

Public health approaches to reducing violence

This review was undertaken by Chanon Consulting and Cordis Bright. The review protocol and evidence assessment approach were agreed with the Local Government Association (LGA) before the review was conducted.

Please note that this is an evidence review and is not designed to be policy or practice guidance. However, it is hoped that this review could help to inform future guidance in this area.

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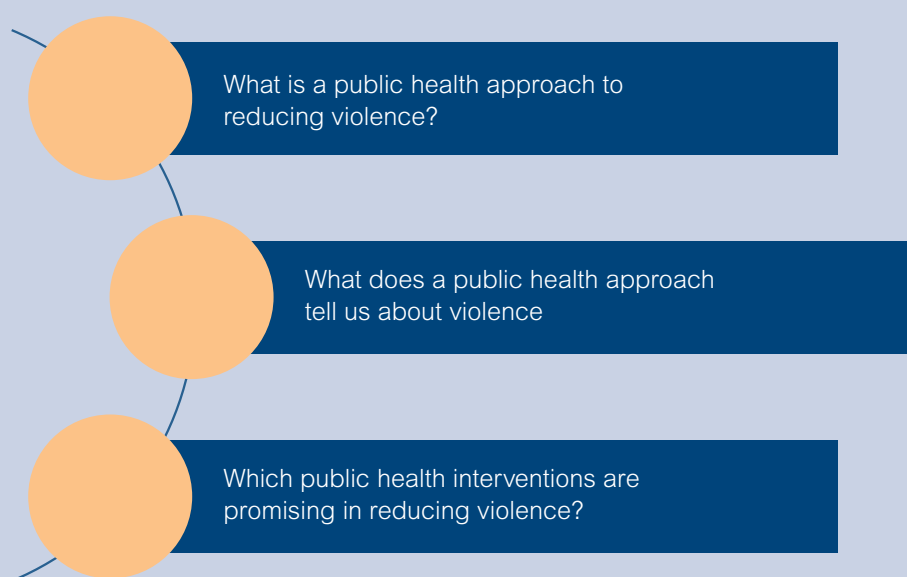
1. Executive summary

Addressing violence is not a single agency issue, as it is the culmination of many different issues. It is only by pursuing a strategic, coordinated approach involving a range of agencies, including partnerships between statutory and voluntary organisations, that violent crime can be effectively addressed.

As local leaders councils play a key role in reducing violence, bringing together partners through their strategic and operational role spanning enforcement, early intervention, prevention in relation to violent crime and provision of support to victims of violence.

Although there are different ways to reduce violent behaviour, a public health approach is being increasingly discussed, using an evidence-led methodology to reduce and prevent violence in communities.

This report provides an introduction to the subject, and asks three key questions:



What is a public health approach to reducing violence?

The World Health Organisation (WHO) (2017a) defines a public health approach to reducing violence as one that:

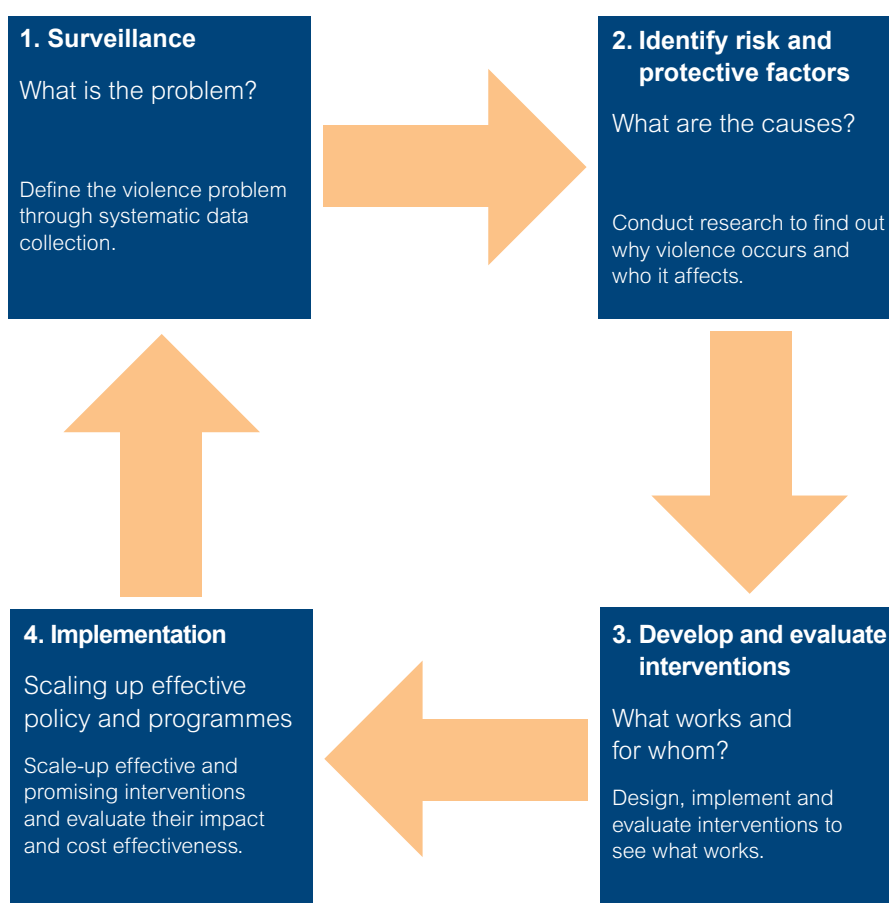
‘Seeks to improve the health and safety of all individuals by addressing underlying risk factors that increase the likelihood that an individual will become a victim or a perpetrator of violence. By definition, public health aims to provide the maximum benefit for the largest number of people. Programmes for primary prevention of violence based on the public health approach are designed to expose a broad segment of a population to prevention measures and to reduce and prevent violence at a population-level.’

Public health approaches can be identified by the following characteristics:

- defining and monitoring the problem
- identifying causes of the problem, the factors that increase or decrease the risk of violence, and the factors that could be modified through interventions
- designing, implementing and evaluating interventions to find out what works
- implementing effective and promising interventions on a wider scale, while continuing to monitor their effects, impact and cost-effectiveness (WHO, 2017a).

This approach to reducing violence, and the literature around it, recognises the necessity both of gaining an understanding of violence through evidence and of responding to the problem through carefully designed interventions. Robust evaluation of those interventions feeds back into our understanding of what works to reduce violence most effectively for the most amount of people.

The World Health Organisation (WHO) have summarised this approach in the diagram below.



Source: WHO, 2017

What does a public health approach tell us about violence?

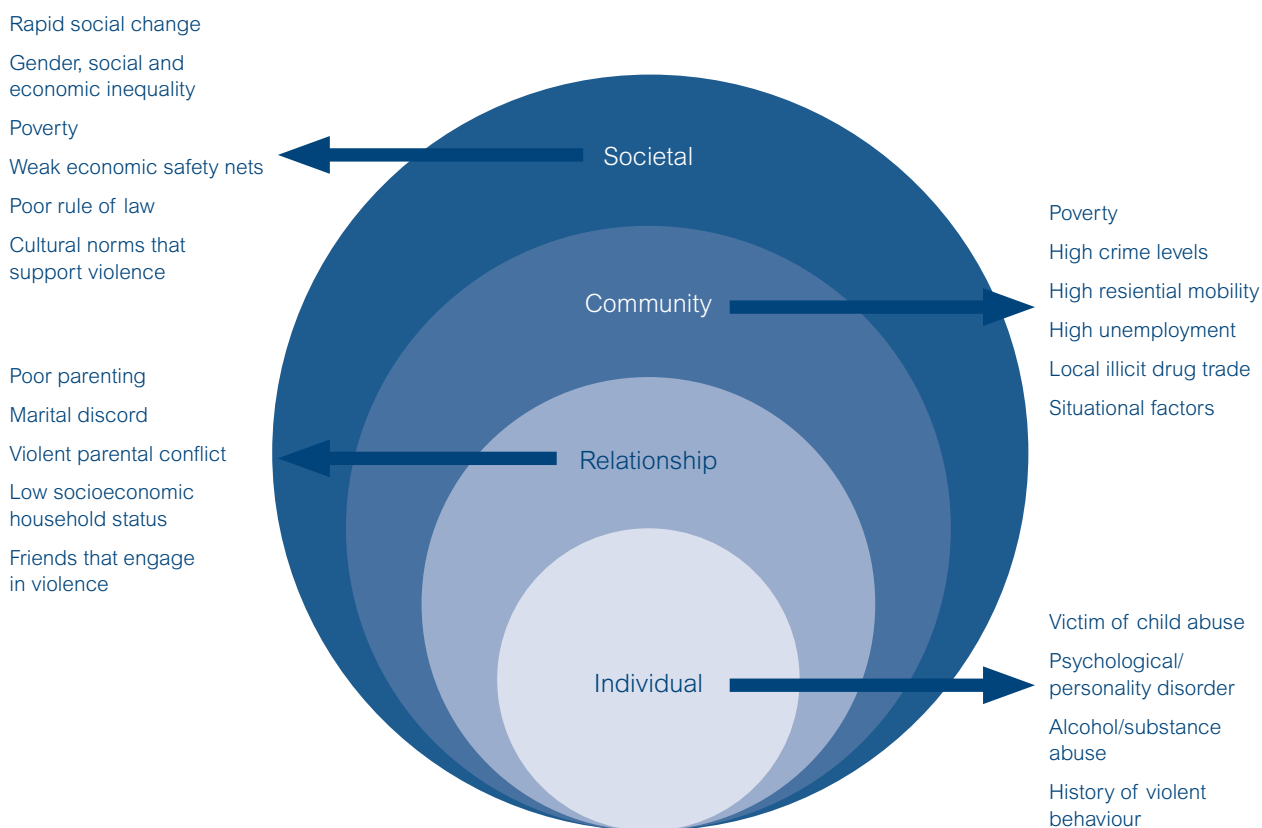
Public health approaches work by providing a framework which seeks to understand what causes violence and responding with interventions to prevent or reduce violence, at the population level, informed by the best available evidence. Public health approaches undertake robust research and analysis to identify risk and protective factors that are associated with violence. Definitions of risk and protective factors are presented below.

- **Risk factors:** are those which can usefully predict an increased likelihood of violence. For example, communities with high levels of unemployment may be at higher risk of experiencing increased levels of violence.
- **Protective factors:** are factors that reduce the likelihood of violence. For example, communities with low levels of unemployment may be at less risk of experiencing high levels of violence.

Figure 1 provides a useful conceptualisation of risk factors developed by the WHO (2017b).

As with the example of 'unemployment' above, risk and protective factors can be conceptualised as being on different ends of the same continuum. Thus in Figure 1, in the textbox relating to relationship, poor parenting is identified as a risk factor and at the other end of the continuum, good parenting may be a protective factor; marital discord a risk factor and marital harmony a protective factor, and so on.

Figure 1 The ecological framework with examples of risk factors for violence at each level



Adapted from WHO (2017b)

Research (WHO, 2002) has shown that there are a wide range of risk and protective factors associated with violence. It should be noted that they are not necessarily direct causes in themselves:

‘A major problem of the risk factor paradigm is to determine which risk factors are causes and which are merely markers or correlated with causes.’

Farrington (2000)

More about risk and protective factors and how they interplay to impact on violence can be found in Section 4.

Which public health approaches are promising in reducing violence?

The public health approach outlined above, provides a useful framework for taking an evidenced-led approach to violence reduction. As well as approaches to generating evidence concerning the causes of violence in populations, a public health approach can also deploy a range of interventions aimed at reducing violence at the population level.

The following interventions have all been identified in this review as having evidence at level 3 on the Standards of Evidence scale used in this review, ie there is good evidence that they may work in reducing violence (see Section 2). More information about each intervention is presented in Section 5.

Interventions aimed at supporting parents and families

- The Family Nurse Partnership
- Incredible Years Preschool
- Family Foundations
- Triple P
- Empowering Parents
Empowering Communities

Developing life skills in children and young people

- The Good Behaviour Game
- Incredible Years Child Training (Dinosaur School)
- Incredible Years Teacher Classroom Management
- Promoting Alternative Thinking Strategies (PATHS)
- Let’s Play in Tandem

Working with high-risk youth and gangs/community interventions

- Community Initiative to Reduce Violence (CIRV)

Identification, care and support

- Identification and referral to improve safety (IRIS)

Multi-component interventions

- Multisystemic therapy
- Sure Start local programmes

In addition, this review reports on evidence concerning the positive impact of the Cardiff Model (Level 3 on the standards of evidence scale used in this report) concerning data, information, and intelligence sharing from emergency departments to other strategic partners can have on reducing violence. More about this is discussed in Section 4.

Considerations

This review finds that public health approaches and associated evidence-based interventions have significant merit in delivering improved outcomes for children, adults and communities concerning reductions in violence. The review also shows that there is consensus around the core elements (summarised in Figure 1 above) of a public health approach to reducing violence.

When considering public health approaches and the implementation of interventions to reduce violence, you should consider the following:

1. Surveillance. What is the problem?

- **Define the issue.** This includes conducting a robust needs assessment concerning violence, including types of violence as well as gaining a clear understanding of risk and protective factors that can be targeted in individuals, families, communities and populations to address and reduce violence at a population level.

2. Identify risk and protective factors. What are the causes?

- **Understand the causes of violence.** This includes taking an evidence-led approach to understanding which risk and/or protective factors cause the violence issue and how they interplay. Through achieving this understanding, local areas are more likely to be successful in implementing public health interventions that effectively moderate and address risk factors and strengthen protective factors, ultimately reducing violence at a population level.

3. Develop and identify interventions. What works for whom?

- **Develop an anti-violence or reducing violence strategy.** Critically, this strategy should respond to identified need in the population under consideration and focus on addressing the causes of violence. The strategy should be developed and agreed between stakeholders and be Specific, Measurable, Achievable, Relevant, and Timebound. The strategy should link to the wider strategic and policy context and include collaborative and co-productive development with local partners, including the local community, which should ensure local ownership of the strategy and help to ensure that it is implemented as intended.
- **Commission and fund evidence-based interventions that have been shown to reduce violence.** Where possible, local areas should consider commissioning and funding evidence-based interventions that have been shown to reduce violence.

- **Don't be afraid to innovate.** If there are no 'off-the-shelf' evidence based interventions available, then interventions should be developed on the basis of existing evidence for what works in modifying risk and protective factors for the particular kinds of violence problem that the area is aiming to address.

4. Implementation. Scaling up effective programmes and interventions

- **Implement interventions ensuring that fidelity is maintained in line with what has been demonstrated to work.** Model fidelity means ensuring that the model implemented stays loyal and is delivered as closely to the original model as possible. This requires careful consideration when taking into account the context into which the intervention is being rolled-out. Not ensuring model fidelity is one of the key reasons why the implementation of interventions that have been evidenced to work in one area do not work in another.
- **The implementation of interventions takes time to embed in practice and to achieve outcomes.** Local decision-makers need to provide sufficient time for programmes and interventions to impact on desired outcomes. It can sometimes take over five years for programmes to achieve outcomes.
- **Evaluate and monitor the success of public health interventions.** This review shows that there is still work to be done in developing and evaluating public health interventions aimed at reducing violence at a population level. Although resources are often tight, you should aim to contribute to the evidence base by ensuring robust evaluation (in line with recognised evidence standards scales similar to the scale used in this report) of public health interventions that are commissioned and funded.

Robust evaluation can save money by clearly identifying models and practice that work, but also showing what does not work. Knowing this can save money and use scarce resources more effectively in the long-term.

2. Introduction

Addressing violence is not a single agency issue, as it is the culmination of many different issues. It is only by pursuing a strategic, coordinated approach involving a range of agencies, including partnerships between statutory and voluntary organisations, that violent crime can be effectively addressed.

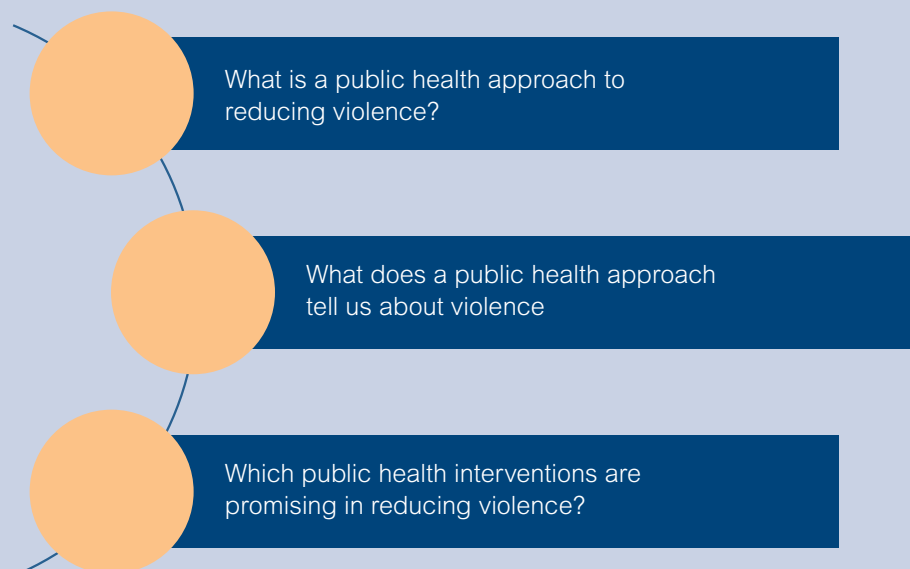
As local leaders councils play a key role in reducing violence, bringing together partners through their strategic and operational role spanning enforcement, early intervention, prevention in relation to violent crime and provision of support to victims of violence.

Although there are different ways to reduce violent behaviour, a public health approach is being increasingly discussed, using an evidence-led methodology to reduce and prevent violence in communities.

This report is an introduction to the subject, and provides:

- a summary of the evidence for public health approaches to reducing violence
- an overview of the evidence base for interventions that are working, or have promise, in the UK context
- key things to consider when thinking about utilising public health approaches and interventions to reduce violence.

In particular, this review provides answers to the following key questions:



2.1 Standards of evidence

To help guide decision-making concerning the robustness of the evidence base, the interventions to reduce violence that are included in this review have been assessed according to the evidence scale in Figure 2.

Figure 2 Standards of Evidence Scale

Level	Description
Level 1	Programmes/Interventions have a clear theory of change/ logic model in terms of how they aim to impact on outcomes. However, there may not yet be clear evidence that they are achieving this impact.
Level 2	Programmes/Interventions at this level meet level 1 criteria plus evidence indicating observed impact on desired outcomes. This could include a pre- post- measure on outcomes. A robust comparison group or equivalent is not essential for level 2.
Level 3	Programmes/Interventions at this level meet level 1 criteria and include evaluations that clearly demonstrate observed on its desired outcomes. It is necessary at this level to clearly demonstrate that any positive outcomes achieved were likely to have resulted from the programme/intervention and as such require comparison with a well-matched control group or equivalent.

Interventions that meet the standards of level 3 and above have been included in the review and are summarised in Section 5. As a result of applying this criteria, it may be that some emerging good practice, or interventions that do work, but which have not been robustly evaluated are not included in this review.

3. What is a public health approach to reducing violence?

Definitions

There are a number of ways of defining violence and also public health approaches to reducing violence. In this review the following World Health Organization (WHO) definitions are used:

Violence: In accordance with the World Health Organization's Violence Prevention Alliance¹, we defined 'violence' as 'the intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment, or deprivation'. This includes neglect, physical, sexual and psychological violence, and can be interpersonal (towards a family member, partner, acquaintance or stranger), self-directed, or committed by larger groups such as nation states and terrorist organisations (WHO 2017c).

Public health approaches to reducing violence: We defined public health approaches as approaches that seek to improve the health and safety of all individuals by addressing underlying risk factors that increase the likelihood that an individual will become a victim or perpetrator of violence. By definition, public health aims to provide the maximum benefit for the largest number of people. Programmes for primary prevention of violence based on the public health approach are designed to expose a broad segment of a population to prevention measures and to reduce and prevent violence at a population-level (WHO 2017a).

More details about public health approaches are outlined below.

A public health approach to reducing violence

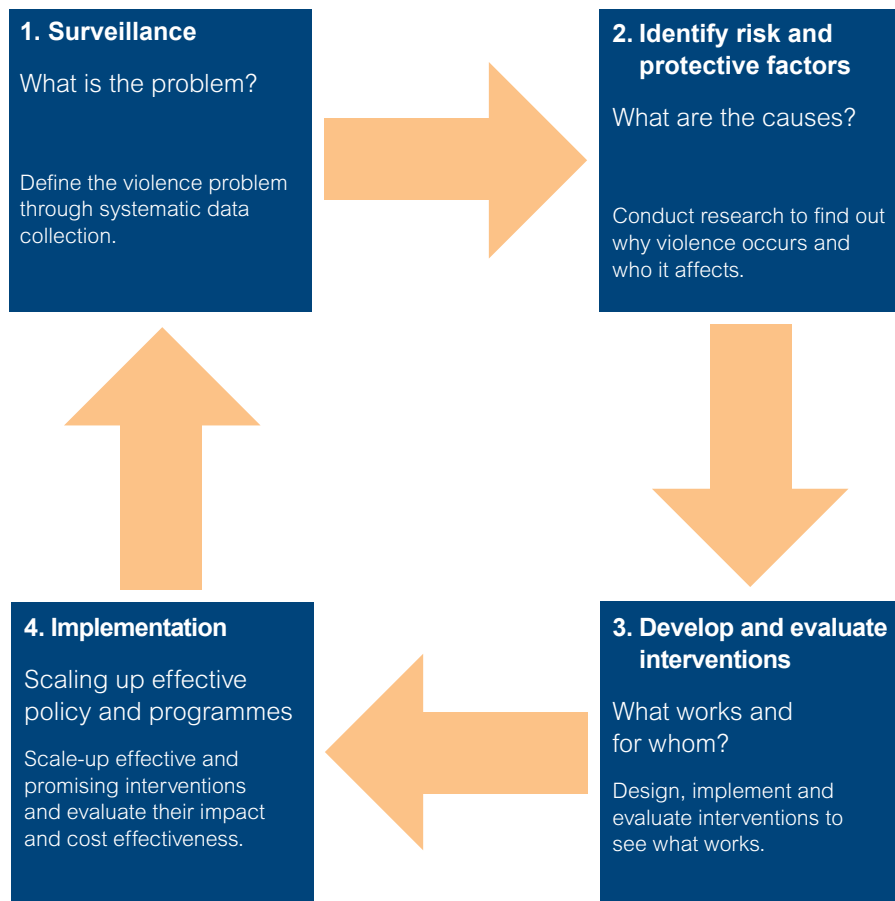
Public health provides a useful framework for understanding and preventing violence. The public health approach uses evidence on the nature and underlying causes of a problem to target interventions to address it. The World Health Organization's Violence Prevention Alliance² summarises the four key steps of the public health approach to reducing violence as follows:

1. defining and monitoring the problem
2. identifying causes of the problem, the factors that increase or decrease the risk of violence, and the factors that could be modified through interventions
3. designing, implementing and evaluating interventions to find out what works
4. implementing effective and promising interventions on a wider scale, while continuing to monitor their effects, impact and cost-effectiveness.

1 <http://www.who.int/violenceprevention/approach/definition/en/>. Accessed 24 Nov. 2017

2 http://www.who.int/violenceprevention/approach/public_health/en/. Accessed 24 Nov. 2017

Figure 3 Summary of steps of the public health approach



Source: WHO, 2017a

Public health interventions operate through modifying the risk factors that make an individual, family or community vulnerable to violence (as victims, perpetrators, or both) and by promoting protective factors. An overview of identified risk factors for violence identified is presented in Section 4.

Types of public health interventions to violence prevention/reduction

Central to an effective public health approach to reducing violence is the implementation of interventions that successfully address risk and protective factors in individuals, families, communities and populations to reduce violence at a community and/or population level. However, in the literature reviewed, definitions varied and there was no clear consensus or definition as to what constitutes a public health intervention to reduce violence, apart from that it should reduce violence at the community and/or population level.

Conaglen and Gallimore (2014, p.15) describe violence prevention interventions as operating on various levels (primary, secondary or tertiary) and define interventions to address violence as universal, selected or indicated.

Levels of violence prevention

Primary – preventing violence before it happens, ie to reduce the number of new cases of violence in the population.

Secondary – immediate responses to incidents of violence to decrease prevalence after early signs of the problem, ie to reduce the prevalence of violence in the population.

Tertiary – to intervene once the violence problem is evident and causing harm.

Types of intervention to address violence

Universal – aimed at a general population

Targeted selected – targeted at those more at risk

Targeted indicated – targeted at those who use violence

While the WHO, Bellis et al. (2012) and others provide clear definitions of public health approaches, there is less clarity in the literature about what kinds of interventions fall within the scope of a public health approach. This is complicated by the fact that the position of an intervention in the matrix (ie primary, secondary, tertiary, universal, targeted selected, targeted indicated) is rarely explicit. However, public health interventions, like public health approaches should seek to reduce violence at a community and/or population level.

Signposting

To find out more take a look at the three key reviews below concerning overviews of public health research around violence in the UK (including Scotland).

Title	Description	Citation
Review of evidence for prevention; series includes: - Child maltreatment - Sexual violence - Self-harm and suicide - Intimate partner violence - Elder abuse - Youth violence www.cph.org.uk/publications	A series of reviews of UK and international evidence for the prevention of injury and violence, published by the UK focal point for violence and injury prevention (led by Mark Bellis) as part of the WHO's global programme to support and develop violence and injury prevention work.	Wood et al., 2010a-f
Promoting Health: A public health approach to violence prevention in England	A report by the Scottish Public Health Network (ScotPHN) on public health approaches to reducing violence commissioned by the Scottish Directors of Public Health.	Conaglen and Gallimore, 2014
Violence Prevention: A public health priority	A report by the Scottish Public Health Network (ScotPHN) on public health approaches to reducing violence commissioned by the Scottish Directors of Public Health.	Conaglen and Gallimore, 2014

4. What do public health approaches tell us about reducing violence?

Research, evaluation and taking an evidence-led approach are key to a public health approach to reducing violence. By gathering information on the scale and nature of the violence problem, and identifying the risk and protective factors that make an individual or population vulnerable to violence, effective interventions can be designed and targeted to tackle the problem with maximum effect (WHO, 2017a).

- **The scale of violence** below presents an overview of the violence problem in the UK and evidence for the effective use of the public health approach, using data to target violence prevention.
- **Understanding risk and protective factors** explores the idea of risk and protective factors, summarising what public health approaches tell us about the causes of different forms of violence.

The scale of violence

The importance of using a range of data-sources to understand the scale of violence

Comprehensive data on violence in the population can help us to measure trends in violence and identify at-risk population groups and communities. Police data and national surveys are useful, but should be combined with data from other sources in a public health approach, to gain a local-level understanding of the impact of violence on the population, which groups and communities are most at risk, what types of interventions are needed, and how effective those interventions are at preventing violence (Bellis et al., 2012).

Official crime statistics are vulnerable to under-reporting and other pitfalls (Shepherd, 2007), but data from other sources can mitigate these limitations. Alternative sources

of information on violence include emergency department and hospital admissions data, data from helplines like Childline, social services data (eg the number of children on child protection plans) and workplace data including violence against NHS staff (Bellis et al., 2012).

Hospital emergency departments deal with violent incidents that are serious enough to result in hospital attendance, but that still may not be reported to the police. Healthcare data on injuries from violence in 2016 suggest that rates of serious violence may be decreasing among adults, but that violence in which children under 11 were injured has increased compared to the previous year (Sivarasingam et al., 2016).

Some forms of violence are more visible to these agencies than others, and while a multi-faceted approach to information gathering can provide a fuller picture than crime data alone, there are some areas that remain largely hidden from view. These include forced marriage, human trafficking and female genital mutilation, as well as sexual violence more generally, and the abuse of especially vulnerable older adults such as those with severe dementia and those living in communal establishments (Bellis et al., 2012).

The scale of violent crime

Official crime data can provide some insights into long-term trends in violence. Over a million incidents of violent crime are estimated to occur in the UK every year, and in many cases rates are on the rise.

The main official sources are police records and the Crime Survey for England and Wales (CSEW).

Police records include more detail than the CSEW, providing local as well as national figures and breaking violent offences down into more categories than the CSEW. However, police data is restricted to incidents reported to the police, and are vulnerable to changes in recording practices, particularly recent changes to recording processes. The CSEW provides estimated figures for crime, which can be unreliable for spotting trends in low-volume crimes. For this reason, police data tends to provide a better measure of more serious, low volume crime (such as homicide), while the CSEW tends to record higher numbers of less harmful crimes and provide evidence of higher-level trends (ONS, 2017).

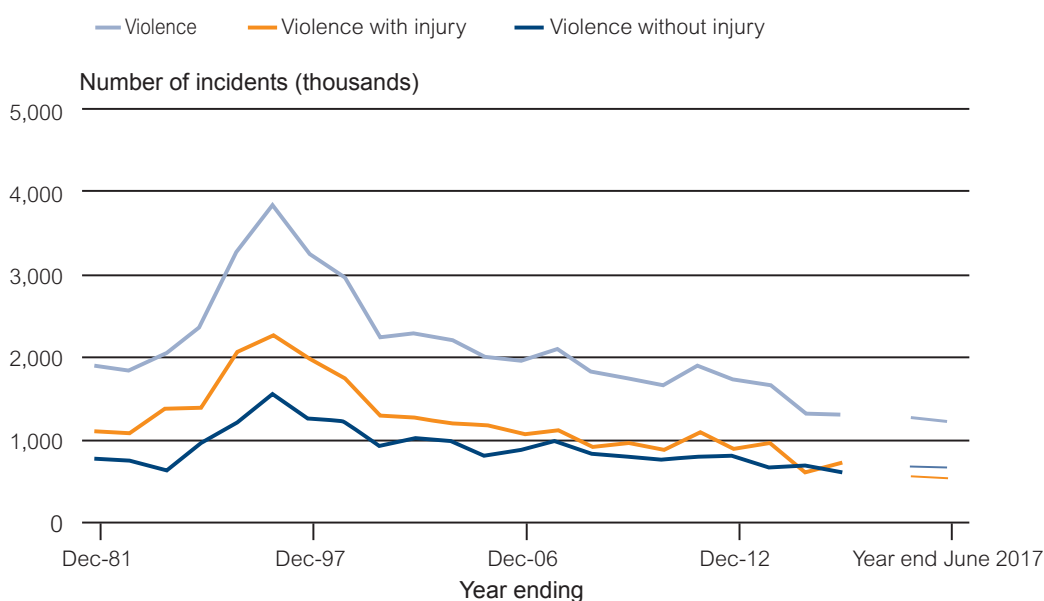
Figure 3 shows that CSEW estimate more than 1.2 million incidents of violent crime in 2016/17, which is not significantly different from the previous year's figure (ONS, 2017). The Violence and Society Research Group at Cardiff University also identified no significant change in violence prevalence in 2016, based on hospital emergency departments and walk-in centre records in England and Wales (Sivarajasingam et al., 2016).

Figure 3 Key CSEW estimates for 2016/17

	Incidents	Victims (% of population)	Source
Violent crime against adults (over 16 years)	1,241,000	771,000 (1.7%)	Incidents: Table 1a, CSEW bulletin tables Prevalence: Table 1b, CSEW bulletin tables
Violent crime against 10-to-15-year olds ³	359,000	208,000 (5.4%)	Table F22, CSEW bulletin tables

However, CSEW estimates do show a cumulative downward trend over the last several years, shown in Figure 4 in which the 2016/17 estimate represents a 25 per cent decrease since 2013/14. However, CSEW estimates do show a cumulative downward trend over the last several years, shown in Figure 4 in which the 2016/17 estimate represents a 25 per cent decrease since 2013/14.

Figure 4 Trends in CSEW violence estimates 1981-2017



Source: ONS, 2017

3 Some estimates are from small samples, so caution should be applied when interpreting this data.

Police records reported a 19 per cent overall increase in violent crime in 2016/17, which may reflect genuine rises in specific types of crime that are not covered by the CSEW, but is largely attributable to improved recording practices (ONS, 2017).

The scale of different types of violence

Public health approaches can be used to address specific types of violence. The following provides examples of evidence for the scale of certain types of violence:

- **Domestic abuse.** Domestic abuse recorded by police has risen 18 per cent in 2016/17, but this is vulnerable to varied practice in ‘flagging’, and the increase is likely to be driven by improved identification and recording. CSEW estimates showed no increase in domestic abuse against 16-59 year olds (ONS, 2017).
- **Sexual offences.** The CSEW records only low numbers for sexual offences, but police data shows a trend of year-on-year increase since 2011/12, currently at the highest levels since national recording standards were introduced in 2002. Over a third of the increase in 2016/17 was due to rises in rates of sexual offences against children. Rises in recorded sexual offences may be partially due to improvements in police recording and also to increased reporting, as high-profile coverage of sexual violence cases and police operations (such as Operation Yewtree) may encourage victims to come forward (ONS, 2017).
- **Knife crime.** The volume of police-recorded knife crime also continued to rise in 2016/17, reaching a peak since 2010/11. Rates rose compared to the previous year in all categories except homicide, ie attempted murder, threats to kill, robbery, rape, sexual assault and assault with injury and assault with intent to cause serious harm. The largest rise was in London (accounting for 47 per cent of the England and Wales increase), but 38 out of 44 police forces recorded an overall rise in knife crime, suggesting that this is a national problem. A breakdown for each police force is available in the Home Office’s open data table for knife crime⁴ (Home Office, 2017).

Figure 4 provides a summary of the volume of examples of key police-recorded crime figures for 2016/17 alongside a percentage change figure from 2015/16. This shows that across all these categories there has been a rise in violent crime.

Figure 2 Standards of Evidence Scale

Category	Volume 2016/17	Change from 2015/16
Domestic abuse	511,319	+ 18%
Sexual offences	129,700	+ 19%
Rape	45,100	+ 22%
Other	84,600	+ 17%
Crimes involving a knife or sharp instrument	36,998	+ 26%
Assault with injury and assault with intent to cause serious harm	18,528	+ 19%
Robbery	14,429	+ 37%

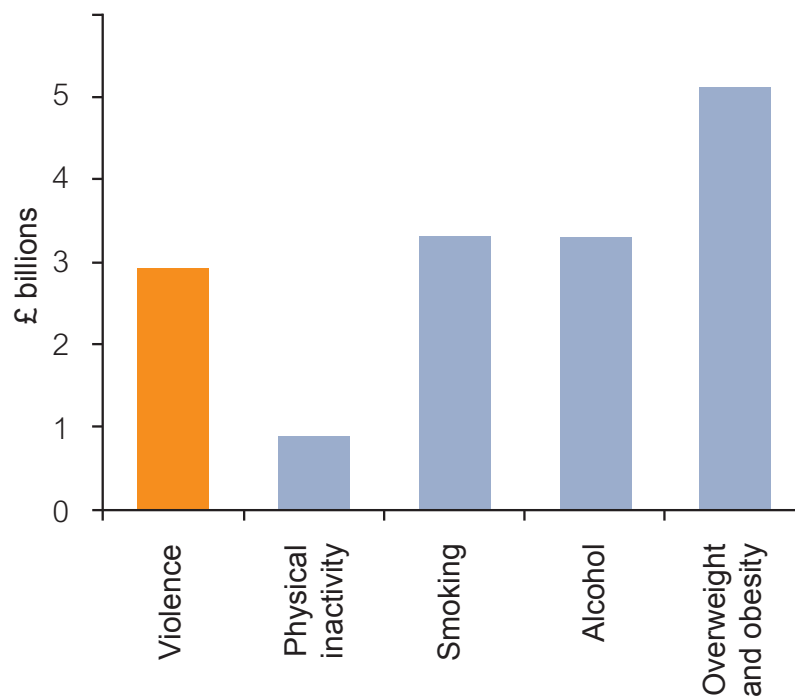
⁴ <https://www.gov.uk/government/statistics/police-recorded-crime-open-data-tables>

The cost of violence

Violence comes at a great cost, both to those involved and to society. Victims, their families, and people exposed to violence suffer physical, mental, emotional, social and economic consequences, in the short and long term. Groups that are vulnerable to violence can suffer reduced economic participation, social wellbeing and health, compared to other groups, leading to worse outcomes for individuals and worsening inequality across the whole of society (Bellis et al., 2012).

The economic costs of violence and abuse affect victims and their families, public services, businesses, communities, and wider society. Estimates vary, depending on the methodology used and to what extent figures are adjusted for underreporting, but it is clear that violent crime costs the public sector several billions of pounds a year. In terms of cost to the NHS, violence, estimated at a cost of £2.9 billion, is considered equivalent to other major public health issues including alcohol and tobacco (see Figure 5; Bellis et al., 2012). Tackling violence with a well-evidenced approach can not only improve public health and social and economic wellbeing, but will generate substantial savings to the NHS, the criminal justice system and other public services.

Figure 5 Annual costs of selected public health issues to the NHS, 2011/12



Source: Bellis et al., 2012, p. 25

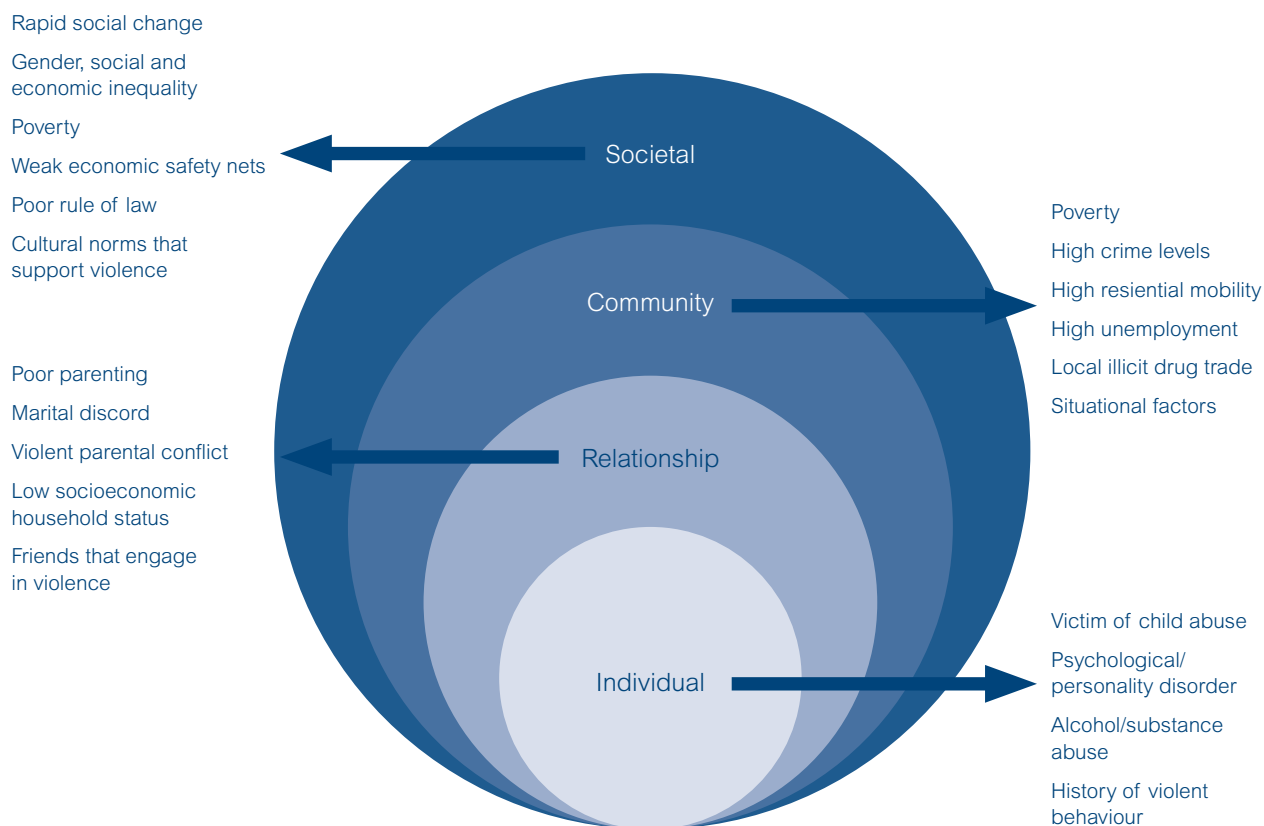
Understanding risk and protective factors

Public health approaches work by providing a framework which seeks to understand what causes violence and responding with interventions to prevent or reduce violence, at the population level, informed by the best available evidence. Public health approaches undertake robust research and analysis to identify risk and protective factors that are associated with violence. Definitions of risk and protective factors are presented below.

- **Risk factors:** are those which can usefully predict an increased likelihood of violence. For example, communities with high levels of unemployment may be at higher risk of experiencing increased levels of violence.

- **Protective factors:** are factors that reduce the likelihood of violence. For example, communities with low levels of unemployment may be at less risk of experiencing high levels of violence.

Figure 6 The ecological framework with examples of risk factors for violence at each level



Adapted from WHO (2017b)

Research (WHO, 2002) has shown that there are a wide range of risk and protective factors associated with violence. It should be noted that risk and protective factors are not necessarily direct causes in themselves:

‘A major problem of the risk factor paradigm is to determine which risk factors are causes and which are merely markers or correlated with causes.’

Farrington (2000)

Risk and protective factors can interplay in a variety of ways in terms of predicting violence. For instance, risk and protective factors can interact together in terms of:

- **Threshold effects:** The presence of two risk factors may not be predictive of an individual’s behaviour or performance but the operation and presence of an additional risk factor, or more, alongside the two risk factors may be predictive of an individual’s outcomes (Sameroff et al., 1987).
- **Additive/cumulative effects:** Risk factors may operate cumulatively or additively to signal outcomes.

- **Interaction effects:** Interaction effects occur when the influence or signalling power of a risk factor on offending is dependent on the level and presence (or strength) of another risk factor.

Risk factors – Adverse Childhood Experiences (ACEs)

One public health approach to conceptualising risk factors is the Adverse Childhood Experiences study. For example, the Adverse Childhood Experiences (ACEs) study in the USA has shown that experiences like child maltreatment or witnessing domestic violence can lead to higher levels of interpersonal violence and self-directed violence, in adolescence and adulthood (Duke et al., 2010; Whitfield et al., 2003). The risk factors are cumulative, so the risk of all forms of violence increases. Examples of ACEs are outlined below (WHO, 2012):

- Emotional, physical or sexual abuse
- Emotional or physical neglect
- Violence against household members
- Living with household members who were substance abusers, mentally ill, suicidal or imprisoned
- Having one or no parents, or experiencing parental separation or divorce
- Bullying or exposure to community or collective violence

Areas of the UK are increasingly interested in this approach. For instance, the Welsh Government has recently provided funding to help Cymru Well Wales to set up a hub to tackle the negative impact of Adverse Childhood Experiences, see: <http://gov.wales/newsroom/people-and-communities/2017/170119-adverse-childhood-experiences/?lang=en>

Other risk factors that increase an individual's likelihood of becoming a perpetrator or victim of violence (or both) include deprivation and social inequality, disability, psychiatric disorder (especially personality disorder), alcohol and drug use, violent peers and gang membership, and exposure to cultural and social norms that support violence (Bellis et al., 2012).

Risk factors for particular forms of violence

Public health programmes aiming to reduce a particular form of violence can be targeted to particularly relevant risk or protective factors. The diagram below summarises examples of risk factors identified for different forms of violence in the UK (Figure adapted from Bellis et al., 2012). There are likely to be other risk factors and also protective factors that may be associated with these types of violence, as the table does not provide an exhaustive list of risk factors. It also does not provide evidence of the strength of association between risk factor and violence (ie a measure of how strongly linked the risk factor is with violence).

Child abuse risk factors	Youth violence risk factors
<ul style="list-style-type: none"> • Unplanned pregnancy • Single parent household • Young, poor parents • Socially isolated parents • Parental alcohol consumption and drug use • Domestic violence in the home • Child disability or illness • Child behavioural problems 	<ul style="list-style-type: none"> • Male gender • Neglect and abuse in childhood • Personality traits, eg hyperactivity/ conduct disorder • Poor family functioning • Domestic violence in the home • Delinquent peers and gang involvement • Living in a high crime area • Alcohol consumption • Social inequality
Intimate partner and sexual violence risk factors	Risk factors for elder abuse
<ul style="list-style-type: none"> • Female gender • Younger age • Lower household income • Being single, co-habiting, separated or divorced • Living in areas of high physical disorder • Alcohol consumption (perpetrators and victims) • Controlling and jealous partner • Childhood abuse (perpetrators and victims) • Gender inequality • Cultural norms tolerant of violence 	<ul style="list-style-type: none"> • High levels of dependence • Mental and cognitive disorders • Carer alcohol consumption and drug use • Carer financial problems • Carer burnout • Social isolation • Lack of social support • Age discrimination

Signposting

For more information about risk and protective factors for violence take a look at the resources provided by the following organisations:

Early Intervention Foundation

Preventing Gang and Youth Violence: Spotting Signals of Risk and Supporting Children and Young People: www.eif.org.uk/publication/preventing-gang-and-youth-violence

National Policing Improvement Agency

Factors associated with serious or persistent offending. Findings from a Rapid Evidence Assessment: http://whatworks.college.police.uk/Research/Documents/REA_violent_reoffending.pdf

5. Interventions which may reduce violence

This section presents UK public health interventions that have been informed by the approach to the evidence base discussed in Section 4.

Many of the interventions covered in this review were shown to modify risk and protective factors for multiple different kinds of violence, and some were shown to reduce violence itself.

Sharing information – The Cardiff Model

There is good evidence that the public health approach to gathering and using data on violence can contribute to efforts to reduce violence at the population level. As discussed in Section 4, emergency department and hospital admissions data can give a more accurate picture of some kinds of violence than police records alone. By developing systems for specifically and consistently collecting the most useful kinds of data, and for sharing it effectively between relevant agencies, interventions can be designed and targeted to maximise their impact.

The best-evidenced system for data collection and sharing that has been implemented in the UK is the Cardiff model. More than one rigorous evaluation of the Cardiff model has demonstrated an effect on rates of violence, reaching level 3 on the standards of evidence scale (see Section 2).

Sharing information: The Cardiff model

In the Cardiff model, developed in the UK, reception staff in emergency departments collect data about violent incidents from patients presenting with assault-related injuries, including location, time and day, and weapon used. The data is anonymised, analysed and combined with police intelligence, and shared with a group of representatives from many agencies such as local government, police, licensing regulators, licensed businesses, ambulance services and mental health support services.

The data is used to predict, prevent and prepare for violence across the local area. They can inform local prevention strategies, such as increased policing at peak times, the enforcement of licensing regulations, training for bar staff, and the use of plastic glasses in assault hotspots (Quigg et al., 2012; Florence et al., 2011). Calendar patterns can help agencies prepare for spikes in violence around certain days, and can contribute to public health strategy in the long term, through improving our understanding of the nature and causes of violence in different populations.

Researchers have found good evidence that the Cardiff model can reduce violence at a population level. In Cardiff, hospital admissions following roll-out were substantially and significantly reduced, while rates of woundings rose more slowly than in comparison cities (Florence et al., 2011). In Wirral, the model was associated with decreased emergency department attendances related to intentional injury (assault) and alcohol-related injury (including assault and deliberate self-harm; Quigg et al., 2012).


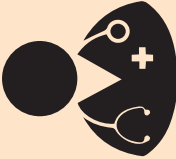
In Wirral the proportion of assault attendances that were admitted to hospital decreased (Quigg et al., 2012), and in Cardiff the relative decrease in woundings corresponded with an increase in less serious assaults recorded by the police (Florence et al., 2011). These findings suggest that prevention efforts within the Cardiff model may reduce the severity of violent incidents or prevent them from escalating, as well as reducing overall assault rates.

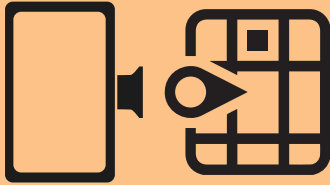
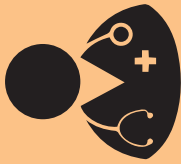

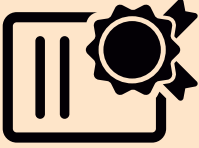
Other evidenced interventions that meet level 3 on the standards of evidence scale


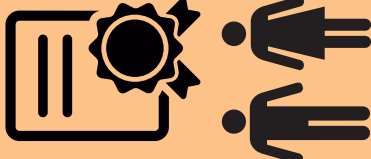
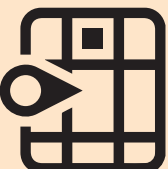
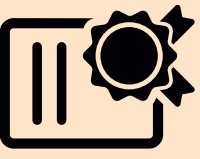
Evidence for specific interventions that have been rolled out in the UK is summarised in Figure 7. Interventions are arranged according to the approach they take, eg supporting parents and families. Multi-component interventions are grouped at the bottom of the table.



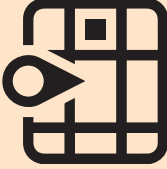

This summary presents the best evidence from interventions rolled out in the UK, reaching level 3 on the scale for standards of evidence. Not included in the table are evidence from outside the UK and interventions that are promising but not yet well-evidenced. Some of these are described in more detail in the reviews listed on page 13.





Figure 7 Evidence for interventions that can be considered to be public health interventions to reduce violence


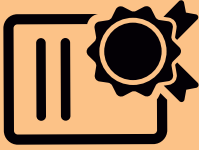
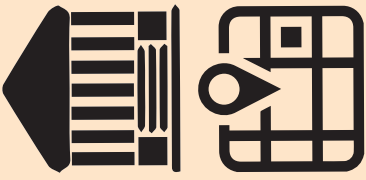
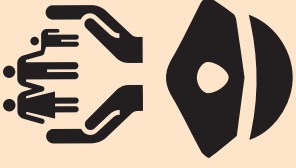
Model	Content	Logistics	Delivered by	Demonstrated outcomes	Cost/ROI
<p>Family Nurse Partnership</p> <p>http://guidebook.eif.org.uk/programme/family-nurse-partnership</p>	<p>Support for young, vulnerable first-time mothers from early pregnancy to child's second birthday. Mothers learn parenting skills, learn about their child's health and receive support for their own wellbeing.</p>	 <p>At home. 64 x 60-90min sessions Individual sessions</p>	 <p>Nurse or midwife</p>	<p>Good evidence for reduced violence and related outcomes in the long term from recent follow-ups to randomised controlled trials (RCTs), and in the short term from the earlier studies.</p> <p>Evidence that intimate partner violence during pregnancy and the first two years of the child's life was reduced (Mejdoubi et al., 2013).</p> <p>Evidence of reduced child abuse, neglect, punishment and emergency department admissions during the child's first year of life (Olds et al., 1986).</p> <p>Evidence of reduced adolescent antisocial behaviours (arrests, convictions, behavioural problems) in a follow-up at age 19 (Eckenrode et al., 2010).</p>	<p>Unit cost > £2,000</p> <p>Savings of \$2.88 for every \$1 invested in the USA</p>



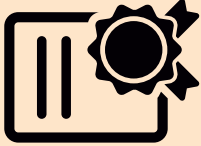
Model	Content	Logistics	Delivered by	Demonstrated outcomes	Cost/ROI
<p>Triple P</p> <p>www.triplep.net</p>	<p>A parenting programme offering different levels of support, from level one (providing information) to level five (addressing severe childhood problems). It aims to create stable and supportive families and equip them with family problems including problematic child behaviour.</p>	 <p>Online or in any suitable location Different levels and formats available</p>	 <p>More intensive levels generally delivered by health professionals</p>	<p>Many RCTs have found evidence that Triple P can improve outcomes for children who take part. A study in the USA found that counties with Triple P had fewer substantiated child abuse cases, injuries from child abuse and out-of-home placements than counties with standard care and support after two years (Prinz et al., 2009).</p> <p>Evidence of improved child behaviour has also been found (eg Bodenmann et al., 2008).</p> <p>A 2011 evaluation of parenting programmes for the Department of Education found Triple P to have the most benefits in reducing child behaviour problems (Lindsay & Cullen, 2011).</p>	<p>Unit cost is ~ £1,160</p> <p>Saving is ~ £9,288 per child with conduct disorder over 25 years (Bellis et al., 2012)</p>
<p>Incredible Years Preschool</p> <p>www.incredibleyears.com/programs/parent/preschool-basic-curriculum</p>	<p>An intervention for parents who are concerned about the behaviour of a child aged 3-6 years. Parents learn strategies for positive interaction with their child and for discouraging unwanted behaviour. Delivery includes videos, group discussion, problem-solving exercises and structured practice activities.</p>	 <p>Any suitable location 18-20 x two-hour sessions weekly Group sessions</p>	 <p>2 x Facilitators (QCF-7/8)</p>	<p>UK-based RCTs have found evidence for improved parenting (Hutchings et al., 2007) and improved child behaviour, including reduced antisocial behaviour in adolescence (Scott et al., 2014).</p>	<p>Unit cost = £500-£999</p> <p>Cost effective, especially when high risk of developing a conduct disorder (Edwards et al., 2007)</p>


Model	Content	Logistics	Delivered by	Demonstrated outcomes	Cost/ROI
<p>Family Foundations http://famfound.net</p>	<p>A group-based programme for couples expecting their first child, aiming to improve the interparental relationship. During pregnancy, parents learn strategies for communication, conflict resolution, and sharing childcare duties. After birth, the parents learn strategies for communicating effectively and supporting the child's development.</p>	 <p>Any suitable location. 5 x weekly sessions during pregnancy + 4 x weekly sessions 2-6 months after birth. Group session.</p>	 <p>More intensive levels generally delivered by health professionals.</p>	<p>Multiple studies have found positive outcomes for parenting and child wellbeing. A RCT conducted in the USA found evidence of reduced externalising problems and improved prosocial behaviour among children whose parents had participated, 3-7 years after the intervention (Feinberg et al., 2014; Feinberg et al., 2010).</p>	<p>Unit cost < £100.</p>
<p>Empowering Parents, Empowering Communities http://www.cpcs.org.uk/index.php?page=empowering-parents-empowering-communities</p>	<p>Groups of parents from disadvantaged families, who are experiencing behavioural difficulties with a child aged 2-11 years, learn strategies for improving parent-child interactions, reducing negative behaviour, and improving their parenting confidence and effectiveness. Sessions involve group discussions, demonstrations, role play and homework assignments.</p>	 <p>Any suitable location 8 x two-hour sessions. Groups of 12 families.</p>	 <p>2 x Trained facilitators (QCF-3)</p>	<p>A RCT in England found evidence for improved parenting and reduced number and severity of child behaviour problems (Day et al., 2012).</p>	<p>Unit cost < £100.</p>

Model	Content	Logistics	Delivered by	Demonstrated outcomes	Cost/ROI
<p>The Good Behaviour Game http://guidebook.eif.org.uk/programme/the-good-behaviour-game</p>	<p>A universal preventive programme for primary school students, to encourage prosocial behaviour and reduce disruptive behaviour in the short and long term.</p>	 At school 10-45 minutes x several times per week Groups of 15-30 students.	 Teacher	<p>Evidence of reduced antisocial behaviour at 14-year follow up (Kellam et al., 2008). Evidence of reduced suicide ideation at 14-year follow up (Kellam et al., 2008).</p>	<p>Unit cost < £100.</p>
<p>Incredible Years Child Training (Dinosaur School) http://www.incredibleyears.com/programs/child/classroom-curriculum/</p>	<p>Group-based programme for children with behavioural difficulties aged 4-8 years, teaching self-regulation and problem-solving skills in small groups. Parents and teachers are recruited to help reinforce good behaviour.</p>	 Any suitable location. 18-20 x two-hour sessions. Groups of ~ 6 children.	 2 x practitioners (QCF-6/7/8) with an education, therapy, counselling or psychology background.	<p>RCTs conducted in the USA have provided good evidence of improved child behaviour and social competence and improved parenting (Reid et al., 2003; Webster-Stratton et al., 2004). However, a RCT in Norway found that Dinosaur School and Incredible Years Preschool interventions (see above) together had no more effect on child behaviour than Incredible Years Preschool alone (Larsson et al., 2009). There is a need for more recent rigorous evaluation from a UK context and relating directly to violence outcomes.</p>	<p>Unit cost = £100-£499.</p>

Model	Content	Logistics	Delivered by	Demonstrated outcomes	Cost/ROI
Incredible Years Teacher Classroom Management http://www.incredibleyears.com/programs/teacher/classroom-mgt-curriculum/	Universal classroom management programme for teachers of children aged 4-8 years, aiming to improve teachers' ability to support children in developing their social, emotional and problem-solving skills.	 Any suitable location. 6 x full-day sessions over six months. Group sessions.	 Group leader (QCF-6) with an education or psychology background.	A rigorous RCT in Wales found evidence of improved child behaviour (Hutchings et al., 2013).	Unit cost < £100.
Promoting Alternative Thinking Strategies (PATHS) www.pathseducation.co.uk	A social and emotional development programme for primary school children. It aims to promote emotional and social competencies and reduce aggression and behaviour problems.	 At school 10-45 minutes x several times per week. Groups of 15-30 students.	 Teacher	Evidence from the UK is mixed (eg Little et al., 2012; Berry et al., 2016), but more robust RCTs in the USA have identified positive outcomes. In the USA, Morris et al. (2014) found that children who took part had improved knowledge and understanding of emotions, social problem-solving skills, and social behaviours.	Unit cost < £100.

Model	Content	Logistics	Delivered by	Demonstrated outcomes	Cost/ROI
Let's Play in Tandem	A school readiness programme for children aged three years living in disadvantaged communities, aiming to improve cognitive development and self-regulation.	 <p>At home. Weekly 90-120-minute sessions over 12 months.</p>	 <p>Trained project worker (QCF-3)</p>	A UK-based RCT found evidence for improved personal and social skills and improved inhibitory control (Ford et al., 2009). Evidence is lacking for impact on aggression or violence over time.	Unit cost = £500-£999.
Community Initiative to Reduce Violence (CIRV)	Multidisciplinary intervention based on the Cincinnati Initiative to Reduce Violence (see, Engel et al., 2013) and implemented in Glasgow. Engages youth gang members to reduce physical violence and weapon possession, offering support, services and opportunities in exchange for a 'no violence, no weapon' pledge.	 <p>At court or any suitable location.</p>	 <p>Police and social workers</p>	Evidence of reductions in most types of violent offences, including physical violence and weapon possession, compared to youths from a similar area of Glasgow (Williams et al., 2014). Caution should be used when inferring causality.	No cost information available.

Model	Content	Logistics	Delivered by	Demonstrated outcomes	Cost/ROI
<p>Identification and Referral to Improve Safety (IRIS)</p> <p>http://www.irisdomesticviolence.org.uk/iris/</p>	<p>An intervention to improve identification and referral of cases of domestic violence without screening. It includes a practice-based training programme for primary health care staff, a prompt in the medical record system to ask about abuse, and referral pathways to a domestic violence advocate.</p>	 <p>In primary care.</p>		<p>In a RCT in Hackney (London) and Bristol, IRIS was found to improve identification and referral of women experiencing abuse (Feder et al., 2011). It is not clear whether that increased identification and referral will lead to reduced rates of domestic violence.</p>	<p>No cost information available.</p>
<p>Multisystemic Therapy</p> <p>http://mstservices.com</p>	<p>An intervention for high-risk 11-17-year olds and their families and communities, to improve parenting skills and school engagement, and to intervene in delinquent peer association, with the aim of preventing reoffending and out of home placements. Involves the use of evidence-based approaches like CBT.</p>	 <p>At home or in the community</p> <p>24/7 over 6-9 months.</p>	 <p>Clinical professional with specialist training in MST.</p>	<p>Overall, evidence for MST is somewhat mixed (Littell et al., 2005), but some rigorous studies have found positive outcomes for the reduction of violence and related outcomes. A UK-based RCT found reductions in aggression (Butler et al., 2011) and a 20-year follow-up to an RCT in Missouri found that participation was associated with various positive outcomes including reduced arrest (Sawyer & Borduin, 2011).</p>	<p>2,285 per young person.</p> <p>ROI is ~£1,222 per young person after 18 months (Cary et al., 2013).</p>

Model	Content	Logistics	Delivered by	Demonstrated outcomes	Cost/ROI
Sure Start Local Programmes (SSLPs)	Works with families/ children from pregnancy to age 14. For preschool children (up to age five) and their families, Sure Start brings together child education, child care, health services and family support within dedicated children's centres.	 In children's centres.		<p>A large-scale study comparing child outcomes at age 3 years (Melhuish et al., 2008) found that children from SSLP areas had better social development, had more positive social behaviour, and experienced less negative parenting. Improvements in parenting were found to continue up to age 5 (The National Evaluation of Sure Start (NESS) Team, 2010).</p> <p>More research is needed to evaluate the effect of SSLPs on violence, but Early Head Start in the USA (on which Sure Start is based) has been associated with lower levels of aggressive behaviour in children and less use of spanking in parents (Love et al., 2005).</p>	No cost information available.

ROI – return on investment

6. Appendix: Review protocol and bibliography

Search strategy

Using the search terms below, we conducted a Google Scholar search combining each primary search term with each secondary search term and each tertiary search term (eg, 'public health approach' + 'violence' + 'reduction', 'public health approach' + 'violence' + 'prevention'). We looked at the first 30 articles for each combined search term, scanned abstracts for all potentially relevant, publicly available articles, and selected the most relevant articles for the bibliography. We also conducted a standard Google search to make sure key UK literature not found in journals was also included in the bibliography, and used a snowball approach to expand the bibliography where appropriate.

We included articles published between 2007 and 2017 that focused on the UK, though evidence from before 2007 is sometimes also presented alongside more recent studies.

Primary search terms	Secondary search terms	Tertiary search terms
Public health approach	Violence	Reduction
Public health	Domestic abuse	Prevention
Epidemiological approach	Domestic violence	Tackling
Community empowerment	Violence against women and girls	Resilience
	Family violence	
	Community violence	
	Neighbourhood violence	

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