Public Health, Youth Violence and Perpetrator Well-Being

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Abstract

Youth violence poses a significant public health issue due to its health antecedents (e.g. health inequalities, mental health issues, alcohol misuse) and consequences (i.e. physical and psychological morbidity, and mortality). While violence and its desistance have traditionally been the purview of the criminal justice system, the importance of a preventative public health approach has been increasingly acknowledged. The public health approach employs scientific methods, seeks to intervene at multiple levels (primary, secondary and tertiary), and advocates for the involvement of multidisciplinary stakeholders. This paper outlines the public health approach to youth violence; discusses examples of current public health research into youth violence prevention (i.e. school-based interventions, and gang interventions); and provides a brief review of the evidence regarding youth violence perpetrators and well-being, which suggests mixed outcomes (positive and negative) depending upon intentionality of violence, and congruency with group norms. The paper concludes by highlighting future research directions.

Introduction

Adolescence and young adulthood is a period associated with risk; particularly the risk posed by violence (Dahlberg & Potter, 2001). Violence involving youths (aged 10-29 years) is one of the most visible forms of violence in society (Mercy, Butchart, Farrington, & Cerdá, 2002). Youth violence is defined as "acts of interpersonal aggression, ranging in seriousness from crimes against individuals (e.g. robbery, assault) to aggressive behaviors, such as hitting, bullying, and, for younger students, biting and hurling objects at others" (Gottfredson & Bauer, 2007, p. 157). Youth violence is comparatively more likely to be classed as non-domestic, and take place in public places (e.g. streets, schools), compared to adult interpersonal violence (Mercy et al., 2002). Assaults involving youths contribute significantly to the global burden of morbidity and premature mortality (World Health Organization [WHO], 2008). Beyond the direct impact on victim(s) and perpetrator(s), youth violence affects families, friends, and communities through its adverse impact on quality of life, and through the substantial cost imposed on health, criminal justice, and other services (Mercy et al., 2002).

Despite successes of the criminal justice approach in the investigation and prosecution of violent crimes, and increasing number of incarcerated violent offenders, youth violence continues to pose a considerable burden on societies across the globe (see Carnochan & McCluskey, 2011). The *World Report on Violence and Health* states that in order to develop effective youth violence prevention policies and programs, it is necessary to understand the factors that increase the risk of victimization and/or or perpetration (Mercy et al., 2002). Indeed, it is believed that a public health approach, with its focus on prevention, may compliment the criminal justice approach in addressing youth violence (e.g. Koop & Lundberg, 1992). The promotion of prevention is achieved through the application of scientific theory, robust data collection and monitoring; program development and

evaluation; and coordinated and collaborative, multi-sectorial working (e.g. Ketterlinus, 2008b; Koop & Lundberg, 1992).

This paper begins by outlining the public health approach to violence prevention, before briefly identifying ways in which preventive approaches have been applied at different levels to youth violence. Next, a novel review of recent studies that consider the impact of violence perpetration on well-being is presented, before the paper concludes by identifying future directions in the prevention of youth violence.

Public health approach to youth violence prevention

Violence has traditionally been the purview of criminal justice (Prothrow -Stith, Spivak, & Sege, 1997). However, criminal justice has not solved the problem of violence and a public health approach, which has a focus on reducing the impact of the underlying causes of violence, is *also* needed (Prothrow-Stith, 2004; D. Prothrow-Stith & R. A. Davis, 2010). While both public health and criminal justice aim to prevent violence, they differ in their approaches. Traditionally, the criminal justice system has adopted deterrent approaches, whereas public health utilizes behavioral, biomedical and environmental intervention (Akers, Potter, & Hill, 2012). The public health approach has been successful in reducing the incidence of a range of non-communicable diseases (e.g. road traffic fatalities [Hemenway, 2009]), type II diabetes mellitus (Orozco et al., 2008), and acute coronary syndrome (Callinan, Clarke, Doherty, & Kelleher, 2010)). It is therefore argued that "violence, like a range of other environment-and behavior-related health problems—including HIV/AIDS, cardiovascular diseases, and diabetes— can largely be predicted and prevented" (Brundtland, 2002, p. 1580).

The WHO offer one of the broadest definitions of violence, in an attempt to encompass all of its forms; to reflect both the context and quality of that violence; to highlight the wide range of outcomes; and to emphasize the intentionality of the act (see Dahlberg & Krug, 2002, p5): "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".

Public health takes a population-based approach and aims to improve the health and safety of the population. More specifically in terms of youth violence, it aims to manage the risk factors that predict whether a young person will become a victim or perpetrator of violence (Violence Prevention Alliance [VPA], 2014). In order to address this, the 4-stage public health approach is adopted that moves from problem to solution (Dahlberg & Krug, 2002). This involves identifying the magnitude, scope, characteristics and consequences of youth violence at local, national and international levels; the identification of risk and protective factors which are used to develop an understanding of the etiology of violence; using the acquired information to develop and evaluate interventions to address violence; and scale-up those interventions that are found to be effective (Mercy, Rosenberg, Powell, Broome & Roper, 1993; see Figure 1).

Insert Figure 1 about here

However, it should be noted that violence is a result of many interacting risk and protective factors (see Krug, Dahlberg, Mercy, Zwi, & Lozano, 2002). Based on the ecological systems theory (see Bronfenbrenner, 1992), Dahlberg and Krug (2002) developed

a socio-ecological model to account for the various risk and protective factors for violence at four, nested levels of influence:

1. *Individual level* influences include biological factors, personal history factors that influence behavior (e.g. previous abuse), educational attainment and impulsivity.
2. *Relationship level* influences include proximal relations with family, intimate partners and peers that can be conducive to or protective from violence. For example, living with an offender increases the risk of future victimization and/or perpetration.
3. *Community level* influences consider social relationships in context (e.g. schools, neighborhoods, workplaces) including the role of group level social norms. For instance, communities where there are high levels of unemployment, social isolation, poverty, and low social cohesion are at risk of high levels of violence.
4. *Societal level* influences include social or economic (in)equality, cultural norms that are accepting/dismissive of violence, political conflict, patriarchy and presence/absence of educational opportunities.

In addition to understanding the causes of violence, the socio-ecological model can be used to inform public health interventions. Indeed, it is recommended that interventions to prevent violence should address more than one level (Dahlberg & Krug, 2002).

Public Health Interventions

The overarching aim of public health interventions is to prevent violence from happening in the first instance (Centres for Disease Control and Prevention [CDC], 2013). Public health makes the distinction between primary, secondary and tertiary prevention (Orbell, 2000).

These three levels of prevention have been applied to violence and whilst traditionally focused on victims (i.e. preventing and reducing the impact of violent injury), they are now also acknowledged in the prevention of violence perpetration (Dahlberg & Krug, 2002). Following work on community street violence with young people in Philadelphia, Prothrow-Stith and Davis (2010) renamed the three levels: *Upfront* (primary) prevention which aims to prevent symptoms (i.e. acts of violence) from happening in the first instance by targeting risk factors for violence (e.g. socio-economic deprivation, exposure to family violence; Mercy, et al., 2002); *In the thick* (secondary) prevention which refers to approaches that aim to reduce involvement in violence after symptoms or risks factors for violence have begun to manifest (e.g. aggressive or antisocial behavior, gang membership); and *Aftermath* (tertiary) prevention which focuses on long-term responses to deal with the consequences of violence and to prevent it happening again (e.g. post-violence gang interventions).

Much of the research and practice to date has focused on identifying and addressing risk factors. While the research on protective factors is still evolving, a number of potential protective factors for youth violence have been identified including: pro-social skills and attitudes, school attachment, academic achievement and having non-delinquent peers (Bernat, Oakes, Pettingell, & Resnick, 2012; Henry, Tolan, Gorman-Smith, & Schoeny, 2012; Herrenkohl, Lee, & Hawkins, 2012; Pardini, Loeber, Farrington, & Stouthamer-Loeber, 2012). Given that many of the wider, societal determinants of violence (e.g. poverty, gender inequality etc.) will be resistant to change in the short-term, developing protective factors can serve to mitigate the effect of exposure to these and other risk factors (Arthur, Hawkins, Pollard, Catalano, & Baglioni, 2002; Hawkins, Catalano, Kosterman, Abbott, & Hill, 1999).

In general, the focus of public health is on primary prevention (Cohen, Chavez, & Chehimi, 2010). Indeed, the current best evidence for violence prevention supports the use of indirect primary prevention approaches (e.g. parenting programs and social development

programs for children and adolescents) that support children and their families early in life to develop protective attitudes and skills, compared to later interventions that aim to reduce involvement in established violent behavior (IOM & NRC, 2014; Sethi, Hughes, Bellis, Mitis, & Racioppi, 2010; Tremblay, 2006). However, it is recognized that a life-course approach incorporating primary, secondary, and tertiary prevention efforts is necessary to ensure sustained protection and mitigation of risk factors for violence (WHO, 2007).

Primary Level Prevention Example: School-based Youth Violence Initiatives

As schools provide an important context for social development, they offer an opportune setting for youth violence prevention initiatives (Farrell, Meyer, Kung, & Sullivan, 2001). Furthermore, as the majority of the youth population in Western countries attends school, a large number of children and adolescents can be accessed at the same time with relative ease (Hahn et al., 2007).

School-based primary prevention programs generally take the form of social development initiatives (e.g. Botvin, Griffin, & Nichols, 2006; Buckley, Sheehan, & Shochet, 2010; Kliewer et al., 2011; Shetgiri, Kataoka, Lin, & Flores, 2011), social norms approaches (e.g. Katz, Heisterkamp, & Fleming, 2011; Swaim & Kelly, 2008), peer mediation (Orpinas et al., 2000) or a combination of these components (e.g. Chauveron, Thompkins, & Harel, 2012; Farrell, Meyer, Sullivan, & Kung, 2003). Programs are delivered to entire year groups of students in their own classes (i.e. students are not selected on basis of risk) in pre-school, elementary, middle and high school settings (Hahn et al., 2007). Less commonly, direct approaches are used which aim to reduce violence by helping pupils feel safe (Sethi et al., 2010). These may include school safety technology (e.g. weapon detection systems, security

cameras; Garcia, 2003) or the presence of campus police (Black, Homes, Diffley, Sewel, & Chamberlain, 2010).

The ability of such programs to reduce violent behavior has been examined through systematic review. First, Hahn et al. (2007) examined the effectiveness of any intervention which had the specific aim of reducing violent behavior in pupils of any age. For all grades combined, the median effect was a 15% relative reduction in violent behavior in intervention pupils compared to control pupils. The effects were greatest for pre-school pupils (32.4% relative reduction, 6 studies) and high school pupils (29.2% relative reduction, 4 studies). Peer mediation, where a third party (e.g. student, family member) helps two young people resolve a conflict (Johnson et al., 1995), showed the greatest effects (61.2% relative reduction) and enabled children to negotiate their own solution and reduced the need for adult interference. However, while peer mediation shows promise as an approach to teaching young people the skills to manage conflict effectively, it should be cautioned that this approach was only evaluated by two studies both of which had relatively small sample sizes (Johnson, Johnson, & Dudley, 1992, Johnson, Johnson, Dudley, Ward, & Magnuson, 1995).

The majority of programs were delivered in elementary schools (18% relative reduction, 34 studies) and middle schools (7.3% relative reduction, 21 studies), where the effects were more modest. Moreover, most of the studies consisted of social skills development programs (n=30), for which there was a 19.1% relative reduction in violent behavior. Social development programs are believed to enhance protective factors for violence by developing pro-social skills (e.g. problem-solving, anger management, empathy, and stress and emotions management; Grossman et al., 2007) and enable young people to develop and maintain healthy relationships by providing them the skills to deal with conflict (WHO, 2009). Educational programs (8.6% relative reduction, 10 studies) and changes to the school environment (11.7% relative reduction, 12 studies), demonstrated more modest

effects. It should be noted however that these various evaluations used different study designs and were of differing quality (e.g. some were controlled trials, while others were not), thereby somewhat limiting comparability of their effectiveness.

Secondary/Tertiary Prevention Example: Youth gang-related violence prevention

Gang initiatives can operate at both secondary and tertiary levels of violence prevention, since they seek to work with youth displaying risk factors (i.e. gang membership), and youth previously involved in violence perpetration. Youth gang-related violence is a particularly troubling issue across the globe, and is located mainly in places "where the established social order has broken down and where alternative forms of shared cultural behavior are lacking" (Mercy et al., 2002, p.35). However, Esbensen and colleagues note that there is much debate about what constitutes a gang (Esbensen, Winfree, He, & Taylor). Decker and Pyrooz (2010) argue that irrespective of semantic differences, delinquent groups of youths take on certain characteristics, and the group identities take on specific meanings. It is worth noting the fundamental differences between gang and youth violence are most evident in the type and extent of violent offending (Wood & Alleyne, 2010). Quantitative and qualitative studies in both comparative and single-country studies have consistently demonstrated that gang members have substantially higher rates of violent offending, engage in more serious forms of violence, and are more likely to use a weapon than non-gang involved youths (e.g. Boucher & Spindler, 2010; Bradshaw, 2005; Squires 2011). This promotion of violence results from the group-enhancing or symbolic nature of violence to the gang (Klein, Weerman, & Thornberry, 2006), and has been referred to as the "gang effect" (Thornberry et al., 1993, p. 82).

Gangs appear to address a basic need to belong to a group and create a self-identity. Thus, one way in which to prevent gang violence is to provide opportunities that enable gang members to engage in alternative social groups and activities other than violence (Mercy et al., 2002). As with all social groups, gangs possess social norms that can change over time. Interventions with social norm components can therefore represent one avenue to violence prevention in this population (Neville, 2014). This could involve, for example, presenting individuals with accurate data depicting relevant peer groups' unsupportive attitudes and behaviors towards violence, thereby correcting possible violence norm misperceptions. The academic literature on gang violence prevention initiatives covers the complex array of factors that lead young people to join gangs and engage in gang violence, by providing evaluations of multi-component initiatives. Two evaluated initiatives are briefly discussed below to illustrate the potential impact on public health outcomes.

Cure Violence

The Cure Violence initiative (formerly Ceasefire) was developed in Chicago to address the issue of (gang-related) shootings and prevent retaliatory violence. The initiative adopts a public health/disease control model with the aim of preventing the spread of violent behaviors within communities (Slutkin, 2013). The model was originally delivered in seven target neighborhoods in Chicago and has five components: 1) Community mobilization, 2) Youth outreach and intervention, 3) Faith-based leader involvement, 4) Public education, and 5) Criminal justice participation.

The model has since been implemented in many sites within the US and further afield, and a variety of independent evaluations have produced mixed evidence of its effectiveness, with some large positive and negative effects on outcomes such as homicides, shooting,

assaults, gang density et cetera. For example, the evaluation of the original Chicago initiative incorporated both process (i.e. describing the implementation) and outcome (i.e. statistical models, hot spot maps and gang network analyses) evaluation (see Skogan, Hartnett, Bunp, & Dubois, 2008). The outcome evaluation, which utilised a before-and-after design with matched comparators, found that actual and attempted shootings decreased in six of the seven sites, and this was associated with the introduction of CeaseFire in four of these sites. A re-analysis of the original data set by Maguire (2012) was, however, less favourable. For example, he noted that the original evaluation considered three outcomes in seven zones resulting in 21 outcome measures of which "12 favor the comparison areas… , 8 favor the treatment areas… , and 1 favors neither …" (pp. 8-10).

The Baltimore Safe Streets initiative attempted to replicate Chicago's CeaseFire. Webster et al. (2013) investigated the number of homicide and nonfatal shooting incidents per month in four intervention neighborhoods and non-intervention comparison areas. While the program was associated with reductions in homicide and nonfatal shootings in South Baltimore, it was associated with a reduction of homicides in one area of East Baltimore, a reduction in nonfatal shootings in another, and an increase in homicides and decrease in nonfatal shootings in the third area. Finally, the Phoenix TRUCE project (see Fox, Katz, Choate, & Hedberg, 2014) and Pittsburgh's One Vision One Life program (see Wilson, Chermak, & McGarrell, 2011), both of which attempted to replicate the Ceasefire model, found an increase in shootings associated with the program implementation. However, Fox et al. (2014) note that the strict set of rules regarding its implementation may not match the situation in other cities (i.e. small geographic location with high density of violence). Consequently, they note that the lack of fidelity of initiatives based on the Cure Violence model could account for the mixed results.

Problem-oriented Policing

A second approach being applied to understanding and addressing complex gang violence problems is problem-oriented policing (POP) (Braga, 2008) which involves the identification of why things are going wrong and then draws upon a range of non-traditional responses to address the problem (Goldstein, 1979). One way in which this approach has been implemented in the prevention and control of gang and group-involved violence is the focused deterrence strategy (Tillyer and Kennedy, 2008), also referred to as "pulling levers policing" (Kennedy, 2008). The strategy was originally developed in Boston (see Kennedy, Piehl, & Braga, 1996) and has subsequently been applied in many US cities, and in Glasgow, Scotland (Williams, Currie, Linden, & Donnelly, in press). The strategy advertised and personalized messages regarding changes to the certainty, swiftness, and severity of punishment associated with certain criminal acts, while simultaneously offering gang members services and other kinds of support through youth work, probation and police officers, churches, and other community groups (Kennedy, Braga & Piehl, 2001).

The evaluations of Boston's Operation Ceasefire found significant reductions in youth homicide (up to 63%; see Braga, Kennedy, Piehl & Waring, 2001) and other outcomes (see also Piehl, Cooper, Braga & Kennedy, 2003); however, these were greeted with "a healthy dose of skepticism … and some support" (Braga & Weisburd, 2012, p. 325). At the time, a major criticism was the lack of a randomized controlled trial approach. A subsequent systematic review and meta-analysis of 10 quasi-experimental and one randomized controlled trial evaluating the focused deterrence strategy across the US found an overall statistically significant medium sized effect on crime reduction; however they note that the strongest evidence comes from the weakest study designs (Braga & Weisburd, 2012).

Violence Perpetration and Well-being

Experiencing violence as a victim can result in poor health and well-being outcomes including depression, Post-Traumatic Stress Disorder (PTSD) and substance abuse. The experience of violence victimization can then increase the risk of violence perpetration later in life (Bellis, Hughes, Leckenby, Perkins & Lowey, 2014). These factors can make the delineation of cause and effect in relation to the outcomes of violence perpetration problematic. Furthermore, some victims of violence are also, on occasion, perpetrators (Rivara, Shepherd, Farrington, Richmond & Cannon, 1995). There is a relative paucity of research about whether the perpetration of violence impacts on the health and well-being of perpetrator(s). Indeed, health-related outcomes are often overlooked for this group in favor of a focus on recidivism or desistence.

Psychological and physical bullying can occur together or independently. Bullying is an intentionally harmful behavior which may be used as a coercive strategy to maintain a dominant position in a peer group (Olthof, Goossens, Vermande, Aleva & van der Meulen, 2011). Bullying is a frequent occurrence among groups of young offenders with up to 70% displaying the behavior (Ireland, 2005). Moreover, bullying during school years is also common, with 20-30% of pupils involved in some capacity (Juvonen, Graham & Schuster, 2003). Nansel et al (2001) undertook a large study involving a representative sample of 6th grade students in the USA and found that overall 29.9% reported involvement in bullying; 13% as bullies, 10.6% as victims and 6.3% as bully-victims (those who on some occasions will be bullies and on others will be the victims of bullying behavior) (Nansel, Overpeck, Pilla, Ruan, Simons-Morton & Scheidt 2001). School pupils involved in bullying present a useful opportunity to examine the well-being outcomes of violence perpetration, because several studies describe populations of bullies who do not concurrently experience victimization. Bystanders are also an important group to consider in school bullying. Gini and

colleagues (2008) describe three bystander groups who may influence bullying interactions; those who defend the victim, those who support the bully and completely passive onlookers (Gini, Pozzoli, Borghi & Franzoni, 2008).

Several studies, including both young offender and school populations, have shown that peer-identified bullies have more positive psychological outcomes compared to those not involved in bullying (Ireland, 2005; Juvonen et al., 2003). Perpetrator-only bullies may also have lower incidences of depression, social anxiety and loneliness when compared with victims, and those who are both victims and perpetrators of violence (Juvonen et al., 2003). This may be due to their high perceived social standing, which in adolescence can be a strong predictor of positive well-being, thereby potentially reinforcing the bullying behavior (Juvonen et al., 2003). Interestingly, those identified as being both bullies and victims seem to experience the highest levels of depression, social anxiety, loneliness and psychosomatic symptoms, and psychologically often fit the profile of violent offenders. Their use of violence tends to be reactive, more disorganized and less strategic in nature, and consequently this group does not command the respect of their peers in the same way as the 'pure' bully does (Juvonen et al., 2003). It is generally understood that bullying behavior and victimization among school pupils declines with age, however, there is a sub-group of victims who, with age, are at higher risk of becoming bullies (Barker, Arseneault, Brendgen, Fontaine & Maughan, 2008). The authors suggest that these victims demonstrate a more reactive use of aggression in response to bullying which, combined with their ability to modulate this into a more planned aggressive response as they get older, can result in their transformation into bullies.

While gang members commit intentional acts of violence as group members, they also experience the effects of violence perpetration at an individual level. Psychiatric morbidity (anxiety, psychosis and substance abuse) is highly prevalent among gang members and they

have a high level of contact with mental health services, although they may also have relatively low levels of depression (Coid et al, 2013). However, it is not clear whether gangs attract individuals with pre-existing mental health issues, or whether these are acquired due to past experience of victimization, fear of future victimization or violent perpetration. It is consequently difficult to attribute the psychological well-being outcomes of gang members exclusively to their involvement in violence perpetration. Further work is needed in this area to fully determine cause and effect.

Connorton, Miller, Perry and Hemenway (2011) looked at mental health outcomes for individuals who unintentionally kill or seriously injure others, for example in unintentional shootings. The authors acknowledge that individuals who harm others in this way often have pre-existing mental health issues, such as substance abuse, which may make them more prone to causing injury. However, causing unintentional injury was found to be a significant independent risk factor for subsequent depression, PTSD and substance abuse, and the authors conclude that causing unintentional injury is likely to lead to negative mental health issues. These findings point to a need for increased psychological support for these individuals in the aftermath of acts of unintentional violence. On a related note, police officers who killed or seriously injured civilians in the line of duty experienced negative well-being consequences (Komarovskaya et al., 2011). This may have been a consequence of 'moral injury' if the act was in conflict with their identity as protectors of civilians (Litz et al, 2009). It is possible that perpetrators of youth violence may experience similar negative well-being consequences if their violent act is incongruent with the norms of a relevant social identity.

Child soldiers who participate in war and civil unrest are an interesting group as they are often abducted, subjected to violence, and forced to participate in conflict against their will. Unlike military personnel they are not prepared or trained for the prospect of killing.

Betancourt and colleagues (2010) conducted a follow-up study with one such group; former child soldiers in Sierra Leone. These children had been both victims and perpetrators of violence, however, those who had killed or injured others in the conflict suffered the highest levels of depression and anxiety, and often externalized their problems in post-conflict settings thereby hampering social reintegration (Betancourt, Borisova, de la Soudiere & Williamson, 2011). The knowledge among their community that returning child soldiers have been perpetrators of violence can also lead to a degree of stigmatization and consequent social isolation. However, there are factors that can promote resilience among this group. In a study of former Ugandan child soldiers, good social and spiritual support, reintegration into school, and a positive socioeconomic status were associated with posttraumatic resilience and more positive well-being outcomes (Klasen et al., 2010).

Future Directions

Whilst the public health approach to youth violence has gained traction, there remains a paucity of evidence regarding youth violence perpetration and well-being. This is an important gap in the literature, because the well-being consequences of violence perpetration may be risk-factors for future violence perpetration or victimhood. For example, PTSD in victims of violence has been identified as a risk factor for violence perpetration (Kuijpers van der Knaap & Winkel, 2012); can perpetrator PTSD as a consequence of committing a violent act function as a risk factor for the perpetration of future violence? Are there different well-being consequences for violence committed intentionally, compared to unintentional or unwilling perpetration which may or may not be congruent with group norms? The issue is in part a methodological one; unpicking the causes and effects of well-being in a perpetrator population – particularly amongst gang members - is a challenge. Longitudinal studies with "at-risk" populations are needed to tease out specific well-being outcomes, while controlling

for past or current victimization, and other motivations for violence. Indeed, there is a general need for more robust evaluation of public health violence initiatives in order to inform theory and best practice (Williams, Gavine, Ward & Donnelly, 2014).

Furthermore, what literature there is has focused on the extremes of violent behavior. A significant amount of violence that occurs worldwide is low level interpersonal violence which does not result in severe injury or death to the victim(s), but may still have important repercussions for the perpetrator'(s) well-being. For example, it would be interesting to know under what circumstances perpetrators who commit nonfatal violent acts – perhaps under the influence of alcohol - later reflect positively or negatively upon their behavior, and the repercussions of this for future involvement in violence.

Conclusion

The public health approach offers important insights into the determinants and consequences of violence, with a particular focus on prevention. This paper has outlined the theoretical background to this field, with specific references to youth violence. This included explanation of the stages necessary in the approach, and the four levels of influence outlined in a socio-ecological model. School-based violence prevention schemes were examined as examples of primary prevention initiatives, before youth gang initiatives were discussed as examples of secondary and tertiary level interventions. Social norms components at each level of intervention display the potential for positive change away from violence and future perpetration. Preliminary evidence was also reviewed regarding the well-being consequences for perpetrators of violence. This pointed to mixed outcomes which appear dependent upon the intentionality and strategic nature of the violence, whether individuals were concurrently perpetrators and victims, and whether violence perpetration was congruent with the group

norms of individuals' salient social identity. Further study is required to explore these relationships.

References

Akers, T. A., Potter, R. H., & Hill, C. V. (2012). *Epidemiological criminology: A public health approach to crime and violence*. San Francisco: John Wiley & Sons.

Arthur, M. W., Hawkins, J. D., Pollard, J. A., Catalano, R. F., & Baglioni, A. (2002). Measuring risk and protective factors for use, delinquency, and other adolescent problem behaviors the communities that care youth survey. *Evaluation Review, 26*(6), 575-601.

Barker, E. D., Arseneault, L., Brendgen, M., Fontaine, N., & Maughan, B. (2008). The Joint Development of Bullying and Victimization in Adolescence: Relationships to Delinquency and Self-harm. *Journal of the American Academy of Child and Adolescent Psychiatry, 47*(9), 1030-1038.

Bellis, M.A., Hughes, K., Leckenby, N., Perkins, & Lowey, H. (2014). National household survey of adverse childhood experiences and their relationship with resilience to health-harming behaviours in England. *BMC Medicine, 12*, 72.

Betancourt, T.S., Borisova, I.I., William, T.P., Brennan, R.T., Whitfield, T.H., de la Soudiere, M. et al (2010). Sierra Leone's former child soldiers: A follow-up study of psychological adjustment and community reintegration. Child Development, *81*(4), 1077-1095.

Bernat, D. H., Oakes, J. M., Pettingell, S. L., & Resnick, M. (2012). Risk and direct protective factors for youth violence: results from the National Longitudinal Study of Adolescent Health. *American Journal of Preventative Medicine, 43*(2 Suppl 1), S57-66.

Betancourt, T.S., Borisova, I.I., de la Soudiere, M. & Williamson, J. (2011). Sierra Leone's child soldiers: War exposures and mental health problems by gender. *Journal of Adolescent Health, 49*(1), 21-28.

Black, C., Homes, A., Diffley, M., Sewel, K., & Chamberlain, V. (2010). *Evaluation of campus police officers in Scottish schools*. Edinburgh: Scottish Government.

Botvin, G. J., Griffin, K. W., & Nichols, T. D. (2006). Preventing youth violence and delinquency through a universal school-based prevention approach. *Prevention Science, 7*(4), 403-408.

Bouchard, M., & Spindler, A. (2010). Gangs, groups, and delinquency: Does organization matter? *Journal of Criminal Justice, 38*(5): 921-933.

Bradshaw, P. (2005). Terrors and young teams: Youth gangs and delinquency in Edinburgh. In S. H. Decker & F. M. Weerman (Eds.), *European street gangs and troublesome youth groups: Findings from the Eurogang research program* (p241-274). Walnut Creek, CA: AltaMira Press.

Braga, A.A., Kennedy, D.M., Piehl, A.M. & Waring, E.J. (2001). Measuring the impact of Operation Ceasefire. In *Reducing Gun Violence: The Boston Gun Project's Operation Ceasefire*. Retrieved from https://www.ncjrs.gov/pdffiles1/nij/188741.pdf

Braga, A.A. (2008). *Problem-orientated policing and crime prevention (2nd Ed).* Monsey: Criminal Justice Press.

Braga, A.A. & Weisburd, D.L. (2012). The effects of "pulling levers" focused deterrence strategies on crime. *Campbell Systematic Reviews*, 6. Retrieved from http://www.nnscommunities.org/Braga_Pulling_Levers_Review_CAMPBELL_RECORD.pdf

Bronfenbrenner, U. (1992). *Ecological systems theory*. London: Jessica Kingsley Publishers

Browne, K. Hamilton-Giachritsis, C. & Vettor, S. (2007). *The cycles of violence: The relationship between childhood maltreatment and the risk of later becoming a victim of perpetrator of violence*. Copenhagen: WHO.

Brundtland, G. H. (2002). Violence prevention: A public health approach. *The Journal of the American Medical Association, 288*(13), 1580-1580.

Buckley, L., Sheehan, M., & Shochet, I. (2010). Short-Term Evaluation of a School-Based Adolescent Injury Prevention Program: Determining Positive Effects or Iatrogenic Outcomes. *Journal of Early Adolescence, 30*(6), 834-853.

Callinan, J. E., Clarke, A., Doherty, K., & Kelleher, C. (2010). Legislative smoking bans for reducing secondhand smoke exposure, smoking prevalence and tobacco consumption. *Cochrane Database Syst Rev, 4*.

Carnochan, J. & McCluskey, K. (2011). Violence, culture and policing in Scotland. In D. Donnelly & K. Scott (Eds.), *Policing Scotland* (p399-424). Abingdon: Routledge.

CDC. (2013). *The Social-Ecological Model: A Framework for Prevention*. Retrieved 17 April 2014, from http://www.cdc.gov/violenceprevention/overview/social-ecologicalmodel.html

Chauveron, L.M., Thompkins, A.C., & Harel, O. (2012). Urban youth violence prevention: effectiveness of a scaled-up practice-to-research programme. *Journal of Children's Services, 7*(4), 246-261.

Cohen, L., Chavez, V. & Chehimi, S. (2010) *Prevention is Primary: Strategies for Community Well-Being* (2nd ed.). San Francisco: Jossey-Bass.

Coid, J.W., Ullrich, S., Keers, R., Bebbington, P., DeStavola, B.L., Kallis, C.,…Donnelly, P.D. (2013). Gang membership, violence and psychiatric morbidity. *American Journal of Psychiatry, 170*(9), 985-993.

Connorton, E., Miller, M., Perry, J., & Hemenway, D. (2011). Mental health and unintentional injurers: Results from the national co-morbidity survey replication. *Injury Prevention, 17*(3), 171-175.

Dahlberg, L., & Krug, E. G. (2002). Violence: A global public health problem. In E. G. Krug, L. Dahlberg, J. A. Mercy, A. B. Zwi & R. Lozano (Eds.), *The World Report on Violence and Health*. Geneva: WHO.

Dahlberg, L. L., & Potter, L. B. (2001). Youth violence: Developmental pathways and prevention challenges. *American Journal of Preventive Medicine, 20*(1, Supplement 1), 3-14.

Decker, D.C. & Pyrooz, D. (2010) *Small Arms Survey 2010*. Retrieved from www.smallarmssurvey.org/publications/by-type/yearbook/small-arms-survey-2010.html

Esbensen, F. A., Winfree, L.T., Jr., He, N., Taylor. T. J. (2001). Youth gangs and definitional issues: When is a gang a gang, and why does it matter? *Crime and Delinquency, 47*(1), 105–130.

Farrell, A.D., Meyer, A.L., Kung, E.M., & Sullivan, T.N. (2001). Development and evaluation of school-based violence prevention programs. *Journal of Clinical Child Psychology, 30*(2), 207-220.

Farrell, A.D., Meyer, A.L., Sullivan, T.N., & Kung, E.M. (2003). Evaluation of the Responding in Peaceful and Positive Ways (RIPP) Seventh Grade Violence Prevention Curriculum. *Journal of Child and Family Studies, 12*(1), 101-120.

Fox, A.M., Katz, C.M., Choate, D.E., & Hedberg, E.C. (2014). Evaluation of the Phoenix TRUCE Project: A replication of Chicago CeaseFire. *Justice Quarterly*.

Garcia, C.A. (2003). School safety technology in America: Current use and perceived effectiveness. *Criminal Justice Policy Review, 14*(1), 30-54.

Gini, G., Pozzoli, T., Borghi, F., and Franzoni, L. (2008). The role of bystanders in students' perception of bullying and sense of safaty. *Journal of School Psychology, 46*, 617-638.

Goldstein, H. (1979). Improving policing: A problem-orientated approach. *Crime and Delinquency, 25*(2), 236-258.

Gottfredson, D. C., & Bauer, E. L. (2007). Interventions to prevent youth violence. In L. Doll, S. Bonzo, J.A, Mercy, and D. Sleet (Eds.), *Handbook of injury and violence prevention* (p157-182). New York, NY: Springer.

Grossman, D. C., Neckerman, H. J., Koepsell, T. D., Liu, P. Y., Asher, K. N., Beland, K., ... & Rivara, F. P. (1997). Effectiveness of a violence prevention curriculum among children in elementary school: A randomized controlled trial. *The Journal of the American Medical Association, 277*(20), 1605-1611.

Hahn, R., Fuqua-Whitley, D., Wethington, H., Lowy, J., Liberman, A., Crosby, A., . . . Dahlberg, L. (2007). The effectiveness of universal school-based programs for the prevention of violent and aggressive behavior: a report on recommendations of the Task Force on Community Preventive Services. *Morbidity & Mortality Weekly Report. Recommendations & Reports, 56*(RR-7), 1-12.

Hawkins, J David, Catalano, Richard F, Kosterman, Rick, Abbott, Robert, & Hill, Karl G. (1999). Preventing adolescent health-risk behaviors by strengthening protection during childhood. *Archives of pediatrics & adolescent medicine, 153*(3), 226-234.

Hemenway, D. (2009). *While we were sleeping*. Berkley: University of California Press.

Henry, D. B., Tolan, P. H., Gorman-Smith, D., & Schoeny, M. E. (2012). Risk and direct protective factors for youth violence: results from the Centers for Disease Control and Prevention's Multisite Violence Prevention Project. *American Journal of Preventive Medicine, 43*(2 Suppl 1), S67-75.

Herrenkohl, T. I., Lee, J., & Hawkins, J. D. (2012). Risk versus direct protective factors and youth violence: Seattle social development project. *American Journal of Preventive Medicine, 43*(2 Suppl 1), S41-56.

IOM & NRC (2014). *The evidence for violence prevention across the lifespan and around the world: Workshop summary*. Washington, DC.

Ireland, J.I. (2005). Psychological health and bullying behavior among adolescent prisoners: A study of young and juvenile offenders. *Journal of Adolescent Health, 36*(3), 236-243.

Johnson, D. W., Johnson, R. T., & Dudley, B. (1992). Effects of peer mediation training on elementary school students. *Mediation Quarterly*, *10*(1), 89-99.

Johnson, D. W., Johnson, R., Dudley, B., Ward, M., & Magnuson, D. (1995). The impact of peer mediation training on the management of school and home conflicts. *American Educational Research Journal*, *32*(4), 829-844.

Juvonen, J., Graham, S. & Schuster, S. (2003). Bullying among young adolescents: The strong, the weak and the troubled. *Pediatrics*, *112*(6), 1231-1237.

Katz, J., Heisterkamp, H.A., & Fleming, W.M. (2011). The social justice roots of the mentors in violence prevention model and its application in a high school setting. *Violence against women, 17*(6), 684-702.

Kennedy, D.M. (2008). *Deterrence and crime prevention: Reconsidering the prospect of sanction*. New York: Routlege.

Kennedy, D. M., Piehl, A.M., & Braga, A.A. (1996). Youth Violence in Boston: Gun Markets, Serious Youth Offenders, and a Use-Reduction Strategy. *Law and Contemporary Problems, 59* (1) 147-196.

Kennedy, D. M., Braga, A.A. & Piehl, A.M. (2001). Developing and implementing Operation Ceasefire. In *Reducing Gun Violence: The Boston Gun Project's Operation Ceasefire*. Washington D.C.: US Department of Justice. Retrieved from https://www.ncjrs.gov/pdffiles1/nij/188741.pdf

(Braga & Weisburd, 2012). *Youth Violence: Interventions for Health Care Providers*. American Public Health Association.

Klein, M. W., Weerman, F. M., & Thornberry, T. P. (2006). Street gang violence in Europe. *European Journal of Criminology*, *3*(4), 413-437.

Komarovskaya, I., Maguen, S., McCaslin, S.E., Metzler, T.J., Madan, A., Brown, A.D. …Marmar, C.R. (2011). The impact of killing and injuring others on mental health symptoms among police officers. *Journal of Psychiatric Research, 45*(10), 1332-1336.

Ketterlinus (2008a)). Violence in America: A public health emergency. Time to bite the bullet back. *Journal of the American Medical Association, 267*(22), 3075-3076.

Klasen, F., Oettingen, G., Daniels, J., Post, M., Hoyer, C. & Adam, H. (2010). Posttraumatic resilience in former Ugandan child soldiers. *Child Development, 81*(4), 1096-1113.

Klein, M. W., Weerman, F. M., & Thornberry, T. P. (2006). Street Gang Violence in Europe. *European Journal of Criminology*, *3*(4), 413-437.

Kliewer, W., Lepore, S. J., Farrell, A. D., Allison, K. W., Meyer, A. L., Sullivan, T. N., & Greene, A. Y. (2011). A school-based expressive writing intervention for at-risk urban adolescents' aggressive behavior and emotional lability. *Journal of Clinical Child & Adolescent Psychology*, *40*(5), 693-705.

Koop, C. E., & Lundberg, G. (1992). Violence in America: A public health emergency. *The Journal of the American Medical Association, 22*, 3075-3076.

Krug, E. G., Dahlberg, L. L., Mercy, J. A., Zwi, A. B., & Lozano, R. (Eds.). (2002). *World report on violence and health*. Geneva: WHO.

Kuijpers, K.F., van der Knaap, L.M. & Winkel, F.W. (2012). PTSD symptoms as risk factors for intimate partner violence revictimization and the mediating role of victims' violent behavior. *Journal of Traumatic Stress, 25*(2), 179-186.

Litz, B.T., Stein, N., Delaney, E., Lebowitz, L., Nash, W.P., Silva, C. & Maquen, S. (2009). Moral injury and moral repair in war veterans: A preliminary model and intervention strategy. *Clinical Psychology Review, 29*(8), 695-706.

Orozco, L. J., Buchleitner, A. M., Gimenez-Perez, G., Roqué, I. F. M., Richter, B., & Mauricio, D. (2008). Exercise or exercise and diet for preventing type 2 diabetes mellitus. *Cochrane Database Syst Rev*, 3.

Orpinas, P., Kelder, S., Frankowski, R., Murray, N., Zhang, Q., & McAlister, A. (2000). Outcome evaluation of a multi-component violence-prevention program for middle schools: the Students for Peace project. *Health Education Research, 15*(1), 45-58.

Maguire, E. (2012). Chicago's Ceasefire and the community based violence interruption movement. *Unpublished manuscript*. Washington D.C.: American University.

Mercy, J.A., Rosenberg, M.L., Powell, K.E., Broome, C.V. & Roper, W.L. (1993). *Health Affairs*, *12*(4), 7-29.

Mercy, J. A., Butchart, A., Farrington, D., & Cerdá, M. (2002). Youth violence. In E. G. Krug, L. L. Dahlberg, J. A. Mercy, A. B. Zwi & R. Lozano (Eds.), *World report on violence and health* (p23–56). Geneva: World Health Organization.

Nansel, T., Overpeck, M., Pilla, R.S., Ruan, W.J., Simons-Morton, B., & Scheid, P. (2001). Bullying behaviors among US youth. Prevalence and association with social adjustment. *Journal of the American Medical Association, 285*(16), 2094-2100.

Neville, F.G. (2014). Preventing violence through changing social norms. In P.D. Donnelly & C. Ward (Eds.), *Oxford textbook of violence prevention: Epidemiology, evidence and policy* (p239-244). London: Oxford University Press.

Olthof, T., Goosens, F.A., Vermande, M.M., Aleva, E.A., van der Meulen, M. (2011). Bullying as a strategic behavior: Relations with desired and acquired dominance in the peer group. *Journal of School Psychology, 49*(3), 339-359.

Orbell, S. (2000). What is Prevention? In M. Porter, D. Alder & C. Abraham (Eds.), *Psychology and sociology applied to medicine: An illustrated text* (p64-65). Edinburgh: Churchill Livingstone.

Orpinas, P., Kelder, S., Frankowski, R., Murray, N., Zhang, Q., & McAlister, A. (2000). Outcome evaluation of a multi-component violence-prevention program for middle schools: the Students for Peace project. *Health Education Research, 15*(1), 45-58.

Pardini, D. A., Loeber, R., Farrington, D. P., & Stouthamer-Loeber, M. (2012). Identifying direct protective factors for nonviolence. *American Journal of Preventive Medicine, 43*(2 Suppl 1), S28-40.

Piehl, A.M., Cooper, S.J., Braga, A.A. & Kennedy, D.M. (2003). Testing for structural breaks in the evaluation of programs. *NMER Working Paper Series*. Retrieved from http://www.nber.org/papers/w7226.pdf

Prothrow-Stith, D., Spivak, H., & Sege, R. D. (1997). Interpersonal violence prevention: a recent public health mandate. In R. Detels, W. W. Holland, J. McEwen & G. S. Omenn (Eds.), *The Oxford Textbook of Public Health* (*3*, p1321-1336). New York: Oxford Univeristy Press.

Prothrow-Stith, D. (2004). Strengthening the collaboration between public health and criminal justice to prevent violence. *Journal of Law Medicine & Ethics, 32*(1), 82-88.

Prothrow-Stith, D., & Davis, R. (2010). A publc health approach to preventing violence. In L. Cohen, V. Chavez & S. Chehimi (Eds.), *Prevention is Primary: Strategies for Community Well-Being* (2nd ed.). San Francisco: Jossey-Bass.

Ritter, N. (2009). CeaseFire: A public health approach to reducing shootings and killings. *National Institute of Justice Journal, 264*. Retrieved from https://www.ncjrs.gov/pdffiles1/nij/228386.pdf

Rivara, F.P., Shepherd, J.P., Farrington, D.P., Richmond, P.W., & Cannon, P. (1995). Victim as offender in youth violence. Annals of Emergency Medicine, 26(5), 609-614.

Thornberry, T.P, Krohn, M.D, Lizotte, A.J. & Chard-Wierschem, D. (1993.) The role of juvenile gangs in facilitating delinquent behavior. *Journal of Research in Crime and Delinquency,30*(1), 55–87.

Sethi, S., Hughes, K., Bellis, M., Mitis, F., & Racioppi, F. (2010). *European Report on Preventing Violence and Knife Crime Among Young People*. Geneva: WHO.

Shetgiri, R., Kataoka, S., Lin, H., & Flores, G. (2011). A randomized, controlled trial of a school-based intervention to reduce violence and substance use in predominantly Latino high school students. *Journal of the National Medical Association, 103*(9-10), 932-940.

Skogan, W.G., Hartnett, S.M., Bump, N., & Dubois, J. (2008). *Evaluation of*

Ceasefire-Chicago. Washington, D.C.: US Department of Justice.

Slutkin, G. (2013). Violence is a contagious disease. In *Contagion of Violence Workshop Summary*. Institute of Medicine and National Research Council. Retrieved from http://cureviolence.org/wp-content/uploads/2013/12/IOM-Chap-9.pdf

Squires, P. (2011). Young people and weaponisation. In Goldson, B., (Ed.) *Youth in crisis? 'Gangs', territoriality and violence (*p144-160). Abingdon: Routledge.

Swaim, R. C., & Kelly, K. (2008). Efficacy of a randomized trial of a community and school-based anti-violence media intervention among small-town middle school youth. *Prevention Science, 9*(3), 202-214.

Tillyer, M.S. & Kennedy, D.M. (2008). Locating focused deterrence approaches within a situational crime prevention framework. *Crime Prevention & Community Safety, 10, 75-84.*

Tremblay, R. E. (2006). Prevention of *youth violence: Why not start at the beginning? Journal* of Abnormal Child Psychology, 34(4), 481-487.

VPA. (2014). The public health approach. Retrieved from http://www.who.int/violenceprevention/approach/public_health/en/

Webster, D., Whitehill, J., Vernick, J., & Curriero, F. (2013). Effects of Baltimore's Safe Streets Program on Gun Violence: A Replication of Chicago's CeaseFire Program. Journal of Urban Health, 90(1), 27-40. doi: 10.1007/s11524-012-9731-5

WHO. (2007). The cycles of violence: The relationship between childhood maltreatment and the risk of later becoming a victim or perpetrator of violence. Key facts. Copenhagen: World Health Organization Regional Office for Europe.

WHO (2008). *The Global Burden of Disease: 2004 Update*. Geneva: WHO.

WHO (2009). Violence prevention the evidence: preventing violence by developing life skills in children and adolescents. Geneva: WHO.

Williams, D. & Neville, F. (2013). *Mentors in Violence Prevention: Evaluation of the Pilot in Scottish High Schools*. Retrieved from http://www.actiononviolence.co.uk/sites/default/files/FINAL%20MVP%20EVALUATION%20REPORT.pdf

Williams, D. J., Currie, D., Linden, W., & Donnelly, P. D. (in press). Addressing gang-related violence in Glasgow: A preliminary pragmatic quasi-experimental evaluation of the Community Initiative to Reduce Violence (CIRV). *Aggression and Violent Behavior*.

Williams, D.J. Gavine, A.J. Ward, C., & Donnelly, P.D. (in press). What is "evidence" in violence prevention?. In P.D. Donnelly & C. Ward (Eds.) *Oxford textbook of violence prevention: Epidemiology, evidence and policy* (p125-132). London: Oxford University Press.

Wilson, J. M., Chermak, S., & McGarrell, E. F. (2011). *Community-based violence prevention: An assessment of Pittsburgh's One Vision One Life program*. Santa Monica: RAND Corporation.

Wood, J., & Alleyne, E. (2010). Street gang theory and research: Where are we now and where do we go from here? *Aggression and Violent Behavior*, *15*(2), 100-111.