



**QUEEN'S
UNIVERSITY
BELFAST**

The trauma of violence and its impact on young people in NI: The state of evidence

Walsh, C., & Gray, A. M. (2021). *The trauma of violence and its impact on young people in NI: The state of evidence*. ARK (Northern Ireland Social and Political Archive). <https://www.ark.ac.uk/ARK/>

Document Version:

Publisher's PDF, also known as Version of record

Queen's University Belfast - Research Portal:

[Link to publication record in Queen's University Belfast Research Portal](#)

Publisher rights

Copyright 2021 the Authors. This work is made available online in accordance with the publisher's policies. Please refer to any applicable terms of use of the publisher.

General rights

Copyright for the publications made accessible via the Queen's University Belfast Research Portal is retained by the author(s) and / or other copyright owners and it is a condition of accessing these publications that users recognise and abide by the legal requirements associated with these rights.

Take down policy

The Research Portal is Queen's institutional repository that provides access to Queen's research output. Every effort has been made to ensure that content in the Research Portal does not infringe any person's rights, or applicable UK laws. If you discover content in the Research Portal that you believe breaches copyright or violates any law, please contact openaccess@qub.ac.uk.

The Trauma of Violence and its Impact on Young People in Northern Ireland: The State of Evidence

Dr Colm Walsh, QUB
Prof Ann-Marie Gray, UU

Introduction

This brief draws on published research evidence and discussion at a roundtable event organised by ARK held on 1 July 2021. The roundtable was conducted under the anonymity of reporting allowed under The Chatham House Rule. Attendees included representatives from government departments, statutory agencies and voluntary and community organisations. The following section presents the research information and highlights emerging issues. This is followed by a summary of the three short presentations which provided context for the discussion at the roundtable. These can be accessed on the ARK website together with this Policy Brief.

Background and Context

Over recent decades, we have come to understand how prevalent **childhood adversity** is and the impact this can have on child and adolescent development. One of the most widely cited studies on childhood adversity found that more than 66 per cent of their sample experienced at least one adverse experience during childhood and 13 per cent experienced four or more (Felitti et al, 1998). Research undertaken with young people aged 10-14 across 14 countries suggest that early adversity combined with trauma load are significantly associated with poorer developmental outcomes (Blum, Li and Narnjo-Rivera, 2019). Whilst all forms of adversity are potentially traumatic,

outcomes are highly variable and there has been progress towards understanding how specific types of adversity affect behaviour (McGee, Wolfe and Wilson, 1997).

Violence is a pervasive adversity that disproportionately affects young people (Krug et al., 2002). It is defined as the intentional use of physical force or power, threatened or actual, against oneself or another person, group or community that results in injury, death, psychological harm, maldevelopment of deprivation (WHO, 2020). During childhood, violence is most often experienced in the home setting. As children develop they experience greater risks among peers and in the community. During adolescence, risks of higher harm violence become elevated.

Global estimates suggest that violence is the second leading cause of death for young people (WHO, 2020) and that up to 60 per cent of young people are exposed to some form of violence (Farrell and Zimmerman, 2017). At a European level, the World Health Organisation (2021) estimate that 55 million children are exposed to violence in their lifetime. **This is likely to be elevated in contexts where conflict is more pronounced** - as in the case of Northern Ireland. **The impact of exposure to violence is profound**

and has the potential to permeate many aspects of life both in the short term and the longer term. It has been associated with the onset and persistence of mental health problems, reduced social functioning, increased substance use, as well as a range of other internalising and externalising difficulties-including aggression and violence (Topitzes, Mersky and Reynolds, 2012).

Victims and Perpetrators

It is clear that violence is both an outcome of psychological trauma and a predictor of further psychological trauma. Cross sectional, longitudinal and systematic reviews have established that both direct and indirect exposure to violence increases the risks of perpetrating violence (Lansford et al., 2007; Fowler et al., 2009). However, exposure and effects are experienced differentially depending on factors including age and gender. Boys are more likely to experience early physical abuse as well as community violence (Blum et al, 2015), whilst girls are more likely to experience abuse in the home and sexual violence in the community (McNair et al, 2019). Globally, males account for the majority of victims of interpersonal violence but they are also the majority of perpetrators (Maschi and Bradely, 2008). With the odds of male perpetrated violence almost five times higher than female perpetrated violence (Fox et al, 2015), understanding the factors that contribute towards this relationship is important to identify those most at risk, reduce incidences and mitigate against the potential harm.

If some communities are at greater risk than others, and if some individuals are more vulnerable than others, then this is an issue of social justice and the responsibility of all of society to understand it and respond to it in order to reduce incidences, as well as the harms it causes.

Often perceived as the domain of criminal justice, both the antecedents and consequences of violence are an issue for all of society. Incidences of violence as well as the harm that it causes place additional, and often significant pressure on health,

social care, education and community systems. There are several policy frameworks that place an obligation on all of society to strategically engage with the themes of violence and that encourage policy, practice, academic partnerships:

- **The United Nations Convention on the Rights of the Child (UNCRC)** is a legally binding international agreement setting out the rights that all children and young people should be afforded by signatory countries. Article 19 states that “*governments must do all they can to ensure that children are protected from all forms of violence, abuse, neglect and bad treatment by their parents or anyone else who looks after them*”.
- **The Children’s Services Co Operation Act (Northern Ireland) (CSA) 2015** places a duty on the Northern Ireland Executive to adopt a strategy to improve the wellbeing of children and young people and requires that for the purpose of determining children’s wellbeing, regard is to be had to the relevant provision of the UNCRC. The Act defines the wellbeing of children and young people against eight characteristics *including: physical and mental health; living in safety and with stability. Both are intrinsically associated with young people’s exposure to violence in the home and in the community.*
- **The Children and Young People’s Strategy (2020-2030)**, informed by the CSA, aims to improve the wellbeing of children and young people in Northern Ireland across eight domains. Two domains are of specific interest in the context of violence and the prevention of its harms; ‘physical and mental health’ and ‘living in safety and with stability’. Section 6.67 states that “*Every child and young person is entitled to live without fear of violence, intimidation or bullying...*”

Northern Ireland Evidence

Few have examined the relationship between adversity and violent behaviour (McGee, Wolfe and Wilson, 1997) and this is particularly the case in the context of Northern Ireland. Some estimates suggest that during the conflict (pre-1996), 80 per cent of the population knew someone who had been killed or injured during the Troubles (Breen-Smyth, 2012). Despite a correlation between trends in paramilitary violence and trends in police recorded incidents of interpersonal violence (Walsh, 2019), there has been little attempt to estimate the wider prevalence of exposure to violence or the harm that it causes.

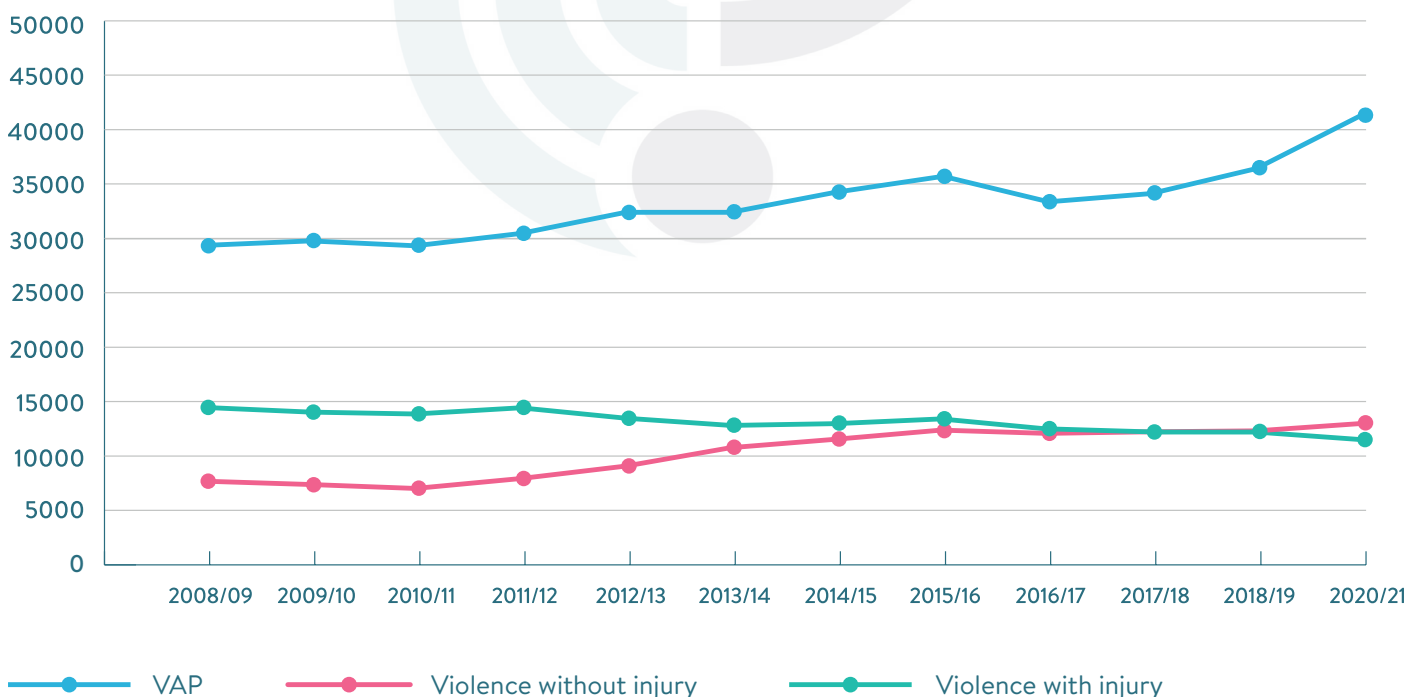
One post-1998 study reported that the lifetime risk of violence was estimated to be 77 per cent with the 12-month calculated to be 63 per cent (McAloney et al., 2009). This compares to an EU

estimate of 12 per cent (Hillis et al., 2017). In one of the first population-based surveys of adversity in Northern Ireland, Bunting et al (2020) found that violence was the single most common form of adversity reported. **There is an evidence gap and combining administrative data with empirical data can help to plug this.**

Administrative sources of evidence

One of the most widely available sources of data on violence are official police recorded data. Throughout the last decade, two patterns have emerged. Although there has been a modest decline in reported assaults that caused injury, over the same period, there has been a 41 per cent increase in overall rates of violence against the person, rising since around 2012 (see fig. 1 below).

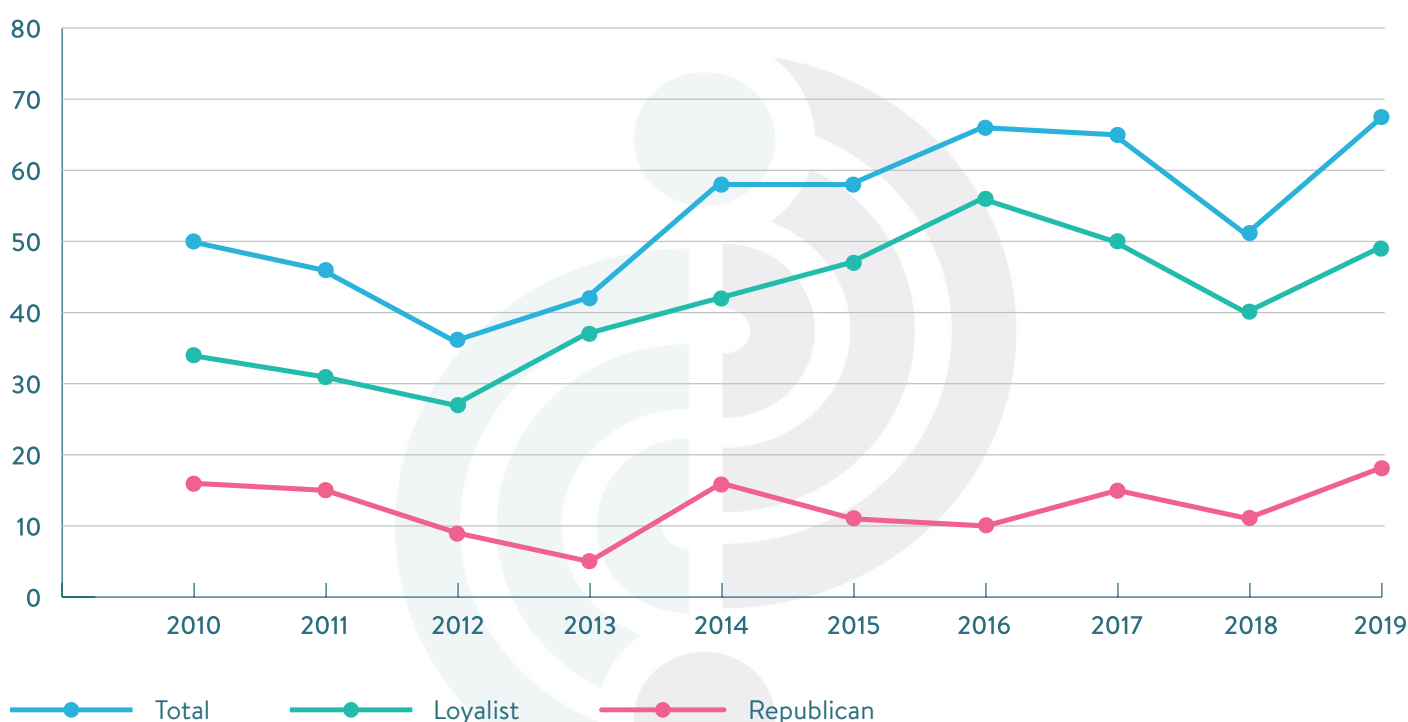
Figure 1: Reported violent crime trends



An enduring feature of Northern Ireland society is the violence and exploitation of communities by paramilitaries. These are captured in police recorded security statistics. Whilst likely a significant underestimation, since 2002/03, PSNI

figures show that there have been a total of 1256 paramilitary style assaults and 173 shootings. **On average, there have been 70 assaults per year and 49 shootings.** Fig 2 illustrates the trend between 2008/09 and 2019/20.

Figure 2: Paramilitary assaults

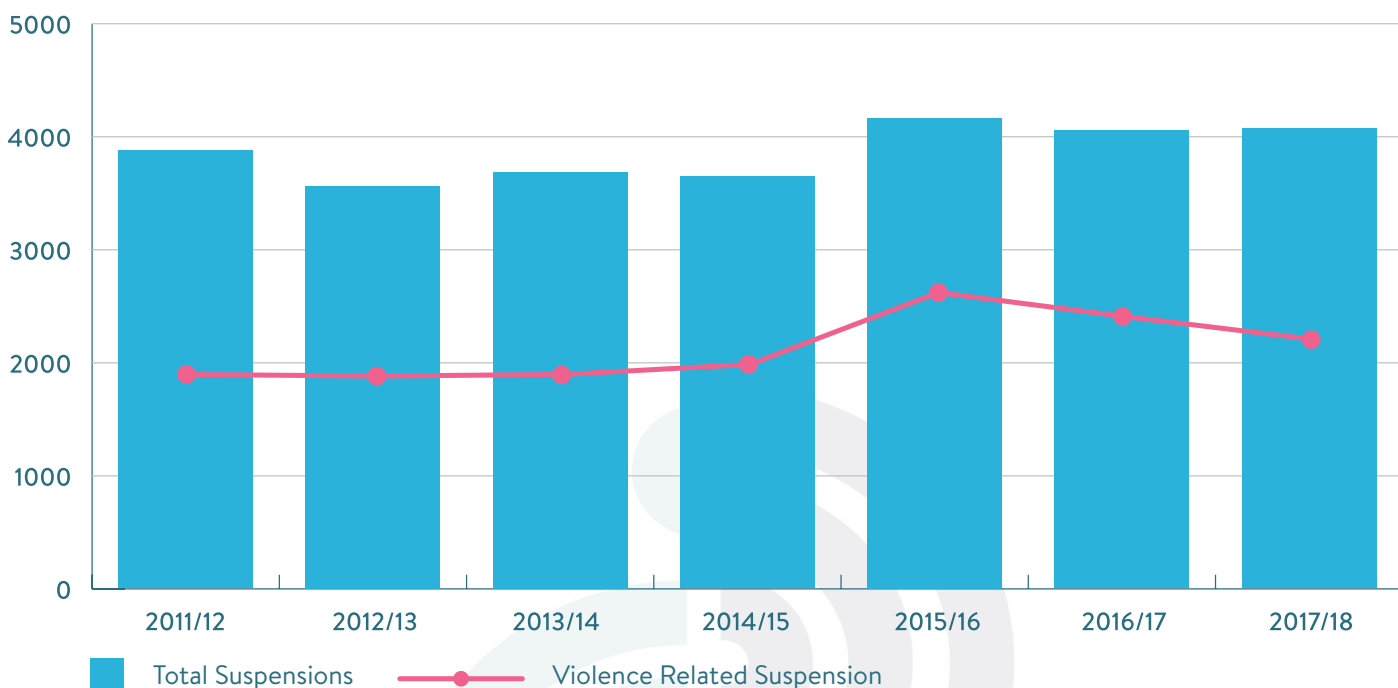


The wider impact of paramilitary violence on the lives of families can be seen in figures collected by the Northern Ireland Housing Executive. In the six months from April to September 2018, a total of 200 families presented as homeless due to paramilitary intimidation. Over the previous six years, on average 638 families each year presented with housing needs due to intimidation and paramilitary style violence within their own communities.

Since 2011/12, the Education Authority for Northern Ireland has reported data for school

suspensions (see fig. 3) disaggregated for gender and the reason for suspension. Prior to the onset of the Covid 19 Pandemic and changes to how education was delivered, a total of 27,032 young people were officially registered as suspended. **15,211 of these suspensions were due to violent altercations - an average of 2,173 suspensions due to violence each year,** accounting for 56.3 per cent of all suspensions. Over twelve and a half thousand (82.8%) suspensions were of young men.

Figure 3: School suspensions



The Youth Justice Agency with responsibility for the prevention of youth offending for those aged 10-18 in their most recent report (YJA, 2020) note that **86 per cent of the total custodial population in 2019/20 are young men**. Across the whole youth justice system, young men account for 78 per cent of the total number of referrals. Further, the association between type of offence and reoffending is nuanced with violence-related offenders being significantly more likely to reoffend VAP (32%) (Duncan & Browne, 2018).

These data provide insights into incidences and trends of violence from those in the school system to more serious forms of violence orchestrated by criminal networks. There are important systems that **do not** routinely record violence related data and those that do, do not adequately capture the complexity of exposure, either as a victim, or as a perpetrator. For example, **we know little about the physical or mental health needs of victims or perpetrators of violence**. Emergency departments logically treat serious injuries associated with interpersonal violence, yet there is no regional mechanism to record or analyse these incidents. Despite a **NHS protocol (ISB1594)** recommending a minimum standard for violence

related data collection, this is not currently being implemented across Northern Ireland. With only partial data, we are limited in our ability to prevent ongoing and indeed escalating violence. Empirical studies are contributing towards closing this data gap and helping to inform policy and practice but much more needs to be done.

Empirical Studies

Empirical studies can provide a rich narrative around young people’s exposure to violence, the perceived dangers in the community and skills they use to mitigate risk, as well as interpreting complex relationships that link victim to perpetrator observations. A seminal report undertaken by YouthAction in 2001, found that violence was a fact of *‘Everyday Life’* (YouthAction NI, 2001) for young men in Northern Ireland. Subsequent qualitative studies illustrate the pervasive nature of violence, particularly for young men. In a longitudinal study, Harland and McCready (2012) found that **75 per cent of young men reported ‘frequent’ exposure to violence** across a variety of settings and in more recent research Walsh and Schubotz (2019) found that violence remained prevalent for young men across many communities in Northern Ireland.

In a study assessing associations between childhood adversity and offending, Walsh, Doherty and Best (2021) reviewed the case files of 134 young people who were in custody over a one-year period. The sample were predominantly male (88.7%, n=119) and 61.9 per cent had experienced at least one form of adversity. Statistical tests found a significant association between all categories of violent offending and exposure to trauma but **maltreatment and exposure to community violence were more than nine times more likely to be convicted of a violent offence**, controlling for other social and demographic factors. Paramilitary threat/violence was associated with more serious forms of violent offending.

Education/youth service

Work is taking place across the youth service to understand and respond to youth violence and interrupt the pathways that make some young people more vulnerable to higher harm violence and pre-post designs are enabling a more sophisticated response. Baseline data from one of these targeted regional projects illustrate that 87 per cent of those engaged are male and on average, 16 years old. Only 50 per cent of the young people self-report to feeling safe in their communities and 87 per cent report that paramilitaries continue to be active in their area. Further, **51 per cent report being directly threatened by someone they believed to be in a paramilitary group and close to one quarter (24%) had been attacked. Ninety two per cent of the young people reported lifetime exposure to violence.** This may account for elevated rates of psychological distress among the group taken from a standardised psychometric measure screening for probable PTSD. In addition to community violence, these young people appear to have had multiple types of exposure. For example, 20 per cent of the group are known to have been on the child protection register.

Implications of the Covid-19 Pandemic

The Covid 19 Pandemic has and will continue to impact significantly on young people and on the economy and society, contributing to a decline in well-being and greater precarity. There is evidence of increased exposure to violence in the home as a result of lockdowns. Eisner and Nivette (2020) suggest a decline in official rates of violence but also draw attention to violence promoting mechanisms that are likely to continue to build. Others, including Ellis et al (2021) suggest that we ignore this *'ticking time bomb of future harm'* at our peril. The World Health Organisation (WHO, 2021) has recommended extra vigilance is applied as we emerge from lockdown and observe the wider socio-economic impact.

"If we have it within our power to prevent violence against children and young people, it's the ultimate indignity not to" (Hillis, Mercy and Saul, 2017)

In advance of the roundtable participants were asked to consider the following issues:

The evidence base:

The Northern Ireland Executive has committed to identifying and supporting vulnerable children and young people. The CSA stresses that *"It is important that we identify these children and young people, so that we can improve outcomes for everyone across all eight areas of well being"* (EANI, 2019: 6) and one of the central aims of the Strategy for Children and Young People is the use of evidence and research. What are your views on the state of evidence and what recommendations would you suggest for enhancing this evidence base?

Co-ordinated working:

"... exposure to violence has developmental implications, [therefore] a broader spectrum of government departments, statutory bodies, civic society must be engaged as co-guarantors of children and young people's safety, welfare and wellbeing."

There is a statutory obligation on departments to work together with regard to securing the wellbeing of children and young people and there is a wealth of high quality community practice in Northern Ireland. Despite this, there is a need for more effective joint working and a need for capacity, evaluative and resourcing supports. How might government departments and agencies responsible for the protection of vulnerable children and young people coordinate an effective response? Are there examples of how this might work through existing work streams?

Measuring, monitoring and evaluating:

The World Health Organisation in their summary of violence against children in Europe identified that there is no national action plan for the UK and ROI data was not reported at all. Is there support across the UK for a national action plan? If so, how can this be progressed? How can practitioners be supported to grow practical responses and be supported to reliably measure success and challenges?

Regional Action Plan:

There has been little success in reducing levels of violence. The impact of Covid, combined with the impact of public health measures, have the potential to increase violence over the medium to long term. Is there a need for a regional action plan to reduce all forms of violence against children and young people in Northern Ireland? What is the likely impact of Covid, how can this be monitored, what systems/process are in place to measure and to mitigate the harms as part of 'Restart'?

Roundtable discussion

The roundtable event commenced with three presentations.

Dr Walsh summarised key issues and noted that, to date, there had been a failure to acknowledge the range of traumatic experiences and that the concentration on the home meant that the significance of other sites of violence was less

acknowledged and understood. He noted that this was a very opportune time to focus the trauma of violence given the pressures emanating from political instability and recent unrest in some areas and the additional challenges that many young people and services will have experienced during the COVID 19 Pandemic. He identified that violent trauma is somewhat different from other traumatic experiences and that violence is a cause and effect of psychological trauma, that violence is a particularly pervasive form of adversity that disproportionately affects young people, especially young men, but that the experiences of young women can be unacknowledged and needs to be better understood. He concluded by noting that co-ordinated responses have shown significant promise. However data gaps are of concern and reliable data, shared across systems, is critical to reducing incidences as well as harm.

The second presenter, Stephen Quigley from the Education Authority Youth Service, reported on an innovative pilot project 'Connect' which adopts a youth work based approach to violence reduction. The aims of the project are: to complement the work of medical staff in an Emergency Department (ED) of an acute hospital by engaging with patients who have been affected by violence; to stop the revolving door of young people with violent injury presenting to the emergency Department; and, to support young people (up to age 25) to move away from violence. The rationale for the programme is based on the assessment that arrival at an Emergency Department can be a point when people re-evaluate – it is a '*reachable or teachable*' moment. Evidence from similar programmes suggest that the additional support of a youth worker during this traumatic moment and follow up youth work support has positive impacts. This includes reducing the number of young people presenting at the Emergency Department recurrently compared to those who have not had the support of a youth worker. While the ED is not a space that youth workers are familiar with, the progress to date has been

positive. The programme is funded by the Tackling Paramilitaries Programme and other partners are the Emergency Department, the Police Service for Northern Ireland (PSNI), the North West Youth Service and Queen's University Belfast (Dr Walsh designed a baseline and prospective evaluation framework).

The final presenter, Michael McKenna, team leader for work with young men at YouthAction NI provided an important insight into young men's perspectives of how violence shapes their lives. YouthAction NI carried out a seminal study on young men and violence in 2001 and Michael noted that unfortunately what young men are saying in 2021 is not dissimilar to what they were saying when that first research was undertaken. This was represented by the voices of young men themselves in a short video made by YouthAction (this can be viewed on the presentation). Their input highlighted how important it is that young men have the opportunity to inform this debate and responses. The young men referred to how they themselves have talked about how young men need a better understanding of the consequences of violence; that, too often, violence is normalised or seen as 'inevitable'. YouthAction's approach to working with young men focuses on the impact of traditional gender norms and in particular, the ways that masculinity is 'performed'. The importance of working with local communities to positively impact on attitudes more generally was stressed as was the need to develop alternative views of masculinities.

Policy

The point was made by several participants that despite the significant effects of violence among young people, there is currently no coherent or high-level policy to effectively respond to this pervasive social issue. The development of a specific prevention policy could contribute to a coherent action plan as recommended by international organisations such as the World

Health Organisation. One participant made the point that, in the absence of a specific violence prevention strategy, the cross Executive Tackling Paramilitarism Programme could provide a strategic basis for understanding and responding to violence in the Northern Ireland context. Other participants felt that over the longer term, a specific violence prevention strategy could be a useful vehicle to drive prevention policy.

Data driven coordinated responses

Much of the following discussion focused on the significant gaps in data and the need for more robust research. There was a strong focus on the availability and adequacy of data with several issues being raised. A number of participants raised points about the impact of the limitations of the data for prevention policy and practice. For example, in the absence of health data, the reliance on police data means that there is an incomplete picture of the extent and nature of the violence experienced by young people. A question was posed about whether the data allowed for an accurate picture of the level at which an intervention would be most useful (e.g. primary, secondary, tertiary). While macro level data is important it was noted however that not all communities are equally vulnerable so micro level data is also needed. There was a consensus that refined data collection as well as greater coordination of activities between systems is required.

The point was made that there is still a dearth of research on the links between trauma and violence, particularly in Northern Ireland. Some participants also spoke of the need for specific research with young men. The discussion suggests that there would be value in developing some kind of repository for existing research which would be easily accessible to researchers and practitioners working in the area and to policy makers.

Attitudes and social norms

A thread running through the event was attitudes to violence. Drawing on the presentation, it was argued that adherence to masculine norms can both legitimise aggression and violence, as well as prevent victims from getting the support they need. One participant posed the question: how can some of the perspectives that young people have on violence be changed? It was suggested that some young people see violence, or the threat of violence as something of an inevitability. These attitudes can foster at least tacit acceptance of peer related violence as well as higher harm and organised violence most often associated with paramilitaries. There was agreement that the voices of young people need to be heard so that their views and experiences can be better understood. These 'safe spaces' could provide the context for challenging dominant gender norms as well as providing feasible alternatives.

Training

The very valid point was made that practitioners could benefit from critically engaging with the theme of trauma and violence. One way that this could be achieved is through the provision of thematically relevant teaching during initial professional training within universities. It was also noted that while there is no specific violence prevention strategy, some things do in fact join up. A number of programmes such as the cross Executive Tackling Paramilitarism Programme take a broad public health approach which is a positive development. The importance of getting agencies and organisations to think about connectivity as part of their everyday work rather than a lot of new projects was stressed.

References:

- Blum, R., Li., & Naranjo-Rivera, G. (2019)** Measuring adverse child experiences among young adolescents globally: Relationships with depressive symptoms and violence. *Journal of Adolescent Health*
- Breen-Smyth, M. (2012)** *Injured in the Troubles: The Needs of Individuals and their Families*. Belfast: WAVE Trauma Centre.
- Bunting, L., McCartan, C., Davidson, G., Grant, A., McBride, O., Mulholland, C., Murphy, J., Schubotz, D., Cameron, J. & Shevlin, M. (2020)** *The Mental Health of Children and Parents in Northern Ireland: Results of the Youth Wellbeing Prevalence Survey*. Belfast: Health and Social Care Board.
- Duncan., L and Browne, S (2018)** *Adult and Youth Reoffending in Northern Ireland (2015/16 Cohort): Research and Statistical Bulletin 27/2018*. Belfast: Department of Justice NI
- EANI (2019) Children and Young People's Strategy: 2020-2030**. Belfast: EANI. <https://www.education-ni.gov.uk/sites/default/files/publications/education/final-executive-children-and-young-people%27s-strategy-2020-2030.pdf>
- Eisner, M. & Nivette, A. (2020)** *Violence and the Pandemic: Urgent Questions for Research*. Harry Frank Guggenheim Foundation <https://hfg.org/Violence%20and%20the%20Pandemic.pdf>
- Ellis, A., Briggs, D., Lloyd, A., & Telford, L. (2021)**. A ticking time bomb of future harm: Lockdown, child abuse and future violence. *Abuse: an international impact journal*, 2(1). Farrell and Zimmerman, 2017
- Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V...Marks, J. S. (1998)**. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. The adverse childhood experiences (ACE) study. *American Journal of Preventative Medicine*, 14(4), 245–258.
- Fowler, P., Tompsett, C., Braciszewski, J., Jacques-Tiura, A., & Bales, B. (2009)** Community violence: A meta-analysis on the effect of exposure and mental health outcomes of children and adolescents. *Development and Psychopathology*, 21, 227-259
- Fox, B., Perez, N., Cass, E., Baglivio, M., & Epps, N. (2015)** Trauma changes everything: Examining the relationship between adverse childhood experiences and serious, violent and chronic juvenile offenders. *Child Abuse and Neglect*, 36, 163-173
- Harland, K., & McCready, S. (2012)** *Taking boys seriously: A longitudinal study of adolescent male school-life experiences in Northern Ireland*. Belfast, Northern Ireland: DENI
- Hillis, S., Mercy, J and Saul, J. (2017)** The enduring impact of violence against children. *Psychology, health and medicine*, 22(4), 393-405
- Krug, E., Dahlberg, L., Mercy, J., Zwi, A., & Lozano, R. (2002)** *World report on violence and health*. Geneva, Switzerland: World Health Organisation.
- Lansford, J., Miller-Johnson, S., Berlin, L., Dodge, K., Bates, J., & Pettit, G. (2007)** Early physical abuse and later violent delinquency: A prospective longitudinal Study. *Child Maltreatment*, 12(2), 233-245
- Maschi, T., & Bradley, C. (2008)** Exploring the Moderating Influence of Delinquent Peers on the Link Between Trauma, Anger, and Violence Among Male Youth: Implications for Social Work Practice. *Journal of Child and Adolescent Social Work*, 25, 125-138
- McAloney, K., McCrystal, P., Percy, A., & McCartan, C. (2009)**. Damaged Youth: Prevalence of community violence exposure and implications for adolescent well-being in post-conflict Northern Ireland. *Journal of Community Psychology*, 37(5), 635-648

- McGee, R., Wolfe, D., & Wilson, S (1997)** multiple maltreatment experiences and adolescent behaviour problems: adolescent's perspectives. *Developmental Psychopathology*, 9(1).
- McNair, F., Havens, J., Surko, M., Weinberger, E., Baetz, C., Moaveni, M., Bart, A., et al. (2019)** Post-traumatic stress and related symptoms among juvenile detention residents: Results from intake screening. *Child Abuse and Neglect*, 92, 22-31
- WHO (2020)** Global status report on preventing violence against children 2020. Geneva: World Health Organisation.
- WHO (2021)** European regional status report on preventing violence against children 2020. Geneva: World Health Organisation
- Topitzes, J., Mersky, J., & Reynolds, A. (2012)** From Child Maltreatment to Violent Offending: An Examination of Mixed Gender and Gender Specific Models. *Journal of Interpersonal Violence*, 27(12) 2322–2347
- Walsh, C. (2019)** *Pathways and Outcomes*. Belfast, Northern Ireland: Department of Justice NI
- Walsh, C., Doherty, K., & Best, P. (2021)** A novel approach for understanding trauma related youth violence in low resource contexts: A retrospective case file review in Northern Ireland. *Violence: An International Journal*. 2(1)
- Walsh C., & Schubotz, D. (2019)** Young men's experiences of violence and crime in a society emerging from conflict. *Journal of Youth Studies*. 23(5)
- Brown, T. (2020)** Northern Ireland Youth Justice Agency Annual Workload Statistics 2019/20. Belfast: DOJNI
- YouthAction NI (2002)** *Everyday Life*. Belfast, Northern Ireland: YouthAction NI

About the authors:

Colm Walsh is a Research Fellow in the School of Social Sciences, Education and Social Work at Queen's University Belfast.

Ann Marie Gray is Professor of Social Policy in the School of Applied Social and Policy Sciences and Ulster University and co-director of ARK.



**QUEEN'S
UNIVERSITY
BELFAST**

T. 028 9097 3034 E. info@ark.ac.uk



T. 028 9036 6339 E. info@ark.ac.uk

