect of interventions on the defined primary (e.g., reduced self-reported carrying of weapons) and secondary (e.g., increased self-esteem) outcomes, and where possible, identify the effectiveness of individual components of successful programmes. Using outcome data, we will also seek to identify and explore the dominant mediators (e.g., cognitive or emotional) of violence with a view to understanding the mechanisms of action of effective programmes. We will summarise costs of the programmes if economic data are available.

METHODS

Criteria for considering studies

We will use broad inclusion criteria for considering studies, in order to include programmes that have undergone controlled evaluation, as well as those that have been assessed descriptively or qualitatively (e.g., interviews with programme staff or participants).

Types of study

We will include both experimental and observational studies of programmes that include one or more components of mediation, mentoring, or peer support. Experimental study designs will be used to provide evidence of effectiveness, and may include controlled-before-after studies, controlled interrupted time series, controlled trials and randomised controlled trials. Observational study designs will be included to provide details of process, estimates of association with outcomes, uptake and acceptability, and may include cohort, cross-sectional, or case-control studies.

Types of population

Inclusion criteria:

- Participants will be children, adolescents and adults aged less than 25 years who have participated in a programme that includes one or more components of mediation, mentoring, or peer support.
- Participants may provide or receive mediation, mentoring, or peer support individually, or as members of a group. Perpetrators of weapon-based violence as well as those identified as being at high-risk of, but not yet involved in, weapon-based violence. For this review, high-risk will be defined as individuals who have experienced or expressed individual or peer-based risk factors including: having been a victim of weapon-based violence, carrying a weapon, or gang membership.

Exclusion criteria:

Unless specifically described as weapon-based violence and linked with a defined programme, the following participants and scenarios will not be included:

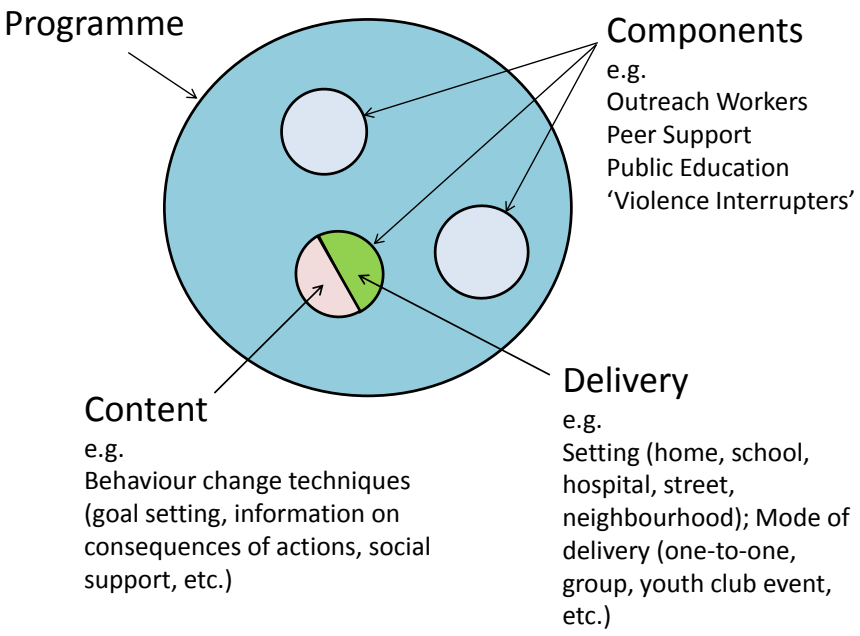
- domestic violence/partner violence/physical assault
- sexual assault
- bullying
- workplace violence
- delinquency
- anti-social behaviour (e.g., arson)
- individuals with a history of mental illness/substance misuse
- developmental epidemiology of violence/ theoretical aetiology of person-person violence (e.g., violence towards animals)

Types of programme

Programmes will be included if they include one or more components of mediation, mentoring, or peer support. Selection will be restricted to programmes that focus on the prevention of further weapon-based violence, or extension of very high risk situations and behaviour; this review will not include prevention programmes aimed at individuals/groups who have not participated in any weapon-based violence, or who do not match the 'high risk' criteria set out above (e.g., school-based programmes).

Content of components

We intend to apply the theory-linked taxonomy of generally applicable behaviour change techniques, developed by Abraham and Michie (2008) to classify the content of programme components according to any behaviour change techniques used. This taxonomy has been developed as a common set of terms by which practitioners and researchers can more clearly describe the content of behaviour change interventions. For example, techniques employed by the components of violence prevention programmes might be expected to include: providing information on consequences of actions; goal setting; barrier identification; behavioural contract; review goals; model or demonstrate behaviour; provide feedback; general encouragement; social support; role model; prompt self talk; relapse prevention; stress management; motivational interviewing. *The figure below illustrates the terms we have used for programme component, content and delivery*.



Developmental model of youth mentoring

For their analytical framework in a review of youth mentoring programmes, DuBois et al drew upon a developmental model of youth mentoring (DuBois DL *et al*. 2011). The model assumes that at the outset there is a strong and meaningful personal connection between mentor and mentee. The model then suggests three pathways of development by which the mentee might benefit from this strong interpersonal relationship with the mentor: *social-emotional* development, *cognitive* development, and *identity* development. Social-emotional development is expected to improve the mentee's view of themselves by helping them to control, understand, and express their emotions; this in turn is expected to improve their perceptions of their relationships with peers and other adults. Cognitive development is expected to help to make the mentee more receptive to adult values, advice and perspectives, possibly leading to longer term improvements to the mentee's academic or employment position. Identity development is expected as the mentee begins to imagine different types of person that they might become (or might fear becoming), arising from the educational, recreational and occupational opportunities provided by the mentor. Through these three pathways the mentee might ultimately benefit from improved educational, emotional, well-being and behavioural outcomes. The model also includes several moderators of possible effects of mentoring, namely the mentee's: interpersonal history (i.e. mentoring effects may

differ if the mentee has had previous negative or harmful relationships with adults, or rejection by peers); social competencies (i.e. youth who already have good social skills may gain more from mentoring than others); and the mentee's developmental stage (i.e. age group). We propose to draw upon this framework when developing the coding manual for our review, in order to code the content of interventions where mentoring is a component (*see* DuBois DL *et al*. 2011; Table 1, pp 64-65).

Outcome measures

Primary outcome measures

The primary (distal) outcome variable will be police or self-reported carrying of a weapon (including knives, sharp implements, guns), violence, offending, or being victim of injury; health service use due to injury. The period over which this variable relates (e.g., last month, last six months) will likely vary by study and so all periods will be included.

Secondary outcome measures

The secondary (proximal) outcome variables will be contact with mentors, mediators, peers; self-esteem, knowledge and attitudes about interpersonal violence, intentions (e.g. about retaliation), self-efficacy, social competence, and emotions.

Other data

We will also seek data on economic outcomes, including costs of providing the intervention and costs to the individual user; data on unintended adverse consequences of the interventions; and process outcomes (e.g. data on uptake, accessibility and usage). Data relating to potential cognitive and emotional mediators of weapon carrying and violent behaviour will also be extracted in studies where primary and/or secondary outcome data are available.

Identification of eligible studies and data extraction

Our search methods will comprise four parts: first, we will search electronic bibliographic databases for published work (see below for electronic databases to be searched); secondly, we will search the grey literature for unpublished work; thirdly, we will search trials registers

for ongoing and recently completed trials; finally, we will search reference lists of published studies, contact authors and specialist groups to enquire about unpublished studies (*see Appendix 1 for full search strategy for a selected database*). In order to reduce publication and retrieval bias we will not restrict our search by language, date or publication status. The sources to be searched have been chosen based on their coverage of the topic.

Electronic sources

We will search the following:

1. Ovid MEDLINE(R) (1946 to current);
2. Social Policy and Practice (OvidSP) (current);
3. Global Health (OvidSP) (1910 to current);
4. PsycINFO (OvidSP) (1806 to current);
5. PsycEXTRA (OvidSP) (1908 to current);
6. PubMed (current);
7. Applied Social Sciences Index and Abstracts (Proquest) (1987 to current);
8. International bibliography of the social sciences (1951 to current);
9. ProQuest Criminal Justice (1981 to current);
10. ProQuest Education Journals (1988 to current);
11. ProQuest Social Science Journals (current);
12. Social Services Abstracts (1979 to current);
13. Sociological Abstracts (1952 to current);
14. Criminal Justice Abstracts (EBSCOhost) (current);
15. Psychology and Behavioural Science Collection (EBSCOhost) (current).

Other sources

We will search the following websites for reports and other grey literature:

1. The Scottish Government (http://www.scotland.gov.uk/Topics/Justice/crimes)
2. College of Policing catalogue (http://www.college.police.uk/)
3. UK Justice (https://www.justice.gov.uk/)

We will also perform an internet search, using the Google search engine, to search for grey literature and organisations related to prevention of youth violence and gangs (for example, searching for all 'Centers for Youth Violence Prevention', including: Johns Hopkins Center for the Prevention of Youth Violence; Chicago Center for Youth Violence Prevention; Striving To Reduce Youth Violence Everywhere (STRYVE), and the Academic Centers for Excellence on Youth Violence Prevention. The Ovid MEDLINE(R) search strategy (Appendix 1) will be adapted as necessary to search all other listed sources including the internet search.

Screening and review process

All studies identified through the search process will be exported firstly to the EndNote bibliographic database for de-duplication. Once duplicate records have been removed the records will be imported into EPPI-Reviewer 4 software for screening and coding. This will allow the team to manage coding tasks, assess inter-rater reliability, and share the results (within the consortium and externally). Two review authors will independently examine the titles, abstracts, and keywords of electronic records for eligibility according to the inclusion criteria above. Results of this initial screening will be cross-referenced between the two review authors, and full-texts obtained for all potentially relevant reports of studies. Full-texts of potentially eligible studies will go through a secondary screening by each reviewer using a screening form based on the inclusion criteria (*to be prepared*) for final inclusion in the review, with disagreements resolved by discussion with a third author. Reference lists of all eligible trials will be searched for further eligible studies.

Data extraction

Two review authors will independently extract relevant data using a standardised data extraction form (*to be prepared once studies are identified*). Corresponding authors of studies will be contacted directly if the required data are not reported in the published manuscript.

ANALYSIS

Descriptive analysis

We will describe all studies that meet the inclusion criteria, including:

1. Study design

- Study design; quality
- Data collection methods, modes, and techniques; validity of tools
- Adherence to study protocol
- Statistical and other analyses

2. Participants (intervention and control if relevant)
    - Socio-economic and demographic characteristics (e.g. sex, age, ethnicity, education level, socioeconomic status)
    - Status: victim or perpetrator; previous offender
    - Psychological characteristics (e.g. help seeking)

3. Components of programme, including mode of delivery and content
    - Country, city
    - Setting (home, school, hospital, street, neighbourhood)
    - Theoretical basis used in programme design; postulated mediators
    - Inputs: mentors, mediators, peers, administrative staff, training, building space, telephone, transportation, materials for activities
    - Infrastructure: recruitment, screening, training and support of mentors, mediators, peers; matching (e.g. of mentors to young person)
    - Dosage: amount of contact (hours; frequency), intensity (e.g. emotional strength of contacts) and duration (e.g. in mentoring, length of relationship)
    - Process: adherence; changes made during delivery with reasons; acceptability
    - Comparator (if a controlled evaluation)

4. Outcomes
    - Primary (distal) outcomes (e.g. reduced self-reported carrying of weapons; reduced offending; self reported violence or injury; police reported violence or injury; health service use due to injury)
    - Secondary (proximal) outcomes (e.g. mentee contact with mentors; increased self-esteem in mentee; Knowledge and attitudes about interpersonal violence; intentions about retaliation; self-efficacy; social competence; emotions)

Statistical analysis

Where estimates of effect are available we will use statistical software (Stata version 13) to conduct meta-analysis. In the presence of sufficient homogeneity (i.e. comparable population, intervention components and outcomes) we will pool the results of randomised controlled trials using a random-effects model, with standardised mean differences (SMDs) for continuous outcomes and odd ratios for binary outcomes, and calculate 95% confidence intervals and two sided P values for each outcome. In studies where the effects of clustering have not been taken into account (e.g. where the unit of analysis is groups rather than individuals), we will adjust the standard deviations by the design effect, using intra-class coefficients if given in papers, or using external estimates obtained from similar studies. In the absence of sufficient homogeneity, we will present tables of the quantitative results.

We will assess selection bias using Egger's weighted regression method and Begg's rank correlation test. Heterogeneity among the trials' odds ratios will be assessed by using both χ^2 test at a 5% significance level and the I^2 statistic, the percentage of between-study variability that is due to true differences between studies (heterogeneity) rather due than to sampling error. We will consider an I^2 value greater than 50% to reflect substantial heterogeneity. We will conduct sensitivity analyses in order to investigate possible sources of heterogeneity including study quality (adequate vs. inadequate allocation concealment; low vs. high attrition) and socio-demographic factors that could act as effect modifiers (for example age, educational level, criminal history, and socioeconomic status). Details of each programme will be presented in a table of study characteristics, and we will conduct exploratory, descriptive analyses of data available on effective components and mechanisms of action.

STAKEHOLDER INVOLVEMENT

Involvement of Police has been an important part of the development of this protocol. Alfred Hitchcock, Chief Constable of the Ministry of Defence Police, has provided guidance and advice to the investigative team in early stages of protocol development, and he is keen to meet with the investigators as the study progresses. In our experience, user input is particularly valuable in considering outcomes of interest to users, and identifying preferred methods of disseminating results to user groups.

DISCUSSION

Strengths and limitations of the review

The strengths of the review include unambiguous inclusion criteria and a clear and systematic approach to searching, screening and reviewing studies and extracting data using standardised forms. Our inclusion criteria are broad enough to encompass the broadest range of mediation, mentoring and peer-support interventions, and social, educational, and criminal behavioural outcomes, and so has the best chance of identifying effective components of effective interventions for translation into policy, or further research. This review will also include cohort or other observational study designs, and therefore can evaluate acceptability or preference of interventions. Our review also aims to identify theories of change used to design interventions and potential mechanisms of action, which will help to inform future development of interventions. Although every effort will be made to locate unpublished reports of eligible studies, our findings may still be vulnerable to selective reporting, and despite a pre-defined and systematic approach to screening and reviewing, the study will still involve judgments made by review authors, either of which may lead to bias.

Implications for policy and commissioning

This review aims to provide comprehensive evidence of the effectiveness of mediation, mentoring and peer-support interventions for youth knife and gun-enabled violence prevention, and to explore mechanisms of action and effective components of interventions. This will help to inform policing policy and commissioners in deciding whether mediation, mentoring and peer-support interventions should be part of a comprehensive response to youth knife and gun-enabled violence prevention, and if so, which components should be present for interventions to be effective.

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Research Council (ESRC); RC Grant reference: ES/L007223/1. The views and opinions expressed herein are those of the authors and do not necessarily reflect those of the ESRC.

COMPETING INTERESTS

None.

AUTHORS' CONTRIBUTIONS

PE will manage the project, and provide expertise in the design of the systematic review and statistical analysis; DB will design and undertake all database searching; PE, RS and CJ will undertake screening, reviewing, and data extraction; IR advised on the review question and will provide expertise and guidance regarding the conduct of the systematic review; PE, DB, RS, CJ and IR will contribute to the development of a conceptual framework [logic model] for mediation, mentoring and peer-support for reducing youth knife and gun-enabled violence. All authors contributed to the writing or editing of the protocol, and will contribute to the final report and papers.

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APPENDIX 1: SEARCH STRATEGY

Ovid MEDLINE (R)

1. (Crime adj3 (prevention or control or reduc*)).ti,ab.

2. "Situational crime prevention".ti,ab.

3. ((neighborhood* or neighbourhood*) adj3 (plan* or setting* or group* or collaboration)).ti,ab.

4. ((school* or workplace or classroom* or college or universit*) adj3 (program* or policy or polic* or strateg*)).ti,ab.

5. 1 and 3

6. 1 and 4

7. (counsell* or counsel*).ti,ab.

8. (activit* adj3 (communit* or educat* or programme* or peer* or group*)).ti,ab.

9. 1 and 8

10. (peer adj3 (intervention* or help or guidance or support*)).ti,ab.

11. (mass?media or TV or television or internet or "social media" or social-media or magazine*).ti,ab.

12. 1 and 11

13. (Youth* adj3 (motivation or change)).ti,ab.

14. community-driven.ti,ab.

15. (community adj3 (leadership or empowerment or engagement)).ti,ab.

16. (support* adj3 intervention*).ti,ab.

17. (advisor* or advocacy or advocat* or peer* or mentor*).ti,ab.

18. 1 and 17

19. interrupter*.ti,ab.

20. (amnest* or cease?fire).ti,ab.

21. peer-education.ti,ab.

22. peer-to-peer.ti,ab.

23. self-enhancement.ti,ab.

24. (Plan adj1 (community or action)).ti,ab.

25. situational crime prevention.ti,ab.

26. (support adj1 (community or personal or friend* or peer* or mentor*)).ti,ab.

27. partnership work*.ti,ab.

28. (conflict adj1 mediation).ti,ab.

29. ((community or urban) adj3 (outreach or setting* or group* or collaboration or coalition or institution*)).ti,ab.

30. communities/ or neighborhoods/

31. 20 and 30

32. counseling/ or peer counseling/ or support groups/

33. 1 and 32

34. social support/ or support groups/

35. 1 and 34

36. Crime/pc [Prevention & Control]

37. peer group/

38. Mentors/

39. mentor*.ti,ab.

40. (job* adj3 (fair* or readiness or community or centre* or center*)).ti,ab.

41. (pupil adj3 referral).ti,ab.

42. ((campus or school) adj1 officer*).ti,ab.

43. (mediation or mediator*).ti,ab.

44. Health Promotion/mt [Methods]

45. 1 or 2 or 5 or 6 or 7 or 9 or 10 or 12 or 13 or 14 or 15 or 16 or 17 or 19 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 or 31 or 33 or 35 or 36 or 37 or 38 or 39 or 40 or 41 or 42 or 43 or 44

46. (crime* or criminal*).tw.

47. (fight* or weapon* or abuse* or agression* or assault* or retaliation).tw.

48. (social* adj3 (contagion or contagious)).tw.

49. (violence or violent).tw.

50. violence/ or antisocial behavior/ or violent crime/

51. (anti?social adj1 behavio?r).tw.

52. antisocial behavior/ or criminal behavior/ or juvenile delinquency/

53. Crime/

54. 46 or 47 or 48 or 49 or 50 or 51 or 52 or 53

55. (peer* adj5 (deviant or deviancy)).tw.

56. (youth adj5 violence).tw.

57. (victim* or offender* or re-offender* or perpetrator* or deliquent*).tw.

58. Adolescent Behavior/

59. "peer*".tw.

60. 56 and 59

61. (gang* adj3 (member* or violence or agression or behavio?r)).ti,ab.

62. (gang* adj3 (urban or rural or communit*)).ti,ab.

63. (deviant adj3 behavio?r).ab,ti.

64. Adolescent/

65. 55 or 56 or 57 or 58 or 60 or 61 or 62 or 63 or 64

66. 45 and 54 and 65