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Identifying children at risk of committing serious violence

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“Thank goodness for Wally”.

Whoever said diamonds are a girl’s best friend obviously didn’t have a dog. Or parents with unwavering tolerance for that dog’s mischief during ‘sleep overs’ - always without complaint.

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I’ll see you at MASH x

Contents

Identifying children at risk of committing serious violence.....	1
Acknowledgements	2
List of tables.....	6
List of figures.....	6
Introduction	7
Context	8
Topic.....	9
Research Question	11
Summary.....	11
Literature Review	12
Demographics.....	13
Age.....	14
Gender.....	18
Ethnicity.....	21
Contact with police	22
Adverse Childhood Experience's	24
Child Protection Plans	26
Domestic Abuse exposure	29
Theory	31

Summary.....	34
Method	36
Research design.....	36
The population.....	37
Inclusion criteria.....	41
Age and gender.....	42
Index offence.....	43
Ethnicity.....	45
Initial contact.....	45
Domestic abuse exposure.....	47
Police-recorded information markers.....	49
Data interpretation.....	51
Limitations.....	54
Data validity and reliability.....	54
Summary.....	56
Findings	57
Description of the data.....	57
Factors towards violence.....	60
Male.....	60
Age.....	60

Initial contact.....	61
Exposure to domestic abuse.....	63
Police recorded flags, markers and warnings.....	66
Neurodiversity.....	69
Child Criminal Exploitation / Child Drug Exploitation	69
Factors away from serious violence	69
Summary.....	70
Discussion	72
Demographics.....	72
Gender.....	72
Age.....	74
Initial contact.....	76
Exposure to Domestic Abuse.....	79
Police flags, markers and warnings.....	82
Limitations	83
Policy implications	85
Conclusion	86
Recommendations	89
References	90
Appendix	99

List of tables

Table 1	TVP DA risk grading definitions	Page 49
Table 2	Odds ratio definitions	Page 52
Table 3	Results - Contingency table	Page 59
Table 4	Prevalence of flags, markers and warnings across the cohorts	Page 68
Table 5	Total number of police records	Page 79
Table 6	Results – Flags	Page 83

List of figures

Figure 1	An Offender-based Age-Crime Curve	Page 17
Figure 2	Gender Composition for both cohorts versus national statistics	Page 44
Figure 3	Gender and offence composition – Serious Violence group	Page 44
Figure 4	Gender and offence composition – Non -Serious Violence group	Page 45
Figure 5	Forest plot – Age at time of index offence	Page 62
Figure 6	Forest plot-Classification at initial contact	Page 63
Figure 7	Forest plot - Exposure to Domestic Abuse	Page 65
Figure 8	Forest plot – Presence of police flags, markers and warnings	Page 69

Identifying children at risk of committing serious violence

A case-control study

Introduction

“An ounce of prevention is worth a pound of cure.”

- Benjamin Franklin., 1736

Franklin’s principle, applicable in various fields, from public health to disaster management, was echoed in the development of modern policing a century later. In 1829, Sir Robert Peel revolutionised the police mission, asserting that the true measure of police efficiency is not in the punishment of crimes but in the absence of crime and disorder.

In the aftermath of a serious incident, it is often straightforward to identify risk indicators present in children who commit acts of violence. Analysis of these factors is crucial for prevention, informing the development of targeted interventions designed to address these issues before they escalate to violence. The challenge is in formulating policing practices that recognise that not all children with these risk factors or adverse experiences will engage in serious violence.

Context

Youth violence is increasingly recognised as a public health issue due to its detrimental impact on the health and social outcomes of young people (RCPCH., 2020). The repercussions of violence exposure extend beyond immediate physical injuries, manifesting in long-term physical and mental health issues. The complexity of serious violence in children is the multitude of biological, social and environmental factors that influence a child's behaviours. This complexity necessitates a comprehensive and multi-agency approach to effectively address and mitigate youth violence (Smith & Wynne-McHardy., 2019).

The Serious Violence Duty, issued by the Home Office in December 2022, delineates the obligations of the police in directing interventions that prevent serious violence. It emphasises the responsibilities of police and other professionals to understand factors that lead children to engage in violent acts. Additionally, the report highlights the necessity to focus police resources on those at the highest risk of causing or enduring high harm.

The World Health Organisation (2024) describes violence as the intentional use of physical force or power that results or has a high likelihood of resulting in injury, death, physiological harm, maldevelopment or deprivation to self, others or a group or community. The costs of violence are far reaching, extending beyond the immediate harm caused to victims such as the financial burden on police, CJS and public healthcare. Between 2008 and 2020, the UK economy incurred an estimated cost of £11 billion due to serious youth violence, according to the Youth Violence Commission

(2020). The Home Office (2018) reports that the average cost of each homicide is estimated at £3.2 million. However, the most significant cost to society is the loss of lives. The Office for National Statistics (ONS., 2023) states that 13 children under the age of 16 were murdered in the year ending March 2022. Thames Valley Police data shows that six child homicides were committed by individuals under the age of 18 between January 2019 and December 2020. The impact on public trust and confidence in the police is difficult to quantify, but the Youth Endowment Fund (2023) found that only half of the children surveyed believed the police protected them from violence.

Topic

This study will examine previous cases of serious violence committed by children aged 17 years and under in the Thames Valley Police (TVP) area. The aim is to identify commonalities in their victimisation, offending histories, or wider interactions with TVP. These common factors could serve as risk indicators, aiding in the prevention of future harm by guiding the development of intervention strategies. The research seeks to devise evidence-based preventative strategies to meet TVP's operational need for early identification of children at the highest risk of high harm. It also intends to guide the implementation of focused tactics to pursue those who criminally exploit children for personal gain. This research contributes to fulfilling the public's fundamental demand for effectiveness (Bottoms., 2006) by exploring ethical methods of mitigating the escalating financial and resource burdens associated with serious violence (Durlauf & Nagin., 2011).

Any observed associations between risk factors and serious violence are not deterministic, and this study will not conclude that the presence of specific characteristics would increase an individual's likelihood of committing serious violence in future. While it is highly desirable to develop tools such as the National Data Analytical Solution (NDAS., 2021) that attempt to predict serious violence due to its significant impact on society, substantial ethical concerns exist. These concerns revolve around the reliability of predictions, which could lead to damaging false positives. In such cases, a child might be inaccurately predicted to commit serious violence, potentially leading to stigmatisation or other unintended negative consequences. Homicides, being rare and unexpected, particularly those committed by children, are considered 'black swan' events. Once they occur, there is often a mistaken belief, with the advantage of hindsight, that the event was predictable (Taleb, 2007).

Sherman (1992) describes this concept as the 'hindsight fallacy'. It suggests that while certain factors may well be retrospectively applicable to cases of serious violence, professionals might overestimate their capacity to foresee the outcome after the event has occurred. The black swan is a metaphor for unpredictable and highly improbable catastrophic events that cautions against over-reliance on predictability, even when patterns and risk factors have been identified. Martin-Vegue (2018) argues that the notion of 'black swan' events provides policing with an excuse to evade responsibility when adequate precautions have not been taken to prevent serious violence from occurring.

Research Question

What factors are most prevalent among children who go on to commit serious violence?

- a) Demographics
- b) Initial contact with police
- c) Exposure to domestic abuse
- d) Police-held flags, markers and warnings

Summary

This chapter has outlined the pressing need for police to work collaboratively with multi-agency partners to adopt a public health approach to reduce incidents of serious violence committed by children. This section has introduced the research question, which attempts to support existing research by gaining an understanding of which factors are most prevalent in children who have committed serious violence in Thames Valley. This study's ambition is to use the findings to inform future strategies that address the root causes of violence that can mitigate the likelihood of further harm occurring. Notably, the aim is not to infer causation or predict violence, as explained above.

The following chapters will first acknowledge the existing literature and theories relevant to RQ1, followed by a detailed description of the research methodology adopted for this study. Next, the findings will be presented, followed by a comprehensive description of those results and their implications in the discussion chapter. This paper will conclude with a closing summary of the findings and recommendations for Thames Valley Police.

Literature Review

This chapter examines a range of literature and theories pertinent to the first three themes identified in RQ1: demographics, initial contact with police, and exposure to domestic abuse (DA). The fourth theme, police-held flags, markers and warnings, is a recording mechanism described later in the methodology chapter. The aim is to provide a comprehensive understanding of the existing research for each of these themes and their association with children who commit serious violence. It begins by summarising the much-debated concept of the Age-Crime curve (Farrington., 1986) and the observed differences in behaviour between genders. Secondly, it introduces the limitations of police-recorded ethnicity as a data source. Next, it examines the relationship between children and contact with police early in their lives, either as direct victims of abuse or neglect or through exposure to other harmful behaviours in their family environment. Specifically, it defines the impact of Adverse Childhood Experiences (ACE) and the role of Child Protection Plans (CPP).

An overview of the extensive research into the profound impact of Domestic Abuse examines the consequences of exposure to interfamilial violence and its intrinsic links to child abuse. Finally, this chapter considers how existing criminology theories are relevant to understanding differences in individual child's responses to their lived experiences. The following sections will discuss the limitations and implications of the research throughout and conclude with a summary of the most salient points.

Demographics

Age and gender are fundamental demographic variables that have been identified as a risk factor for childhood involvement in violent behaviour (Moyo., 2020). They serve as key indicators of developmental and socialisation stages in children's lives, which are closely tied to behavioural tendencies. Findings relating to age and gender may assist with understanding whether certain groups of young people are more strongly associated with committing serious violence, information that could influence the operational timing and design of TVP's targeted and effective strategies to prevent future harm.

Both research and national statistics indicate that males are disproportionately represented as victims and suspects of violent offences and violent deaths. Moffitt & Caspi (2001) uncovered a male-to-female ratio of 10:1 for child onset delinquency among suspects of crime. Additionally, male victims have a higher morbidity rate of 19.4 per 100,000 compared to females of 4.4 per 100,000, suggesting that they may encounter distinct risks and external factors or these experiences may elicit different reactions in males compared to females (Flannery et al., 2007).

Similarly, ethnicity can be a significant factor in understanding behavioural tendencies but is not a direct risk factor for violence. The relationship between ethnicity and crime is complex. The association typically involves social, economic and environmental factors relating to ethnicity rather than ethnicity itself (Sampson et al., 2005). Inequalities in relation to police contact can lead to the overrepresentation of some ethnic groups in crime statistics (Stott et al., 2021).

Age

According to the Office of National Statistics (2023), in the year ending March 2022, there was an increase in first-time “Violence against the Person” offences committed by children entering the justice system, the majority of whom were white males aged between 15 and 17. These offences comprised 35% of all proven offences for all crime types in 2021-2022 (ONS., 2023). Studies consistently show a correlation between age and crime, often depicted through the Age-Crime Curve, which is considered one of the most reliable relationships in criminology despite differing opinions on its invariance (Farrington., 1986; Hirschi & Gottfredson., 2018). As data collection techniques have evolved to provide a more precise and current representation of criminal behaviour, the age-crime curve displayed in Figure 1 has remained stable, consistently illustrating a comparable trend across multiple societies and generations. The curve indicates that the frequency of offences typically rises from late childhood, peaking around 15 -19 years, after which most child offenders stop engaging in criminal activity. Notably, the age-crime curve displays the same bell-shaped curve for offence-based (total number) and offender-based data, where each offender is only counted once. (Bottoms., 2006; Sampson & Laub., 2003). The importance of the prevalence of offenders versus the frequency of the most active individuals is still debated, with some, like McVie (2005), concluding there is a continuum of offending ranging from one-off to sporadic but serious offenders.

Hirschi & Gottfredson (2018), so confident in the strength of the association between age and crime curve, argued that the distribution of crime was so invariant that longitudinal studies were redundant. They developed the Self-Control Theory, proposing that individuals with low self-control, thought to be a result of insufficient

parenting, were less capable of exercising restraint and, therefore, more likely to act impulsively and commit crimes. These assertions have since been subject to criticism; primarily, criminologists debate that the age-crime curve is dependent on the type of offence (McVie., 2005); typically, violent crimes happen later compared with crimes against property. Additionally, the onset age for females is often later than with males (Loeber & Farrington., 2014). Secondly, longitudinal studies provide valuable insights into those individual, social and environmental factors that influence offending behaviour (Cauffman et al., 2005; Wiebe., 2003).

While most desist, a small percentage of young people continue to offend regularly, and some evolve into career criminals, although whether they become specialists in a particular offence type is a perennial debate. Youth Justice Statistics (2022) indicates that the reoffending rate of children is 31.2%. Those subscribing to the theory of specialisation (Cloward & Ohlin., 2013) infer that individuals who repeatedly commit utilitarian crimes specialise in those that achieve practical or material benefits, such as theft, as an alternative to legitimate careers. In some cases, individuals may develop a consistent pattern of offending to support habits such as drug addiction or alcoholism. The funds for sustaining these habits often come from committing petty crimes like theft, shoplifting, or burglary. Criminologists who favour the Versatility Hypothesis (Hirschi & Gottfredson., 2018) argue that crime specialisation is infrequent. Instead, they believe that offenders often engage in various criminal activities. They suggest a complex combination of environmental, biological and psychological factors influence rule-breaking behaviours. These factors can include individual traits, family background and social environment factors that contribute to an individual's propensity to commit crimes.

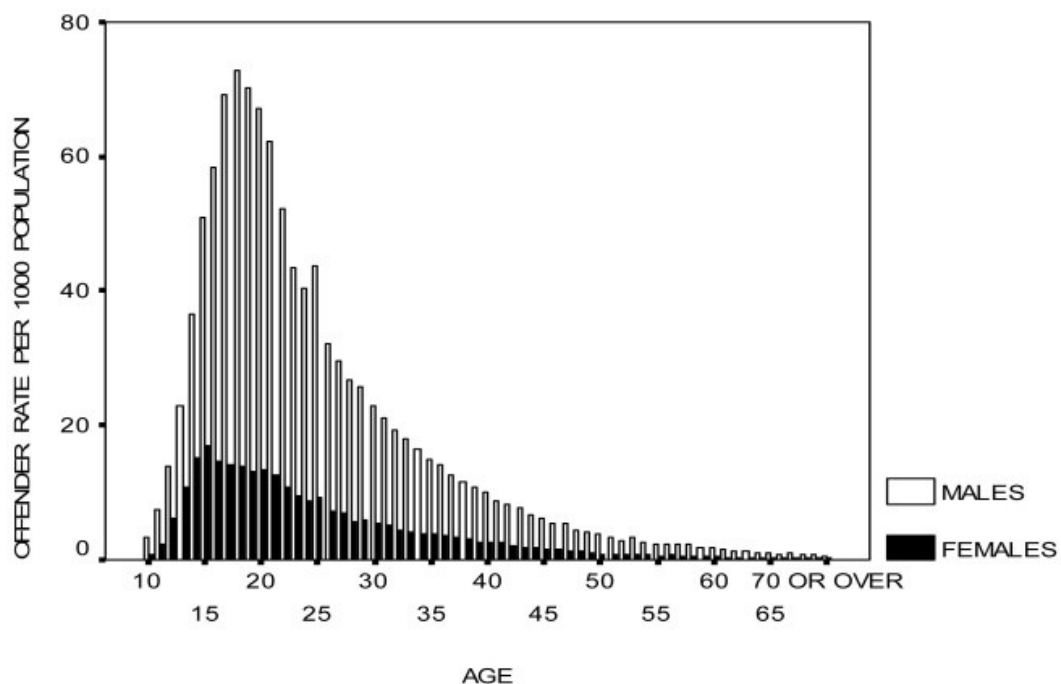


Figure 1: An Offender-based Age-Crime Curve (Recorded Offender Rates per 1,000 Relevant Population by Age-year and Sex, England and Wales, 2000) (reproduced from Bottoms., 2006 pp.21-34.)

Moffitt's Development Taxonomy theory (2017) proposed two distinct age-crime offending types: juveniles who exhibit antisocial behaviour in early life that evolve into 'life-course-persistent' offenders and the more commonly occurring 'adolescence-limited' offenders who typically restrict their antisocial behaviour to their teenage years, reforming with age. Much research supports Moffitt's concept (2017) of an association between the development of harmful externalising behaviour in childhood and violence in adulthood (Andrews & Bonta., 2010).

Historically, the prevailing belief was that the earlier a person began engaging in criminal behaviour, the more likely they were to continue offending persistently (Nagin & Farrington., 1992). Furthermore, if frequent offending was not interrupted, it was thought to escalate into more serious violence (Farrington, 1996; Blumstein et al.,

1988). This belief was later supported by McGarrell (2001), who found that children who offend or demonstrate significant emotional and behavioural difficulties under 12 years are two to three times more likely to become involved in long-term persistent, serious or violent offending than their peers (Loeber & Farrington., 2001; Wasserman., 2003). However, empirical evaluations of Moffitt's theory (2017) revealed a discrepancy; the pattern of life-course-persistent offending did not always align with the projected theoretical trajectory, and some children exhibiting early onset offending did modify their behaviour (Saunders., 2007).

Additionally, Saunders found that the occurrence of adolescence-limited offenders was less frequent in the sample than expected, and there was no observed peak in late teens. A child's decision to desist from further offending may be influenced by parental supervision, access to emotional support or the maturation that develops its moral rules. It is commonly acknowledged that early contact with the Criminal Justice System (CJS) can disrupt positive aspects of a child's routine or social and educational activities, exposing them to stigma by their peers or contact with other offenders, leading to more negative outcomes. (CAPRICORN., 2019; McAra & McVie., 2007; Local Government Association., 2022)

Gender

Criminologists have explored various factors contributing to gender differences in the age-crime curve. Some attribute it to socialisation patterns, where traditional male and female gender roles are cultivated from an early age, culminating in adventurous, risk-taking boys and feminine girls (Heudensohn et al., 1977), evident in the different toys marketed at children which tend to reflect stereotypical colours and roles in society (Oakley., 1974). Others theorise that hormonal and neurological differences between genders may play a role. Repeated prison studies proposed that high testosterone levels were related to crimes of unprovoked violence and increased numbers of prior offences (Dabbs et al., 1995; Dabbs & Hargrove.,1997). Testosterone is one of the biological factors frequently used to explain the age-crime curve, given that it rises to moderate levels during puberty, facilitating direct competitive behaviour, including aggression. (Archer., 2006).

Evidence from a longitudinal study suggests that men's testosterone levels drop when they become fathers, potentially leading to a decrease in aggressive behaviours and a decrease in crime, which might, in part, explain the drop off in the age-crime curve for males (Gettler et al., 2011). However, the environmental and psychological challenges of prison life may cause a rise in testosterone, so it is equally likely that violent lifestyles lead to higher testosterone. In conclusion, observed correlations in testosterone, either in prison or in respect of the age-crime curve do not mean that high testosterone levels cause criminal behaviour.

National Statistics for Women in the Criminal Justice System (2022) indicate that only 10% of all prosecuted children were female, representing just 3% of all child custodial sentences. This mirrors the experience of adult females in the CJS, who are usually charged with less severe offences and consequently receive shorter sentences (Home Office., 2021a). Cauffman (2008) observed that female offending has consistently increased since the 1980s. She concludes that females often experience a multitude of risk factors or adverse experiences at higher rates than their male counterparts and exhibit higher rates of mental health problems, display more aggression toward family and suffer more negative consequences from their justice system involvement than males.

Whilst improvements in reporting and recording crime might explain these rises in female childhood offending, changes in societal attitudes are likely a contributing factor. Advancements in equality have enhanced girls' access to the same opportunities as boys, providing them with a broader range of social and environmental experiences and influences. An alternative theory suggests that traditional gender norms, which previously set different standards for socially acceptable behaviours for different genders, are levelling out, implying that the acceptance of externalised behaviours such as aggression or anti-social acts may now vary less based on whether an individual is male or female.

Studies have determined that childhood adversity or trauma exposure is prevalent in individuals with aggressive and violent behaviours (Maschi., 2008; Moller et al., 2023) and of those experiencing severe or prolonged violence, neglect or sexual abuse, it is

estimated that 1 in 3 will develop Post Traumatic Stress Disorder (PTSD) (NHS.uk., 2024.; Sandi & Astori., 2023). The Office of National Statistics (2021) indicates that females report higher levels of child sexual abuse than males. The Independent Inquiry into Child Sexual Abuse (2022) estimated it to be as frequently occurring as 1 in 6 girls and 1 in 20 boys, although it is widely recognised that fear of stigma or shame may be a barrier to reporting (O’leary & Barber., 2008). These factors can often deter individuals from seeking help or reporting their experiences, potentially underestimating the true prevalence rates.

Whilst these studies propose that being female may increase a child’s likelihood of encountering some adverse experiences, particularly sexual abuse, other research indicates that the association to increased violence could be a result of how gender influences an individual’s reaction to trauma (Gutman & McMaster., 2020; Chaplin., 2015). Typically, females are more strongly associated with internalising emotional distress, while males more often externalise it through defiant or harmful behaviours to others (Farley et al., 2020; Maschi et al., 2008).

In contrast, a Swiss study found equally severe externalising symptoms and problematic personality traits in both genders in a research methodology comprised of questionnaires and assessments across a cohort of 143 participants (Urban., 2015). However, these seemingly opposing findings should be interpreted with caution, considering the limitations of the research design and sample size. Whilst a larger number of participants would improve the reliability of its findings, the societal norms and environmental factors in Switzerland may effect generalisability to children in

England. Surveys are subjective and self-reported results introduce opportunities for recall bias.

Ethnicity

A comprehensive review of a decade of academic studies revealed that risk factors and childhood experiences linked to serious violence differ by ethnicity (Rojas-Goana et al., 2016). However, there is a strong consensus that examination of ethnicity should extend beyond individual characteristics, as violence is often the result of situational factors— specifically, childhood experiences or circumstances in the social environment (Berg & Felson.,2016). Therefore, any analysis that fails to consider these complexities, including the remit of this study, risks oversimplifying the relationship and inaccurately representing the association between ethnicity and violence. A limitation of police-recorded data is its inability to separate the relative overrepresentation of non-majority ethnic groups in arrest, prosecution and conviction statistics from policing targeting of high-crime areas that are more ethnically diverse. Without careful analysis, the inter-relationship between legitimate over-policing and recorded offending can exaggerate the extent to which some communities are disproportionately understood to be involved in crime (Bowling & Phillips., 2007). The methodology chapter further explores the appropriateness of including ethnicity in this study.

Contact with police

There is a strong consensus that victims and offenders often share similar demographic characteristics, recognising that being a victim can increase the likelihood of offending and vice versa (Fagan & Mazerolle., 2011). This concept, known as the victim-offender overlap (V-OO), is well-established and empirically supported in criminology, evidenced by numerous longitudinal studies and analysis (Entorf., 2013; Jennings et al., 2010; Moore., 2013). The V-OO refers to the strong positive relationship between offending and victimisation, suggesting that individuals oscillate between the roles instead of being two distinct groups in society (PPC., 2019). As a result, the age of a child at their first encounter with police and their role in that incident is considered relevant in the context of this study.

A longitudinal study conducted by Peel Regional Police, Canada, tracked 27,233 unique individuals involved in violent crime reports (Hiltz et al., 2020). The study identified that victims who had also offended (V-OO) suffered three times as much harm as those who were only victims. Similarly, offenders who had also been victimised (V-OO) were associated with 2.7 times more harm than those who were absolute suspects, therefore concluding that those involved in violent crime as either victims or suspects are at a higher risk of victimisation and a cycle of repeat violence, retaliation and continuation. This “cycle of violence” posits that individuals exposed to child physical abuse are more likely to be physically violent in adulthood, which is well supported by the literature (Bland et al., 2018).

However, the findings are specific to one region in Canada and may not be generalisable to England. Secondly, the study relies on reported crimes, which may not capture all instances of violent crime due to underreporting. The Youth Endowment Fund (2023) found that 48% of teenage children who said they had committed violence were also victims of violence. Both examples demonstrate that children are unlikely to be predominant offenders and are likely to be vulnerable to victimisation, as supported by Bailey (2019), who determined that in order to be effective, knife crime prevention strategies should include repeat victims known to police.

Scotland has adopted a bolder preventative measure; Edinburg's longitudinal study of youth transitions and crime directly influenced noteworthy legislative changes (ESYTC., 1998). These changes, enacted through The Age of Criminal Responsibility Act of 2019, ensure that children under 12 can no longer be held criminally responsible in Scotland. The study found that reducing early interactions with formal criminal justice procedures effectively decreased crime rates and enhanced the outcomes for children (McAra & McVie, 2022). The study built upon Moffitt's developmental taxonomy theory (2017), introducing an additional 'chronic' offender category. This group, with the highest likelihood of conviction between the ages of 13 and 35, were found to have comparable rates of police contact and victimisation as other offender groups. However, they had a higher frequency of experiences with formal criminal justice procedures or school-based behavioural interventions.

The findings of both Ford et al. (2007) and Singer (1999) determined that children's exposure to violence was the most influential factor contributing to their violent

behaviour. This exposure could be direct, as victims, or indirect, through witnessing violent incidents, highlighting the importance of addressing children's exposure to violence as part of efforts to reduce youth offending. A US National Sample of Children and Youth Violence, Abuse, and Crime Exposure discovered that from a sample of 4549 children, 60.6% had been a direct or indirect victim in the previous year, including 9.8% who had witnessed an intra-familial assault (pubmed.,2009).

Whilst the sample size is substantial, the US has over 73 million children (aecf., 2020), and therefore, its self-declared nationally representative findings are not necessarily practically significant. Secondly, their methodology design of telephone surveys is a limiting factor. Primarily because children aged 0 to 17 years won't all have access to telephones through age or circumstances, but those who do and are physically able may not have had a suitable, private environment in which to make disclosures. 14 years on, changes in societal conditions and recognition of abusive or neglectful behaviours create temporal limitations in this study, and when combined with the aforementioned self-reporting and underreporting challenges, this data is not reliably generalisable.

Adverse Childhood Experience's

Research consistently shows a strong association between criminal behaviour and Adverse Childhood Experiences (ACEs) - instances where children are either directly abused or neglected or indirectly exposed to substance misuse, mental health issues, or criminal or violent behaviours, including DA (Researchgate., 2013). The research highlights the cumulative impact of exposure to multiple risk factors. For instance, a

10-year-old child exposed to six or more risk factors is ten times more likely to engage in a violent act by the age of 18 than a child of the same age exposed to a single risk factor (Herrenkohl et al., 2000). When compared to individuals with no ACEs, those with four or more ACEs are more likely to experience a variety of adverse outcomes in adulthood. They are 16 times more likely to perpetrate violence and 20 times more likely to be incarcerated in their lifetime (Safelives.org., 2017). A study conducted in London on prolific robbery offenders discovered that 80% had been victims of crime, and the prevalence of four or more ACEs was two to five times higher than in a randomly selected comparative sample (Hilder., 2021).

Similarly, a study by Bangor University found that 84% of the male prison population in Wales had experienced at least one ACE, and 46% had experienced four or more, compared to just 12% of the general population (phys.org., 2019). However, the reliability of these findings is contingent upon the prisoners' willingness to participate and their ability to recall past events accurately. This introduces potential risks of sampling bias and inaccurate information. Despite these limitations, these findings align with Yohros' (2022) systematic review of the relationship between ACEs and juvenile recidivism, which concluded that ACEs increase recidivism, although the effects varied depending on the sample size.

Children who experience multiple ACEs may develop maladaptive coping mechanisms, struggle with emotional regulation and face challenges in forming healthy relationships, contributing to an elevated risk of engaging in violence. This is because ACEs shape children's understanding of healthy and appropriate

relationships, diminish their capacity to understand social cues and control their emotions. Exposure to negative relationships can lead to problem behaviour and hinder prosocial development (Herrenkohl., et al. (2003) as evidenced in a 24-year longitudinal study of 411 London males from ages 8 to 32 years old, which examined predictors of violence. Individuals convicted of violence often had parents who were conflicting, neglectful, authoritarian, and used physical punishment. These parents typically showed little interest in their child's education and often separated before the child turned 10 (Farrington., 1989). However, ACEs do not predetermine outcomes; not all children exposed to adverse or traumatic events end up committing crimes or displaying violent behaviour (Craig., 2021). Factors such as a child's resilience, supportive relationships, and interventions can contribute to positive outcomes.

Child Protection Plans

The Office of National statistics (2023) reported that 50,780 children, or 43.2 per 10,000 of the child population in England, were subject to a Child Protection Plan (CPP) after concerns that the child was suffering or was likely to suffer significant harm were substantiated (The Children Act., 1989). Further analysis of those statistics shows that 50 children out of every 10,000 aged 1-4 were subject to a plan, compared with 44 of those aged 5-9 and 38 of those aged 10-15, which indicates that younger children are more likely to receive this safeguarding intervention than their older peers. Regardless of age, neglect, or the persistent failure to meet a child's basic physical and psychological needs, was the most common initial category of abuse recorded for children on protection plans in 2022, accounting for almost 50% (Gilbert et al., 2009). The next most common category is emotional abuse, accounting for over one-third of

children who experience psychological maltreatment capable of leading to severe and persistent adverse effects on their emotional development (Working Together, 2023).

CPPs are designed to recognise, intervene and mitigate the consequences of ACEs, which can range from 'conventional' adversities like abuse or neglect, (BJGP., 2020) to 'expanded' adversities such as witnessing violence or living in poverty (Cronholm et al., 2015). Safeguarding professionals aim to address these root causes to break the 'cycle of violence' and protect the child's development. In this context, cycle of violence is used to describe the connection between children who experience adversity and then engage in violent or abuse behaviours themselves.

Experiencing abuse at an early age can negatively affect brain development, which can result in long-term learning and cognitive difficulties (Bland et al., 2018; Hanson et al., 2013). Survivors of childhood violence are more likely to suffer from depression and anxiety, exhibit aggressive behaviour, engage in criminal activities, and self-harm (Craig & Zettler., 2021; Landers, 2013). These effects can be even more significant for female survivors, as observed in Cauffman's (2018) findings above. They often face more severe economic consequences, complete fewer years of education, and have lower IQ levels compared to male survivors who have experienced similar childhood violence (Currie & Widom., 2010).

The U.S. Department of Justice found that children experiencing abuse or neglect increased the likelihood of juvenile arrest (59%) and violent crime (30%). Secondly, it determined that abused or neglected children removed from their dysfunctional family

homes did not increase future arrest risk (Mount., 2004). This finding is indicative of the profound impact of early adverse experiences on later behaviour and suggests that removing children from harmful environments may disrupt the trajectory towards criminal behaviour. The study design is commendable for its large sample size of 1575 participants and its case-control approach. It relied on official records to identify instances of abuse and neglect. However, acknowledging that many instances of child abuse and criminal activity often go unreported to authorities, researchers conducted additional interviews to supplement data from the official records. When applied to the U.K, the limitation of this longitudinal study lies in the differences in legal and child protection systems. The definitions and thresholds for crime and statutory interventions for children in the study may not align with those in England. Furthermore, the study examines criminal records from 1988. The relevance of this data today may be limited to evolutions in legal practices and societal norms, changes in crime prevalence, methods of offending and economic conditions.

Domestic Abuse exposure

National statistics indicate that (2020) DA was a factor in 43% of cases where a child was seriously harmed due to abuse or neglect and in 41% of cases that resulted in a child's death [ONS., 2021]. This data suggests a strong link between domestic abuse and child abuse (Wolfe et al., 2003). It is estimated that around 7% of children aged 10 to 15 have been exposed to DA, and in addition to the harm caused by witnessing the abuse of others, 62% of children living with DA are directly harmed by the abuser (Trocmé et al., 2003; In Plain Sight., 2014). The co-occurrence of child abuse and witnessing DA is thought to affect children's adjustment more than twice as much as witnessing DA alone (Hughes et al., 1989; Wasserman et al., 2003).

According to The Domestic Abuse Act (2021), a child who sees, hears, or experiences the effects of DA is a victim, even if they do not witness violent acts. Persistent exposure to DA is, by definition, an adverse childhood experience that can lead to personal and social consequences for children, including long-term negative impacts on their emotional and psychological health (CPS., 2022; Safelives.org., 2017). This is due to elevated stress hormones that disrupt normal brain development (Holt et al., 2008; Reading., 2008). The effects of witnessing violence can be as severe as the effects of directly experiencing violence as the primary victim (Kitzmann et al., 2003).

Children's experiences with DA are rarely isolated incidents. Instead, they often experience it repeatedly. In some families, it is a chronic issue (Vu et al., 2016). The longer the exposure to DA, the more severe the cumulative effects can be (Carlson., 2000). This could lead to stronger associations between the exposure and its impacts

(Holt., 2008; Reading., 2008). As a result, children may direct these behaviours towards themselves or others, including mimicking the behaviours they have witnessed, a concept associated with Social Learning Theory, explored further later in this chapter (Bandura., 1977). Rational Choice, Situational Action, and Social Learning theories used in combination may provide a framework to comprehend better why some children exposed to DA or other adverse events engage in serious violence while others do not, in addition to the complex psychological, social, and environmental factors affecting a child.

While older children may be at less physical risk, as outlined previously in CPP statistics for age and abuse, exposure to DA affects children of all ages, unrelated to their ability to keep themselves safe. For instance, children over ten (27%) are much more likely to try to intervene to stop physical abuse compared to 15% of those under ten (Safelives.org., 2017). Additionally, Children's Insights data (2017), reveals that over half (52%) of children exposed to abuse said they found it difficult to sleep, and almost a third (30%) felt like the abuse was their fault. The same children exhibit higher rates of behavioural problems than their peers and engage in more risk-taking behaviour, making them vulnerable to other forms of abuse, exploitation and harm. (Safelives.org., 2017)

Theory

Having earlier explored the concept of victim-offender overlap in children, this next section will explore the aforementioned criminological theories to understand better why children might become victims or offenders. These theories provide valuable insights into the complex relationship between individual, social, and environmental factors that influence child behaviours to assist in understanding potential pathways of serious violence among children. According to Farrington (2011), parental criminal behaviour is among the strongest family factors that predict the criminal behaviour of children. The Cambridge Study in Delinquent Development (CSDD) found that offending was strongly concentrated in a small group of families, with about 5% of families accounting for nearly half of juvenile criminal convictions, highlighting the role of family environment in the development of offending behaviour (Farrington et al., 2021).

Albert Bandura's Social Learning Theory (SLT), proposed in 1977, suggests that children learn behaviours through observing and imitating significant or influential individuals, often their parents. Consequently, children tend to model their behaviours based on how they see these individuals act. This theory has been instrumental in understanding observational learning and the role of environmental influences (Bender et al., 2022; Li et al., 2021). In support of SLT's proposals, further research suggests having an antisocial sibling also increases a child's likelihood of antisocial behaviours (Farrington., 1995; Smith & Wynne-McHardy., 2019), and the influence of siblings is typically stronger when the siblings are close in age (Wasserman, et al., 2003). Arguably, SLT could be overly simplistic, underestimating the complexities of

human behaviour by not accounting for individual differences such as genetic factors or inherent personality traits that might influence risk-taking behaviours. Mcleod (2023) argues that the child needs to recognise the benefits of that behaviour, be able to recall that behaviour to replicate it, have an opportunity to perform that behaviour and be motivated to perform it themselves.

Rational Choice Theory (RCT), as explained by Kennedy and colleagues (2020), proposes that decision-making is a process of calculations based on an individual's consistent personal preferences or values. These preferences are influenced by various factors such as how much risk or uncertainty they are willing to tolerate, their ability to empathise with others and their sense of fair or appropriate behaviour. According to RCT, when a child is faced with a decision to offend or behave violently, they weigh these factors based on their values and preferences and select the option they perceive most beneficial or satisfying (Kennedy et al., 2020). This theory has been applied to the analysis of child criminal and sexual exploitation (CCE & CSE) (Emerald., 2021), where children are manipulated into believing they have made a rational choice to engage in events such as drug dealing or sexual activity that benefits them, without fully understanding the consequences.

Finally, Wikströms (2004) Situational Action theory (SAT) combines an individual's propensity for violence, environmental influences and opportunities to explain variations in behaviour. According to SAT, two siblings (Child A and Child B) witnessing violence in the home may respond differently owing to their unique characteristics; Child A might possess strong coping mechanisms, high morals,

resilience and an ability to exercise self-control. Conversely, Child B, with their unique personal morals and emotions, might normalise the control and authority afforded to the abuser and be more susceptible to engaging in violent behaviour.

It is commonly reported that 1 in 7 adults in the UK is neurodivergent (ND) (Local Government Association., n.d.). A natural brain variation, its presentation varies and is complex but typically involves differences in processing information. ND often coexists with other diagnosed conditions, known as comorbidity, making it challenging to define universally. The term includes, but is not limited to, autism, Attention Hyperactivity Disorder (ADHD) and Attention Deficit Disorder (ADD) (Gnanavel et al., 2019). A child's neurodivergence could potentially influence their moral reasoning. While they are trying to balance their personal desires with societal norms, they also have to manage the additional challenges posed by their unique cognitive and emotional processes. The unique ways in which neurodivergent individuals process information and react to situations could potentially pose a risk to justice and civil liberties (Eastman & Campbell., 2006). This is because their actions or intentions might be misunderstood or misinterpreted, possibly leading to discrimination or unfair treatment.

Those with ND may face greater childhood adversity due to differences such as language comprehension or problem-solving skills. They may achieve fewer academic and social attainments due to differences in memory, visual and spatial skills or mathematical abilities (pubmed., n.d.). Both greater childhood adversity and fewer social or academic attainments are more associated with early onset of police contact

(Billstedt et al., 2017) and as already mentioned, early contact with the CJS can perpetuate unnecessary and undesirable criminal justice intervention (McAra & McVie., 2022).

Summary

This chapter has provided a comprehensive examination of the literature and theories relevant to the themes identified in RQ1, namely demographics, early interactions with police and exposure to domestic abuse. The process has provided an informed and impactful foundation for this study, highlighting the breadth of previous research into child violence and criminality and the complexities in analysing children's motivations or reasons for exhibiting those behaviours. Additionally, the existing research emphasised the importance of only incorporating ethnicity into the analysis with sufficient consideration to explain differential levels of policing between different ethnic groups so as not to misrepresent the prevalence of non-majority groups in statistics.

The literature confirms a strong relationship between victimisation and offending, which often develops into a cycle of violence, leading to a victim-offender overlap. The research reviewed acknowledges the significant impact of adverse childhood experiences (ACEs), especially witnessing DA. These experiences are evidenced to have long-lasting effects such as mental health issues, low self-esteem, maladaptive coping mechanisms, and externalised behavioural problems. This chapter introduced the role of a child protection plan (CPP) as an opportunity for professionals to intervene and support children to overcome the effects of adverse experiences.

Finally, the review of relevant theory demonstrates the influence of biological, psychological and environmental factors that vary significantly from individual to individual. The available literature acknowledges that neurodiversity introduces unique processing mechanisms that potentially lead to behaviours that do not necessarily align with traditional social learning or rational choice theories.

This comprehensive literature review is a foundation for understanding the relationship between factors influencing criminal behaviour for this study. The following chapter will describe the findings derived from this research.

Method

This chapter explains the research methodology employed in this study, starting with the research design adopted and the reasons for its selection, followed by a description of the study's participants and the sampling techniques utilised. It then proceeds to explore the data collection, analysis and interpretation methods, citing the ethical considerations and referencing the limitations and constraints encountered during the process. Finally, chapter three concludes with a summary.

Research design

To answer RQ1, this study uses a case-control design with secondary data analysis as its research methodology due to its suitability for evaluating associations between risk factors and outcomes. Case-control is an observational study design used to compare two distinct cohorts within one population and to assess differences or similarities between them to identify factors that may contribute to developing an outcome of interest. Specifically, case-control supports this study's research objective by comparing a case sample of children who have committed serious violence (SV) with a control sample of child offenders who have not committed serious violence in an attempt to identify which factors, if any, are most prevalent in the case group. However, given that the data were not initially intended for research purposes, it consists entirely of records drawn from mandated data fields completed by officers and staff that were extracted through Niche Record Management System (Niche RMS) database searches on the live domain (2016-current).

Secondary data analysis involves the retrospective examination and interpretation of existing data, in this case, quantitative data already stored within TVP's crime recording system, Niche RMS. The data comprises child nominal information originally acquired to record details of police actions or interactions arising from crime or non-crime incidents. Non-crime incidents include safeguarding concerns such as missing episodes, records of multi-agency statutory processes for children at risk of abuse or neglect (The Children Act., 1989) and domestic incidents where no offences were disclosed. Secondary data analysis was the preferred data collection method partially because it negates the need to accumulate new data but mainly because police-held data are already utilised to inform statutory multi-agency forums intended to protect children at risk of experiencing harm or perpetrating harm to others (Working Together., 23).

Due to its observational design, this study does not test a predetermined hypothesis nor seek to establish a cause-and-effect relationship among variables. Instead, this study uses natural conditions to understand what, if anything, within the vast data set already available to police safeguarding practitioners could serve as an early indicator of future risk. The ambition is that retrospective analysis of children's historic police contact may identify shared characteristics that would not ordinarily be apparent when studying an individual in isolation to support this study to conclude which factors are most prevalent amongst those who commit serious violence.

The population

The population from which the sample was drawn was comprised of children aged 10 to 17 years, recorded as suspects on TVP's Niche RMS between 1 January 2018 and

31 December 2022. This five-year timespan provided recent examples that have benefited from the latest improvements in police Crime Data Integrity and recording practices (Home Office., 2023b). It generated a sufficiently large sample to prevent any nominal being identifiable through their age, gender and offence type. In England, Children aged below 10 years are under the age of criminal responsibility (Children and Young Persons Act., 1933) and were excluded from this study due to the absence of potential exposure to criminal justice procedures, including arrest or voluntary interview, which would ordinarily provide an opportunity for police to explore and record motivation or risk indicators. Instead, details about the offending behaviour and any identified contributing factors for those under ten years are often recorded on partner agencies' systems and unavailable for this study.

This study elected to compare only children with an offending history recorded on Niche RMS rather than the wider population so that individuals within the two groups have had similar exposure to TVP activity and recording processes, with at least one opportunity for police officers and staff to obtain information about the specific factors being examined. In this unmatched case-control design, the dataset drawn from Niche RMS using the search parameters of a child suspect aged 10 to 17 years over the five-year timespan was comprised of 21,928 children, of which 472 (2%) were arrested for Homicide, Attempted Murder, or Grievous Bodily Harm (section 18 Offences against the Person Act., 1861). This study determined that these three offence types would constitute the serious violence case sample to partially reflect the Thames Valley locally agreed definition (TVVRU response Strategy., 2023-2024), a decision afforded to police forces and their partnerships under the serious violence Duty (Home Office, 2023a). The TVP definition additionally includes any incident where a person 25 and

under is found in possession of a knife and any Violence Against the Person, Burglary, Robbery, Sexual Offences, or Public Order incident with a weapon linked (bladed article or firearm).

The remaining 21,437 consisted of children arrested for other crimes except sexual offences, which were excluded from this study for two reasons. Primarily, the consequence of a broad TVP definition for serious violence that includes any knife-enabled offence creates an opportunity for sexual offences to fall into either category. Schlesselman and Stolley (1982) argued that the case and control groups must be similar regarding potential exposure to assist in isolating the impact of the factors studied, mitigating against confounding variables and enhancing the validity of the study's findings. Therefore, this exploratory study focuses on whether children have committed specific offence types rather than detailing aggravating factors, intent or modus operandi against the locally agreed TVP definition.

Secondly, the introduction of the National Crime Recording Standards (NCRS) in 2002 (Home Office., 2023b) made sexual offences between children problematic for research purposes. Due to the age of consent, sexual encounters between two similarly aged young people under 16 years, absent of abuse, violence or coercion, are recorded as a crime but are not necessarily indicative of inappropriate, offending behaviour. Victims' misunderstanding of the law, fear of stigma, and inconsistent reporting further complicate the recording of sexual offending between children.

The reliability and accuracy of the raw data were then improved by removing duplicate nominals created through human recording errors such as alternative spellings,

aliases, or mistyping to prevent redundant or biased data. Additionally, nominals in the serious violence (SV) case sample were cross-referenced with the control sample to avoid contamination across the two cohorts, leaving 21,299 unique nominals. Had the same individual featured in both cohorts, any observed differences between the groups could not be associated with the characteristics examined; the study's internal validity would be compromised and confound the results. Both samples were then subject to randomisation to yield a total sample of 200 child nominals for evaluation.

Although Schlesselman and Stolley (1982) suggest that the optimal number of controls in a case-control study should be two to three times the number of cases, the resource-intensive nature of the data collection method adopted was a barrier to achieving more than 100 participants for both the serious violence (SV) and non-serious violence (non-SV) cohort in this exploratory study. Whilst a more extensive comparison may increase the statistical confidence of any observed patterns, there is a risk of diminishing returns when the administrative burden is considered versus the anticipated outcomes and is, therefore, better suited to future analytical research beyond this study's initial observational design.

Randomisation is not typically used in a case-control study due to its retrospective design with groups defined by the presence or absence of an outcome of interest. However, it was adopted in this study due to the disparity of sample sizes. A statistical assignment was used to randomly select 100 individuals from the SV and non-SV groups for further examination to eliminate selection bias or the temptation to favour particular characteristics. It also improves the accuracy and reliability of the study,

known as statistical validity and improves the generalisability of any conclusions drawn from this study to the wider child suspect population on TVP's Niche RMS.

Inclusion criteria

Children detained for the most serious offences in secure accommodation or young offender institutes are not representative of the general population. Typically, children will be male, older, and are more likely to be from a black or minority ethnic background. (HMIP., 2023). Additionally, a large proportion will have been in the care of their Local Authority for more than 24hrs, known as a Looked after Child (The Children Act, 1989) and experienced health problems. This dataset examines whether this disproportionality is similarly replicated within the case-control samples in TVP.

The data criteria selected focused predominantly on the four categories cited in RQ1. In addition, the initial data acquisition captured further categories of information to provide greater context to the interactions between children and police recorded on Niche RMS. The rationale for each criterion selection is described below.

Age and gender

Demographics	Age
	Gender
	Index offence
	Ethnicity
	(later discounted)

In the year ending March 2022, 80% of child offenders in England and Wales were aged 15 to 17 (Youth Justice Statistics., 2023). In this study, the non-serious violence cohort had a mean age of 14 years, standard deviation = 1.99, with 52% aged between 15-17 years old. Notably, the initial SV dataset did not capture any children under 12. Consequently, the sample group has a more significant proportion of children aged 15 to 17 years (80%), an older mean age of 15.5 years and a standard deviation of 1.40. According to the Youth Justice Statistics 2021 to 2022, females account for 14% of the child offending population aged between 10 and 17 years and 4% of those children detained in youth offending or secure accommodation (Youth Justice Statistics, 2023). In this study, females comprised 10% and 32% of the serious and non-serious cohorts, respectively. The initial data trawl aggregated the age and gender of each individual via Niche RMS. Whilst no data was missing, it should be noted that Niche RMS provides no facility for recording alternate gender identities beyond male, female, or indeterminate, so data may not represent an individual's assigned gender. Figure 2 illustrates the gender composition of both cohorts showing a slightly higher representation of females than national statistics for all offences.

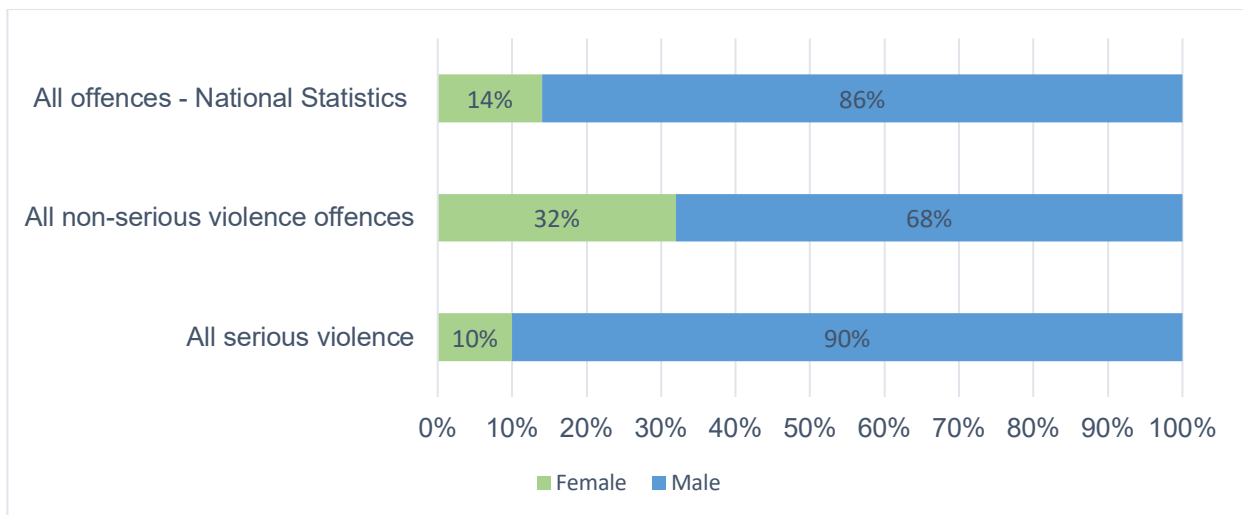


Figure 2: Gender Composition for both cohorts versus national statistics

Index offence

In the year ending March 2022, 65% of the children sentenced had committed an offence classified as 'Violence against the Person' (HMIP., 2023). This study's dataset does not reflect national statistics owing to the case-control design, which separated serious violence from other crimes and excluded sexual offences. Figure 3 shows the offence distribution within the serious violence cohort, comprised predominantly of Grievous Bodily Harm offences (81%), with no female representation within the category of Homicide.

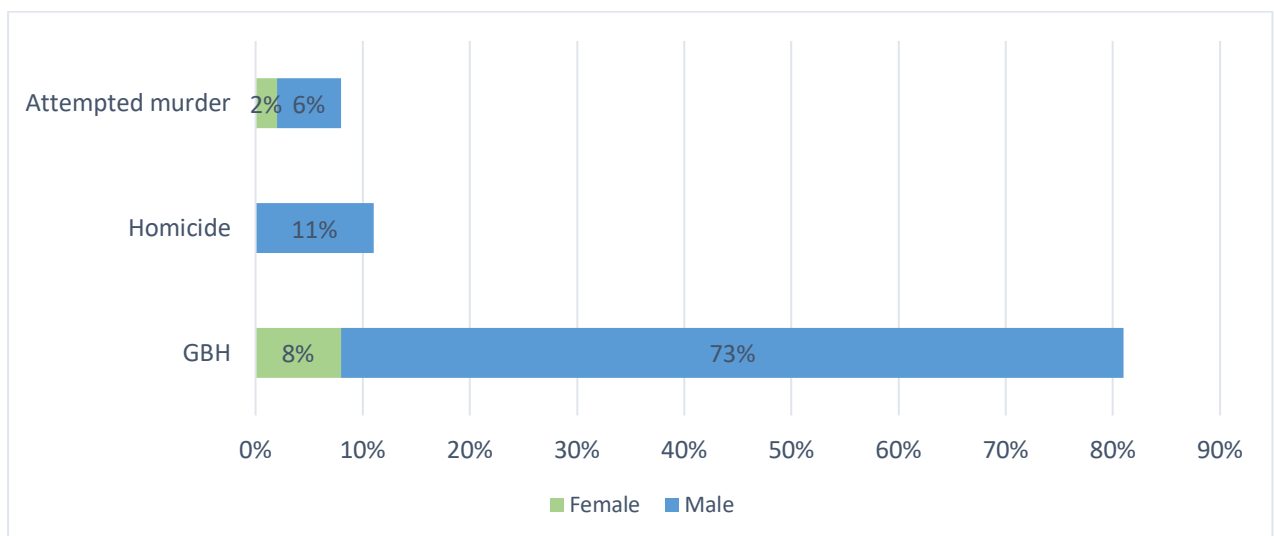


Figure 3: Gender and offence composition – Serious Violence group

The search parameters for the non-serious violence cohort required only that a child aged 10-17 years was listed as a suspect and not specifically the first or the most serious offence recorded for the individual. Consequently, the specific classification of the non-SV cohort's index offence was not examined beyond the initial composition breakdown, as illustrated in Figure 4. As previously discussed, the two sample groups were de-conflicted against one another to ensure that a child cannot be captured within both the serious violence and non-serious violence cohorts to maintain internal validity.

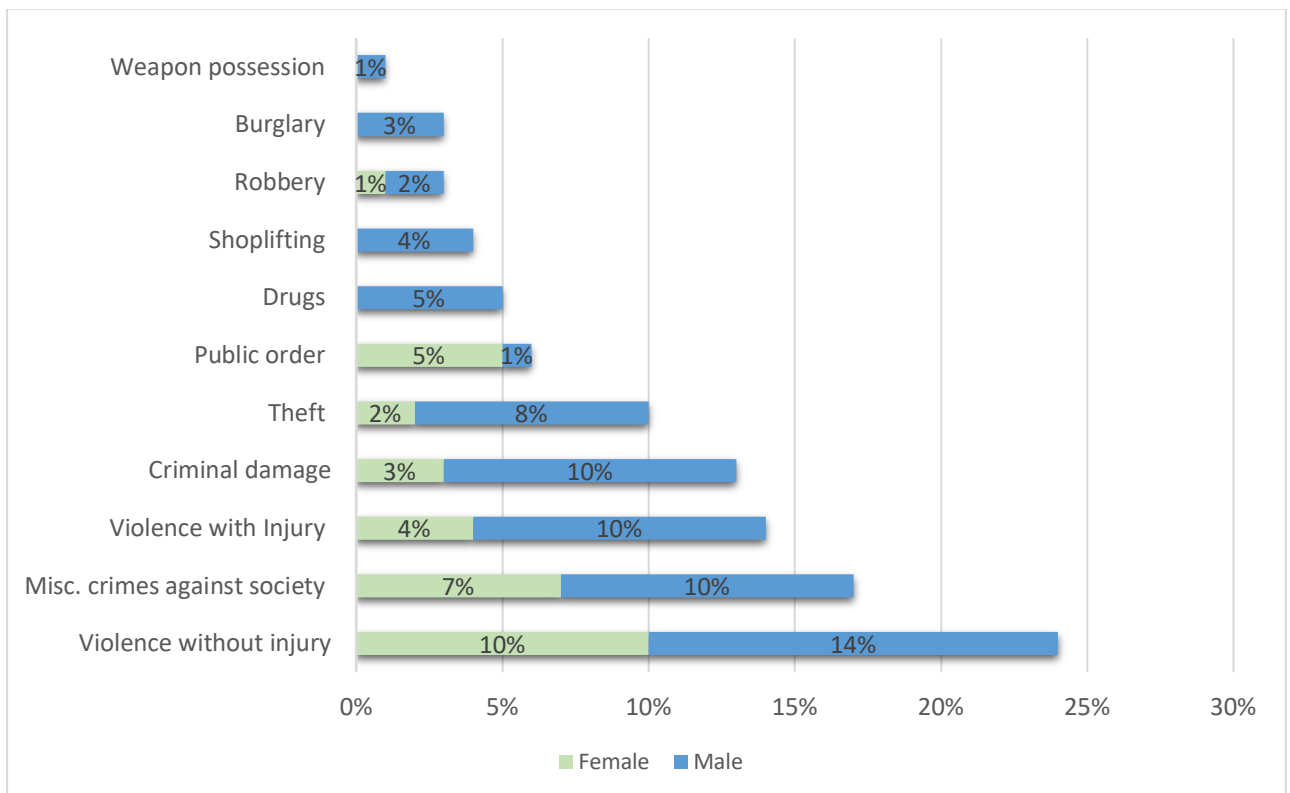


Figure 4: Gender and offence composition – Non -Serious Violence group

Ethnicity

Child ethnicity was initially a consideration for this study but data retrieval was discontinued at an early stage when inconsistencies in recording practices were exposed. Officer-recorded ethnicity was often absent, had multiple variations recorded for one individual or did not match the self-defined ethnicity selected by the child whilst in custody. This reflects the national findings from His Majesty's Inspectorate of Constabulary and Fire & Rescue Services (HMICFRS., 2023b) who found that police failed to record a victim's ethnicity in 61% of cases reviewed. To include inconsistent ethnicity data would have been detrimental to the validity of this study and was therefore omitted from the dataset and subsequent statistical calculations.

Initial contact

Initial contact with TVP	Age at initial contact
	Incident type
	Involvement in initial contact
	aggrieved / suspect / child present / sibling / witness

A child's initial documented contact with police is not limited to their involvement as an offender or victim. An individual's first interaction may be as a witness or present at any incident or as the subject of a safeguarding concern. In some cases, a nominal record is created for a child still in utero following police contact with a pregnant female, then assigned a classification of 'unborn'. Classifications are used to describe an individual's involvement with an incident, selected from a menu of options available on Niche RMS.

Early analysis of the SV group revealed that 4% of children had no history recorded on Niche RMS prior to their index offence of either GBH, Attempted Murder or Homicide, and, without exception, all had an out-of-force residential address. Consideration was given to eliminating non-Thames Valley residents to maximise the opportunity to generate insights specific to local children. However, comparatively, 15% of the non-SV cohort were also not known to TVP prior to their index offence. To remove individuals based on either grounds, knowing that child victimisation and offending is not confined to their residential area favouring those with TVP history available, would introduce selection bias, and the study sample would therefore fail to represent the true child population known to TVP, as, and prior police contact varies vastly between individuals.

Incident type refers to the crime or non-crime occurrence classification recorded on Niche RMS for the earliest documented contact with TVP. Recording expectations and practices have improved over time (Home Office., 2023b); however, with the exception of domestic-related incidents there remain locally approved opportunities for officers to exercise discretion in recording non-crime contact with the public. Consequently, this study cannot verify that all witnesses or subjects of spontaneous interactions and welfare checks are consistently recorded.

Domestic abuse exposure

Exposure to domestic abuse	Recorded DA exposure
	Frequency of incidents
	Fewer than 5x incidents
	5 or more incidents
	Risk Grading
	High, Medium, Standard
	Multiple dyads
	Perpetrating violence towards primary care giver

Data was aggregated from Niche RMS capturing all domestic-related incidents, which is defined as controlling, coercive, threatening behaviours, violence or abuse between those aged 16 or over between intimate partners or family members. Children related to the victim or suspect who have seen, heard or experienced the effects of these incidents are also recognised as victims in their own right to reflect the impact (Domestic Abuse Act., 2021). This study acknowledges, as is commonly understood amongst policing and safeguarding professionals, that the prevalence of DA is often hidden, unlikely to be limited to those incidences reported to police and therefore, data held by the police can only provide a partial picture of the actual level of domestic abuse experienced.

Frequent exposure was defined as five or more DA-related incidents recorded throughout an individual's Niche RMS history in recognition of the fact that the complexities of DA allow for multiple crimes to be recorded (Home Office., 2023). This does not imply that exposure to four or fewer DA incidents is infrequent or less harmful, but is intended to reflect that DA, unlike other crimes, can result in multiple offences

being recorded, which may inflate the rate of exposure. TVP apply a risk grading to DA incidents as a standardised measure of risk indicators and likelihood of reoccurrence; the definitions are explained in Table 1.

Table 1: TVP DA risk grading definitions

Standard risk	Current evidence does not indicate likelihood of causing serious harm
Medium risk	There are identifiable indicators of risk of serious harm. The offender has the potential to cause serious harm but is unlikely to do so unless there is a change in circumstances, E.G. failure to take medication, loss of accommodation, relationship breakdown, drug or alcohol misuse.
High risk	There are identifiable indicators of risk of serious harm. The potential event could happen at any time and the impact would be serious

Police-recorded information markers

Police-recorded information markers	Flag, marker or warning present
	Health markers present
	Ailment / Mental health / Neurodivergent / Suicide or self-harm
	Risk flags or warnings present
	At risk of neglect, physical abuse, sexual abuse or emotional abuse / Child Sexual Exploitation, Child Criminal Exploitation, County Drug Lines Organised Criminal Group, Child Abduction Warning Notice / Child looked after
	DA flags present
Suspect – risk grading – intimate/non-intimate relationship Victim – risk grading – intimate/non-intimate relationship	
Behaviour warnings	
Conceals / Drugs / Firearms / officer safety / Violence / Weapons	

Information markers recorded by TVP are a set of flags or warnings that are manually added to Niche RMS. These markers serve to indicate that a person could be at risk or could potentially pose a risk to others. This study concentrated on four distinct categories of markers and found that 86% of the group involved in serious violence and 54% of the group involved in non-serious violence had at least one such information marker. Furthermore, 11% of individuals from the SV group and 2% from the non-serious violence group had a flag, marker, or warning within all four categories. The categories first included health vulnerabilities, disclosed either by an individual or via a multi-agency forum, that may make an individual susceptible to exploitation or risk-taking behaviours. Secondly, risk markers include child protection plan (CPP) flags (The Children Act, 1989), applied to highlight that a statutory multi-agency conference determined that an individual was at risk of abuse or neglect. Also

included are flags that indicate a child is at risk of sexual, criminal or drug exploitation, is embroiled in an organised criminal gang or is the subject of a Child Abduction Warning Notice, a tool used to prevent non-familial adults behaving in a harmful or exploitative manner towards a child (Home Office, 2023).

TVP local policy dictates that domestic abuse flags are applied when either a victim or perpetrator is assessed as medium or high risk, and finally, behavioural warnings are intended to maintain officer and detainee safety, particularly with respect to violence, weapons and drugs. Information markers are selected from a catalogue of options available on Niche RMS, but for research purposes, data acquisition is limited to the auto-populated text, and does not capture the full contextual detail free-typed by the author.

Other police recorded contact	Total number of Niche RMS records
	Victim / offender
	Non-crime incidents
	Missing episodes
	Subject to Child Protection proceedings
	(s47 The Children Act, 1989)

In addition to the four categories of TVP flags, markers and warnings, data pertaining to the prevalence and type of police contact with each child nominal was collated. This information captures the frequency in which the child has been recorded as a victim or suspect of a crime, incidents in which they were present, witnessed or linked retrospectively and non-crime incidents. Non-crime incidents include reactive and

proactive interactions with individuals such, as missing episodes or records of statutory multi-agency meetings.

Data interpretation

Finally, the dataset was aggregated into a contingency table to quantify the occurrence of each of the variables in both case and control groups to facilitate an odds ratio calculation. Odds ratios are used when the primary interest lies in understanding the strength of the presence or absence of a characteristic. Within this case-control study, odds ratios help determine which factors are most prevalent in children who commit serious violence by measuring the strength of association between each of the characteristics examined within the serious violence cohort compared to those in the non-serious violence cohort.

Odds ratio calculations are determined by dividing the frequency of each characteristic present within the SV cohort by the frequency of the same characteristic within the non-SV cohort. The potential outcomes are presented in Table 2.

Table 2: Odds ratio definitions

Odds ratio = 1	Current evidence does not indicate an association between the characteristic and serious violence
Odds ratio > 1	The characteristic is more associated with committing serious violence. The higher the number, the more significant the association.
Odds ratio < 1	The characteristic is less associated with committing serious violence and could, with careful interpretation, be considered a protective factor against serious violence

Odds ratio calculations are a point estimate value of the wider population determined from a random sample that is not necessarily fully representative and so if used in isolation, the observed results would lack statistical significance, failing to account for the possibility that the results occurred by chance. This study's findings were validated by calculating the confidence interval and p-value for each of the characteristics in further statistical analysis.

Confidence intervals provide an upper and lower degree of confidence around the odds ratio; the range of these values is dependent upon the sample size and data variability, and a narrow range is indicative of a high precision in the observed result, generating increased accuracy in estimating the true odds ratio across the whole population. This study employs a 95% confidence interval, which is commonly used in scientific research. This means that if the study were repeated multiple times, the true population parameter would be expected to fall within the 95% confidence interval 95% of the time.

P-values determine whether the observed associations between each of the characteristics examined and serious violence are statistically significant. A p-value less than or equal to $p < 0.05$ means that there is a 5% (or less) chance that the association between the variable and the outcome is due to random chance alone, providing evidence of a meaningful relationship between the characteristic and committing serious violence.

In research, ethical implications are a crucial consideration as they ensure that studies are conducted with transparency, protect the rights of the participants, and produce accurate and reliable results. This study demonstrates its commitment to ethical research by adhering to established standards for case-control and secondary data analysis methodologies to minimise the chances of bias within the dataset and provide greater generalisability of findings. The research question seeks to understand what factors are most prevalent in children who commit serious violence in order to safeguard them and their victims against experiencing or perpetrating future harm. This study, therefore, does not contravene the permissions or original purpose of the data collection or recording, which enables effective and efficient policing, including protection of life and prevention of offences against potential future victims. Prior to the research the Information Asset Owner's approval was obtained, having evidenced the policing purpose and benefit to the force.

Utilising secondary data has the advantages of minimising selection bias, reasonable uniformity in recording and is easily anonymised to maintain the individuals' confidentiality. Additionally, the dataset itself is stable and cannot be retrospectively manipulated, allowing the research methodology to be replicable and produce consistent, reliable results. Whilst it was not originally intended for research purposes, the data selected consists predominantly of records drawn from mandated data fields comprised of a limited menu of options, which provides some consistency, particularly within the Niche RMS live domain (2015-current). A manual assessment of each of the 200 participants was conducted to accommodate for historical differences in recording standards for initial contact and DA exposure. The second motive for manual analysis

was to include a wildcard search to eliminate any duplicate person records to ensure the data collated was precise and dependable.

Limitations

The following section highlights the main constraints associated with the methodology selected and ethical considerations. This research methodology incorporated random selection and a control group to achieve high internal validity and mitigate against possible alternative explanations; however, sample size is a limiting factor. One hundred case participants were examined, representing 21% of the eligible children known to have committed serious violence within the search parameters. A broader analysis of the total SV cohort of 472 children with a more extensive control group could provide greater confidence that the case sample analysed was genuinely representative of the child suspect population and generate more precise findings. P-values are additionally influenced by sample size; larger samples typically generate more precise estimates, potentially reducing uncertainty around any observed associations between characteristics and committing serious violence.

Data validity and reliability

Data validity refers to the extent to which data are sufficiently accurate and able to yield reliable results. As previously detailed in this chapter, decisions made to preserve data validity included the discontinuation of Ethnicity as a characteristic due to data quality and the inclusion of non-TVP child residents to avoid selection bias post-randomisation. Both factors had potential to compromise accuracy, generating untrustworthy conclusions. Poor data quality or inaccuracies in Crime Data Integrity

both of which rely upon compliance with National Crime Recording Standards (NCRS) and Home Office Counting Rules (HOCR) (Home Office., 2023b), can further compromise data validity. Although human error is inevitable due to the range of staff experience or proficiency, they are equally likely to be present in both case and control samples. Additionally, they are subject to the same internal integrity auditing processes that are designed to identify and amend any errors. Robust crime recording standards generate less variation in crime recording than the discretion-based application of flags, markers and markers which could be influenced by people's knowledge of creating them.

In the initial stages of developing the methodology, this study considered the advantages of including partner agency data to enrich the information available, particularly around family composition and early life experiences, to provide a broader perspective on which factors might contribute to committing serious violence. Aside from the challenges of acquiring compatible and relevant data, the inherent risk of misinterpretation and increased opportunity for confounding variables outweighed the benefits of incorporating Children's Social Care data. Disparities in the statutory requirements to record or respond to information may over overestimate the association between a characteristic and committing serious violence. Excessive quantities of data can make it challenging to discern accurate patterns or associations, known as variability bias.

Summary

This chapter has defined the case-control design and secondary data analysis adopted for data acquisition and the statistical calculations employed to determine the strength of associations between various characteristics and committing serious violence. To ensure a comprehensive analysis, the specific inclusion criteria were outlined; the data categories included demographics, initial contact with police, exposure to DA and police-held markers and warnings. Ethical considerations and study limitations were acknowledged; these included the shortcomings in secondary data analysis with respect to data quality and crime data integrity, sample size and potential constraints of using police data in isolation. The impact on external generalisability and the results obtained are described in the following chapters.

Findings

This chapter presents the outcomes of the case-control methodology by initially describing the data acquired and highlighting the key findings and insights derived. A descriptive analysis then aims to provide an understanding of which factors are most prevalent among children who go on to commit serious violence, structured around the variables cited within the research question, beginning with the findings arising from the demographics data collated. Next follows a descriptive analysis of results related to initial contact with TVP, domestic abuse exposure and finally, police-recorded warnings and markers. The findings are presented in two categories: those factors towards SV and those away from SV that may be considered protective, which will inform further discussion and interpretation in subsequent chapters. The results are displayed in category-specific forest plots.

Description of the data

The offence type data collated across the cohort is recorded in line with the crime group categories on Niche RMS, which clusters the offences into similar types to produce a manageable menu. Figure 3 and Figure 4 above show the variations between the offence types and gender composition within the serious violence cohort and the non-serious violence case-control sample drawn respectively. Table 3 illustrates the full range of results within a contingency table.

Table 3: Results - Contingency table

	Odds Ratio	95% Confidence Interval (Lower)	95% Confidence Interval (Upper)	p-value
Gender = Male	4.2	1.9	9.2	.0003***
Age at Index offence				
10-12	0.1	0.0	0.4	.00**
13-15	0.7	0.4	1.3	.25
16-17	3.4	1.9	6.1	.00**
Age at first contact				
Unborn				
0-4	3.6	1.8	7.2	.00**
5-9	0.9	0.4	1.8	.72
10-14	0.4	0.2	0.7	.00**
15-17	0.8	0.3	1.8	.52
First contact incident type				
Violence against the person	2.0	1.1	3.6	.03*
Violence against property	0.4	0.2	1.2	.10
Against authority	0.7	0.1	4.0	.65
Road traffic related	0.0			
Safeguarding	0.7	0.3	1.4	.30
Involvement classification at first contact				
Victim	1.2	0.5	2.5	.70
Suspect	0.5	0.3	0.9	.03*
Subject	0.5	0.2	1.2	.14
Witness/present	2.0	1.1	3.6	.02*
Sibling to primary nominal	2.6	0.5	13.6	.26
Predominant				
Victim	0.2	0.1	0.7	.01*
Offender	3.5	1.7	7.2	.00*
Victim-offender	0.5	0.2	1.1	.07
Safeguarding/other contact (%)				
0-24	1.3	0.6	2.6	.47
25-50	1.8	1.0	3.2	.03*
51-75	0.8	0.4	1.6	.47
76-100	0.2	0.1	0.6	.00**
Exposure to Domestic Abuse = Yes	3.0	1.7	5.4	.00**
Infrequent	1.5	0.8	2.8	.25
Repeat	2.8	1.5	5.4	.00**
High risk	1.3	0.5	3.7	.60
Medium Risk	2.8	1.4	5.6	.00**

Standard risk	1.6	0.8	3.2	.17
Multiple dyads = yes	4.8	2.4	9.8	.00**
Harm to primary care giver = yes	1.1	0.6	2.1	.74
<hr/>				
Warning markers = Yes	5.2	2.6	10.4	.00**
Health = yes	3.0	1.6	5.4	.00**
Ailment	5.6	1.8	17.2	.00**
Mental Health	1.0	0.4	2.4	.00**
Neurodiversity	1.9	1.1	3.6	.03*
<hr/>				
Suicide/self-harm	1.2	0.6	2.4	.59
<hr/>				
Risks identified = yes	2.5	1.4	4.7	.00**
Child Protection - neglect	1.7	0.8	3.8	.17
(extra-familial) Sexual exploitation	0.5	0.1	2.7	.42
<hr/>				
Criminal/drugs exploitation	4.7	1.9	11.4	.00**
Looked After child	0.8	0.3	2.0	.64
Organised Criminal Gang member	2.0	0.2	22.6	.57
<hr/>				
Involved in Domestic Abuse = yes	1.3	0.6	2.7	.46
<hr/>				
Suspect = yes	1.9	0.9	4.2	.12
Victim = yes	1.0	0.3	3.6	.00**
<hr/>				
Behaviours = yes	10.6	5.5	20.4	.00**
Conceals	1.3	0.3	4.8	.73
Drugs	2.5	1.2	5.1	.02*
Firearms	0.8	0.3	2.6	.77
Officer safety	6.0	2.8	12.9	.00**
Violence	21.7	9.1	51.6	.00**
Weapons	6.4	3.2	12.7	.00**

Statistical significance at that level: *p < .05; **p < .01; ***p < .001

Factors towards violence

Male

The odds ratio for gender is **OR = 4.2, 95% CI = [1.9, 9.2], $p < .0003$** , indicating a significant association within the study population between being male and committing serious violence. The confidence interval range of 1.9 - 9.2 with 95% confidence suggests that in replica studies across the whole child population known to TVP, the likelihood of association with committing serious violence could be between two and nine times higher. The findings indicate a p-value of $p < .0003$, which is below the conventional significance threshold of $p < .05$ suggesting, that the observed association between being male and serious violence is unlikely to be due to chance alone. Overall, this finding indicates a substantial and statistically significant association between being male and committing serious violence within this sample.

Age

The odds ratio for age as 16-17 years is **OR = 3.4, 95% CI = [1.9, 6.1], $p < .00$** , which shows that the age group of 16-17 years is 3.4 times more associated with committing serious violence.

Figure 5 illustrates a $p < .0$, which is strong evidence against this being a random finding. This chapter later explains the notable absence of the 10-12-year-old age range from Figure 5. These first two findings illustrate that being male and aged 16-17 years are demographic variables that have a substantially stronger and statistically significant relationship with committing serious violence than for those children who come to police attention for other, non-serious violent offences.

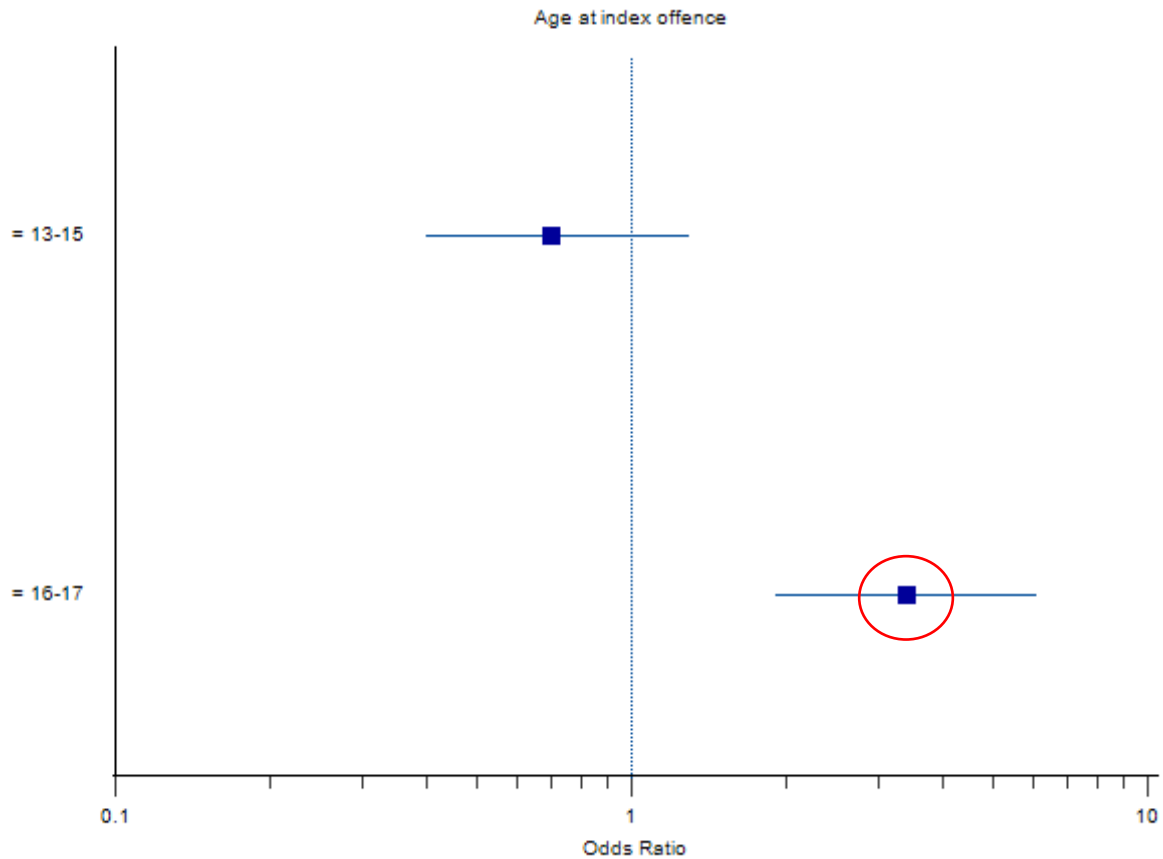


Figure 5: Forest plot – Age at time of index offence

Initial contact

Initial contact within this study is defined as the first recorded contact following a crime-related or non-crime incident recorded on Niche RMS for each child within the case control, including those recorded as ‘unborn’ following police contact with their pregnant mothers. The serious violence cohort is comprised of 3% of children recorded as unborn and 7% under 1 year old at the time of their first recorded contact with Thames Valley Police. It is notable that within the non-SV group, no children were recorded as unborn, although 7% had their initial contact with police recorded before their first birthday.

The odds ratio for age at initial contact, **OR = 3.6, 95% CI = [1.8, 7.2], p<.00**, indicating a significant association between being 0-4 years at initial contact and going on to commit serious violence within the study population.

The odds ratio for incident type at initial contact, **OR = 2, 95% CI = [1.1, 3.6], p<.03**, indicates a significant association between being 'Violence against the Person' related incidents at initial contact and going on to commit serious violence within the study population.

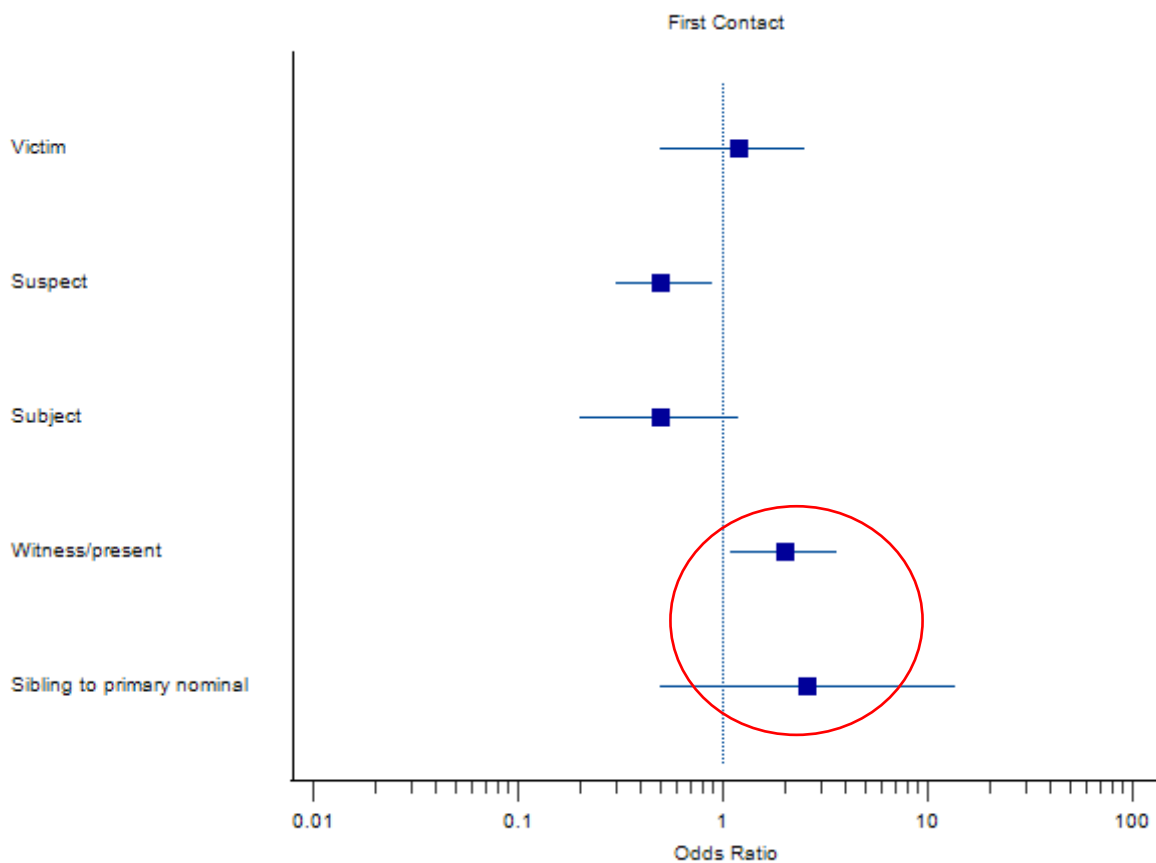


Figure 6: Forest plot-Classification at initial contact

The odds ratio for the child's classification at initial contact, **OR = 2, 95% CI = [1.1, 3.6], p<.02** as shown in Figure 6, illustrates that children who were recorded as witnesses or present, as opposed to being the direct victim at an incident during their initial recorded contact with police were twice as likely to be associated with

committing SV. The narrow confidence intervals suggest a high level of precision in estimating the true population amongst those children known on police systems, and the low p-number is indicative of the relationship being unlikely to be due to chance.

Exposure to domestic abuse

To understand the scale of domestic abuse exposure across the cohorts, crime and non-crime domestic-related incidents captured within this study are defined as abusive behaviour between two individuals who are each aged 16 or over and are personally connected (Domestic Abuse Act, 2021). On Niche RMS, a domestic-related incident is identifiable through a DA occurrence type or local qualifier. It can, therefore, include non-intimate relationships such as siblings or child/parent dyads. 66% of children within the SV cohort were found to have been exposed to DA, their involvement recorded as either witness, present, child or unborn, compared to 39% within the non-SV group.

Further analysis determined the frequency and severity of the recorded domestic-related incidents. However, this study acknowledges, as is commonly understood amongst policing and safeguarding professionals, that the prevalence of DA is unlikely to be limited to those incidences reported to police. Repeat exposure was considered to be five or more police-recorded DA-related incidents throughout the child's Niche RMS history and the TVP risk grading definitions were utilised to measure severity.

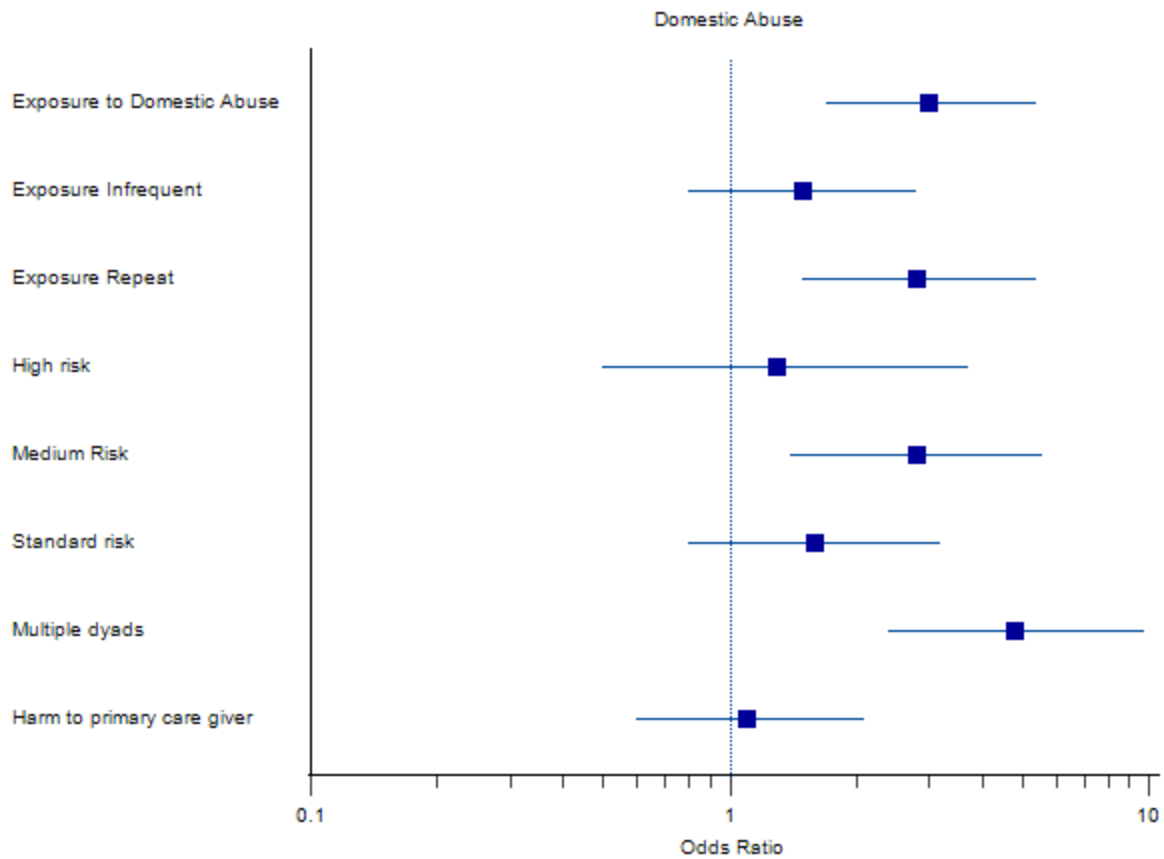


Figure 7: Forest plot - Exposure to Domestic Abuse

The results displayed in Figure 7 indicates that children exposed to domestic abuse are 3 times more associated with committing serious violence, **OR = 3, 95% CI = [1.7, 5.4], p<.02.**

Figure 7 is quite revealing in several ways. First, unlike the other forest plots, all variables examined have an odds ratio greater than **OR = >1.0** and, therefore, a positive association with committing serious violence across all variables. Secondly, whilst the relationship between repeat exposures is stronger than infrequent, **OR = 2.8 (95% CI 1.5, 5.4), p = <.00**, those individuals who were exposed to domestic-related incidents between multiple dyads have a greater probability associated with committing serious violence. The p-value of p<.00 for repeat exposure is below the

conventional significance threshold of $p < .05$, suggesting strong evidence against the null hypothesis or unlikely to be due to chance. Finally, Figure 7 shows a positive association between children perpetrating harm towards their primary caregiver and committing serious violence. However, as outlined above, these incidents do not fall within the domestic abuse definition until the child is aged 16 years or older. Current recording mechanisms within Niche RMS means data around child violence towards parents is less reliably highlighted and instead is identifiable when caregivers and children are recorded as the aggrieved and suspect, respectively, rather than through the presence of DA-related occurrence types or local qualifiers.

The local DA policy in Thames Valley includes abusive behaviours between intimate partners irrespective of their age, recognising that children under 16 years can also experience or perpetrate abusive or controlling coercive behaviour in girlfriend/boyfriend relationships. 20% of children within the SV cohort compared to 11% in the non-SV cohort have been recorded as DA perpetrators before their 18th birthday, with up to four separate intimate or non-intimate victims identified. Within both cohorts, 5% of children had been recorded as a victim of DA. The results observed for child victims and suspects of DA were both $p > .5$ and, therefore, not statistically significant. There is insufficient evidence to conclude there is a difference between those children who committed SV or not, and the null hypothesis cannot be rejected.

Police recorded flags, markers and warnings

Flags, markers and warnings recorded on Niche RMS are created to highlight health vulnerabilities, risks to self or others for custody purposes, and informing deployment and engagement decisions. 86% of children in the SV cohort had a flag, warning or marker recorded on Niche RMS compared to 54% in the non-SV group. Table 4 shows the prevalence of flags, warnings and markers on Niche RMS between the two groups.

Table 4: Prevalence of flags, markers and warnings across the cohorts

Flags / Markers / Warnings	Serious Violence group	Non-Serious Violence group
Health vulnerability	51	26
<i>Ailment</i>	19	4
<i>Mental Health</i>	11	11
<i>Neurodiversity</i>	38	24
<i>Suicide/self-harm</i>	21	18
Risk identified	43	23
<i>Child Protection - neglect</i>	19	12
<i>Child Protection - emotional</i>	8	0
<i>Child Protection - physical abuse</i>	3	0
<i>Child Protection - sexual abuse</i>	0	2
<i>(extra familial) Sexual exploitation</i>	2	4
<i>Criminal/drugs exploitation</i>	26	7
<i>Looked After child</i>	9	11
<i>Organised Criminal Gang member</i>	2	1
<i>Child Abduction Warning Notice</i>	4	0
Behaviours = yes	76	23
<i>Conceals</i>	5	4
<i>Drugs</i>	27	13
<i>Firearms</i>	6	7
<i>Officer safety</i>	40	10
<i>Violence</i>	62	7
<i>Weapons</i>	51	14

Figure 8 demonstrates that across most categories, children in the SV cohort were more associated with the various markers and warnings than the non-SV cohort. Notably, markers highlighting a health vulnerability are three times more associated with committing serious violence **OR = 3.0, 95% CI = [1.6, 5.4], p<.00**. Health markers is an umbrella term that incorporates ailments, mental health, ND and self-harm or suicide ideation. The strength of this association is explored in the discussion chapter.

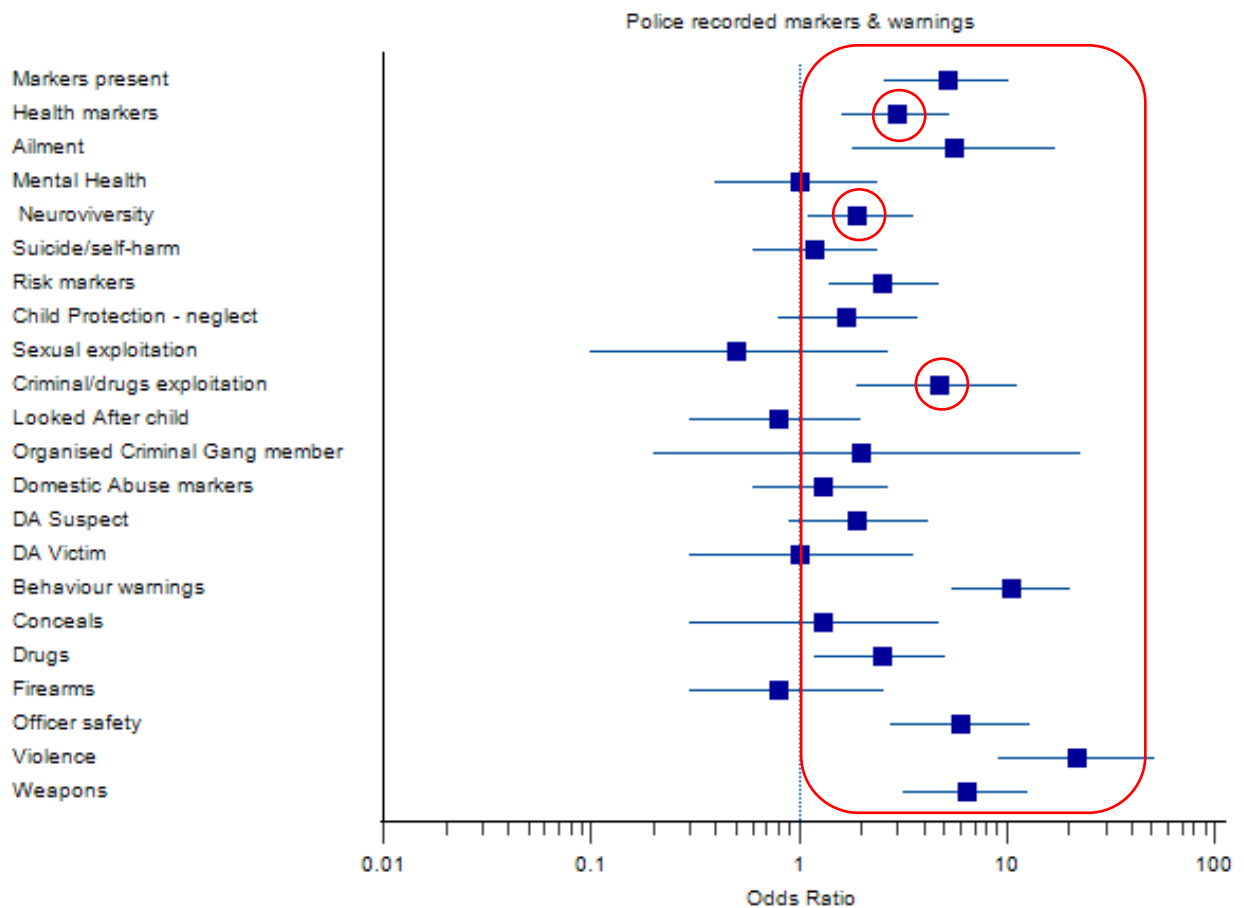


Figure 8: Forest plot – Presence of police flags, markers and warnings

Neurodiversity

Neurodiversity flags were present in 23% of children in the SV cohort and 15% of children in the non-SV cohort, resulting in an odds ratio of **OR = 1.9, 95% CI = [1.1, 3.6], p<.03**. This positive association has a narrow confidence interval, which suggests with 95% confidence that repetition of this study would reveal up to three times more association between ND and serious violence and is highly unlikely to be due to chance alone.

Child Criminal Exploitation / Child Drug Exploitation

Child exploitation markers relating to criminality or drugs are evident in 26% of the SV cohort versus 7% of the non-SV cohort. This was the most substantial factor in the markers and warnings category, with CCE or CDE being 4.7 times more associated with committing serious violence **OR = 4.7, 95% CI = [1.9, 11.4], p <.00**. This indicates that this is unlikely to be a random coincidence, and therefore, recognising that children are at risk from exploitation or extra-familial harm is substantial and statistically significant in regards to committing serious violence.

Factors away from serious violence

It is crucial to interpret an odds ratio of **OR = 0** in the context of the study design, sample size and the nature of the variables in comparison. An odds ratio of **OR = 0**, whilst uncommon, suggests no association or relationship between the variable examined and serious violence. This could imply an equal likelihood of the variable occurring for either cohort. However, it is uncommon and may represent issues with the analysis or data. Within the findings, some categories returned findings of **OR = 0**,

likely due to the sample size of 100. Small samples can significantly influence the calculations and interpretation of an odds ratio. This happens when there are no occurrences of the 'event' or variable in the SV cohort, but there are in the non-SV cohort. This is considered a statistical artefact or bias due to limited sample representation or variability and will not be representative of real-life events.

The findings in table 3 report an odds ratio of **OR = 0.1, 95% CI = [0.0, 0.4] p<0.00** for index offence age 10-12. The observed odds ratio suggests a negative association between the ages of 10 - 12 years at the time of the index offence and the serious violence. However, this conclusion may be misleading: the sample did not include any children aged 10 or 11 years in the serious violence cohort. Therefore, it would be inaccurate to report this variable as a protective factor away from serious violence.

Summary

What emerges from the reported results is a statistically significant association between serious violence with being male, being aged between 16 – 17 years, being indirectly exposed to police before the age of 4 years or having been exposed to domestic abuse. Together these results provide important insights to developing targeted interventions and prevention strategies to reduce serious violence. However, it is crucial to remember that these are statistical associations and do not imply causation. This chapter also highlighted the importance of being aware of potential artefacts when designing studies, collecting data, and interpreting results as these can produce misleading conclusions if not properly accounted for during the analysis

process. The next chapter discusses the implications of these findings including implications for policy, research and theory.

Discussion

The previous chapter's key findings identified multiple factors that have a statistically significant association with committing serious violence. These factors include gender, age, and early onset of police involvement. Additionally, individuals exposed to DA and those with health vulnerabilities were found to have a higher association with serious violence. In the following section, these factors will be examined further, drawing upon the previous literature review chapter to provide a comprehensive understanding of the results and their implications for policy, research and theory. This will be followed by an analysis of factors that contribute 'away from' SV that may be considered protective, a topic briefly discussed in the results chapter. This chapter will conclude with considered thoughts as to whether the case-control methodology achieved its aim of answering the RQ1 and providing reliable and valid results that can assist TVP in identifying what factors are most prevalent in children who go on to commit serious violence.

Demographics

Gender

The findings in the gender category corroborate the well-established association in criminological literature between males and the perpetration of serious violence. This is mirrored in the current demographics of His Majesty's Prison (HMP), where males represent 97% of youth custody and 95.9% of the wider prison population (Justice Data, 2023). The synthesis of these findings and existing literature emphasises the need for interventions tailored to gender, initiated at the earliest detection of exposure to harmful behaviours or trauma.

Without prompt and suitable intervention, Social Learning Theory postulates that these male children are potentially at risk of learning through observation and imitation, thereby adopting aggression or replicating negative behaviours seen in their peers or role models. Moreover, theories on trauma responses in psychology have observed that males often externalise their symptoms, which can include harmful behaviours towards others. Therefore, it is crucial to address these issues swiftly and effectively to halt the perpetuation of such behaviours and disrupt the cycle of violence (Dulmus & Hilarski, 2006).

Societal norms and expectations often encourage males from a young age to be assertive, take risks, or act impulsively. These norms are evolving but still vary across different cultures and communities. There is a growing recognition that gender stereotypes can restrict or damage the identities and growth of young people, even when they are applied unconsciously (BCU., n.d.). It is an important distinction that gender-specific research should be evidence-based, reflecting differences in gender composition and motivation among offender groups whilst ensuring that this does not lead to gender biases in police responses. Findings should inform fair and non-discriminatory practices.

Age

Findings in relation to age and SV aligned with the referenced literature and national statistics. Consistent with the widely recognised age-crime curve studies, children aged 16 – 17 years made up 57% of the serious violence cohort, compared to 28% in the non-serious violence cohort. Age-crime research has consistently observed criminality peaking during late adolescence, explained by Farrington (1986) as offenders' switching' to more violent crimes. This seems logical; parental controls decrease, and independence and autonomy increase, allowing teenagers more agency in choosing their company. Peers overtake caregivers as primary role models, and access to finances and technology provides broader social opportunities. New or more frequent interactions with criminogenic people or places, either face-to-face or in online environments, might influence an individual's behaviour, explained by Social Learning Theory, as individuals emulate behaviours exhibited by anti-social or violent associates.

The findings reinforce the importance of early intervention to prevent children's offending or victimisation trajectory. A young person's morality and self-control are essential in building a child's resistance to negative peer influences. So whilst partner agencies have a fundamental role in supporting children with their biological and social influences, police can leverage their resources and police powers to affect certain environmental factors. To prevent SV in public places, police can utilise temporal and geospatial crime data to implement capable guardians such as visible, targeted patrols or community engagement. Alternatively, implementing discrete alternatives such as security guards, street lighting or CCTV coverage can create hostile environments that

deter gatherings and anti-social behaviour in crime hot spots. This utilises Rational Choice Theory; by creating a perception that the risk of being caught is high, police can influence a child to weigh their cost-benefit analysis against engaging in criminality. This overlaps with other criminology theories that deter offending through increased certainty and celerity of detection, known as deterrence theory (Braga & Weisburd., 2012) or reducing 'suitable' locations for crime to take place through the application of Crime Opportunity Theory (Cloward & Ohlin., 2013).

This method is location-focused, so whilst it is an effective strategy for reducing crime overall, it would not necessarily contribute to the prevention or safeguarding activities for specific individuals, particularly those that may be at risk of criminal or sexual exploitation. A tactic available to police to disrupt harmful associations is Child Abduction Warning Notices (HMICFRS., 2023). Designed to prevent contact and disrupt exploitation, CAWNs notify an adult over 18 years that they do not have permission to contact a named child under the age of 16 and breaches provide evidence to support criminal proceedings.

As for the applicability of Moffitt's (2017) theory of two distinct offender types (Life-Course-Persistent and Adolescent-Limited) to the Thames Valley Police (TVP) data, further analysis would be needed. This would involve a longitudinal study design, tracking the same participants over time to observe changes in their offending behaviours. The anticipated changes would be ceasing to offend, consistent flow of non-serious offences, or increases in the frequency or severity of criminal behaviour. This could help TVP identify specific offender types within the sample and allow for a

comparison of their prevalence across the two cohorts. Once understood, interventions could be targeted at each cohort to address the specific needs and risks associated with either those whose antisocial behaviours begin in childhood and continue into adulthood or those that begin offending as a later teen and typically desist (Moffitt & Caspi., 2005). Understanding these trajectories can assist TVP in the early identification of individuals at risk of persistent offending and divert them through the implementation of preventative measures (Piquero et al., 2016).

Initial contact

The research of Farrington and Hawkins (1991) found that early involvement in criminal activities, specifically before the age of 14, is a strong predictor of persistent and more prolonged criminal careers. Whilst this study's remit does not consider the longevity of offending, the findings indicate that 89% and 86% of the serious and non-serious violence cohorts, respectively, had contact with police before the age of 14. This is consistent with national data indicating that the majority of children imprisoned had come to police attention before the age of 16 years (ONS., 2023). As previously discussed, ongoing observation of these individuals could provide additional evidence about the duration of their criminal behaviour and strength of association between the onset age of contact with police and engaging in criminal activity.

The most common offence type recorded during a child's first documented interaction with the police was 'Violence against the Person'. This was true for both serious (74%) and non-serious (59%) violence cohorts. This observation aligns with the research and theories suggesting a strong connection between indirect victimisation, such as

exposure to violence leading to future victimisation or offending. These theories, discussed in the literature review, attribute these links to a complex combination of individual, environmental, and social factors. These factors can lead to learned behaviour (SLT) or can manifest as trauma symptoms (SAT). A notable difference between the cohorts was the participant's involvement in the initial contact; the serious violence cohort was predominantly witness, present or siblings (51%), whereas the non-serious violence cohort was predominantly suspect (37%).

Another significant finding is the child's age at their first recorded contact with police. The results suggest that children encountering police between the ages of 0-4 years (including those in utero) are more associated with committing serious violence (37-40% of the SV cohort versus 14% in the non-SV cohort). However, over half of the children in the non-SV cohort did not come into contact with the police until the ages of 10-14 years (52% compared to 31% of the SV group). Again, both these findings broadly support the work of Moffitt (2017), highlighting a statistically significant difference between those children who have witnessed violence and been indirectly victimised.

The total number of incidents involving each child helps determine whether they were mainly an offender, a victim, or involved in non-crime events (as shown in Table 5). This provides an understanding of the frequency of police interaction with each child and allows a comparison between the two groups. The data includes not only crime incidents but also non-crime incidents and cases where the child was reported missing. Missing incidents might be indicative that the child is at risk, perhaps running

away from a distressing situation at home or being forced to leave (Department of Education, 2014). In the serious violence (SV) group, 88% were mainly suspects, meaning they were listed as the suspect in more than 61% of their recorded police contacts. On average, they were involved in 68.5 crimes each, which is 130% more offences than the non-SV group. Also, two-thirds (65%) of this group were recorded as victims, supporting existing research on the overlap between victims and offenders in the SV group.

Table 5: Total number of police records

	SERIOUS VIOLENCE			NON-SERIOUS VIOLENCE		
	Total	Crime	Non-crime	Total	Crime	Non-crime
N = 100	6848	2210	4638	2553	1595	958
AVERAGE	68.50	22.10	46.38	23.53	15.95	9.58
SD	74.44	24.02	53.99	49.59	35.03	26.20

Exposure to Domestic Abuse

The recent amendments to the Domestic Abuse Act 2021, which acknowledge the effects of DA on children who witness or experience it, make the strong association found in this study between a child's exposure to DA and the perpetration of serious violence unsurprising. In respect of the serious violence cohort, 66 children were found to have been associated with DA on TVP Niche; more than half, (56%) were recorded as having been exposed to more than five incidents and 42% had witnessed DA between more than one dyad. Of the 30 children subject to child protection plans, 80% had recorded exposure to DA. Similarly, of the 14 children in the care of the Local Authority all but one (93%) had recorded exposure to DA. This is consistent with the literature that suggests a strong co-occurrence of child abuse and witnessing DA (Hughes et al., 1989; Wasserman et al., 2003)

The study found that more than one in four children were showing violent behavior towards their primary caregiver. The data on domestic abuse (DA) showed a concerning trend: one in five children (20%) in the serious violence (SV) cohort were recorded as suspects. The ratio of male to female suspects is 18:2. These results refer to those in the SV cohort aged 16-17 who are showing abusive or controlling behaviors towards their family members, or those aged 10-17 showing clear signs of risk of causing serious harm to their intimate partners. One child in the SV group, who committed grievous bodily harm (GBH) at age 17, first came to police attention as an indirect victim of DA at age 5. This child is now recorded as a medium-risk DA perpetrator against four individuals. Despite early police involvement and child protection planning, this individual seems to have continued the cycle of harm from

one generation to the next. Similarly, another individual, also 17 at the time of their GBH offence and an indirect victim of DA at age 3, is recorded as a medium-risk DA perpetrator to three victims.

Despite domestic-related crimes representing 17% of all offences recorded by police and 1 in 5 homicides for victims aged older than 16 years (Home Office., 2023c), recorded data can only provide a partial picture of the full extent of DA prevalence and severity experienced. In addition to the factors that influence an individual's decision to commit violence, domestic abuse is further complicated by entrenched societal issues like gender inequality, poverty, and cultural norms. Tackling domestic abuse is a complex issue that goes beyond the remit or capabilities of law enforcement alone. As such, it calls for a holistic, multi-agency response that includes Education, Social Services, Healthcare, and community organisations. While the police play a vital role in responding to incidents and providing immediate victim protection, relying solely on positive arrest strategies is insufficient in addressing the complexities of ingrained perpetrator behaviour or the myriad environmental and personal factors that disenable victims from leaving abusive relationships.

DA legislation, the launch of the Domestic Abuse and Sexual Violence (DASV) programme by NHS England (2022), and the introduction of the Violence Against Women and Girls (VAWG) strategy by the Home Office (2021b), all exemplify a collaborative, nationwide public health approach to this problem. Locally, the Thames Valley Partnership could show its dedication to addressing these issues by continuing to urge officers attending officers to exercise professional curiosity and capture all

opportunities to build an evidence-led prosecution to safeguard victims and their children through clear operational guidance and quality assurance monitoring.

Every form of police intervention, whether it involves arresting a child or providing support to them as a direct or indirect victim presents a crucial opportunity to mobilise support, resources and services that can positively influence their future trajectory. By embracing the 'Voice of the Child' approach (Ofsted., 2021), which prioritises the child's perspective, feelings and experiences, police and partner agencies can gain valuable insights into their lived experiences and motivations behind their acts of violence. These insights can inform strategies for diversion and prevention. The 'Child first, Offender second' model, a progressive approach to youth justice model places the needs of the child above their status (Haines & Case., 2015). This approach aims to address the root causes of offending behaviour and prevent unnecessary criminalisation of children

By focusing on supporting the child to break the cycle of violence, law enforcement can achieve better outcomes including lower recidivism rates (Youth Justice Board., 2010). Inclusive processes that respond to the child rather than the offence and promote their welfare and rights also enhances procedural justice (Tyler., 1990). When children feel respected and heard by authority figures with trustworthy motives, they are more likely to have confidence in those authorities, perceive them as more legitimate and comply with decisions and rules (HMIP., 2021).

Police flags, markers and warnings

A p-value $p < .00^{**}$ indicates that there is strong evidence against a null hypothesis, suggesting that the observed results are statistically significant and unlikely to be due to chance. The findings in Table 6 suggests a statistically significant association between the presence of three specific flags and warnings on TVP's Niche RMS and violent behaviour in children. These indicators of children that have previously been violent toward officers, exhibited violent behaviour or been found in possession, or used a weapon are between six and 21.7 times more associated with serious violence.

Table 6: Results – Flags

	OR	CI (upper)	CI (lower)	p-value
<i>Officer safety</i>	6.0	2.8	12.9	.00**
<i>Violence</i>	21.7	9.1	51.6	.00**
<i>Weapons</i>	6.4	3.2	12.7	.00**

However, these results should be interpreted in the context of study design, sample size and the nature of the variables being compared. A limitation of this study was the lack of temporal analysis of the application of flags, markers and warnings. If the flags were applied after the individuals were arrested for grievous bodily harm (GBH) level offences and above (their SV index offence), which is highly probably, these results will not accurately reflect the strength of the observed association due to the introduction of information bias. This happens when the measurement or collection of data is not accurate leading to a distortion in the results. Consequently, the absence of these flags cannot be interpreted as a protective actor against SV. Further temporal analysis is needed to better understand the significance of these three flags and warnings.

Child Criminal Exploitation / Child Sexual Exploitation Flags

Responsibility for applying and maintaining CCE and CSE flags lies with the Multi-Agency Safeguarding Hubs (MASH). This team will reactively (post-incident) and proactively assess children within TVP that may be exhibiting indicators of exploitation. A multi-agency threshold review will consider whether an individual is at risk of exploitation, or is likely to be at risk due to an emerging threat. Flags are therefore added once a risk, emerging or existing has been confirmed. While the results observed a statistically significant result, this should be expected given the nature of these flags and further temporal data would be required to understand the timing of their index offence in relation to their flag application before drawing further conclusions around the positive association.

Limitations

This most significant limitation of this study's research design is its use of police-held data in isolation, which introduces the potential for information bias. Police data is collated through various methods, each with specific requirements for its recording and use. These methods can influence the type, quantity and quality of information recorded. In their study, The U.S Department of Justice (Mount., 2004) acknowledged this same limitation and addressed it by implementing an supplementary layer of data collection through interviews, but it was not practical to adopt their methodology for this particular study.

Data quality is heavily reliant on the accuracy of human input. Data entry errors can occur due to typos or misunderstandings of data requirements. Additionally, police data might not fully capture the extent of child abuse or neglect in all parts of society

as many cases of unreported or undetected, creating a distorted picture of crime rates and patterns.

In this study, some of the data analysed was not strictly necessary or required by law or force policy, which could affect the consistency of the recording process. For categories such as medium and high-risk domestic abuse, TVP local policy mandates the application of for victims and suspects. Similarly, CPP flags are statutorily required on police systems, ensuring good consistency in these two categories. The findings indicate an association between health vulnerability data, particularly ailments and ND with SV. These markers could be generated from information volunteered during a risk assessment or gathered through discussions with partner agencies. However, the most reliable method of obtaining data is when a child is in custody. Consequently, this study should take in to account that the observed association between health vulnerabilities and SV could be partially attributed to the enhanced opportunities for TVP to collect these details when a child is in custody, where the information is necessary to enable to fulfil their duty of care throughout their detention. This result seems more logical that to assume conditions such as allergies or heart conditions influence an individual's propensity for criminality.

The generalisability of the observed results is influenced by several factors. As stated from the outset, the sample is not reflective of the wider population and cannot therefore be considered indicative of the prevalence of factors associate with SV outside of those children known to TVP in the last five years. Standardised crime recording requirements (HOOCR & NCRS), statutory requirements for CPP and children

in custody does provide some confidence that the research design and findings are applicable for other forces in England and Wales. Scotland cannot be included owing to the differences in age of criminal responsibility.

The limitations of applying criminology theories, such as RCT and SAT theories have been a recurring topic of discussion in this study. These theories presuppose that individuals are capable of making rational decisions, without cognitive impairments, ND or third party coercion. This introduces a potential for police to inadvertently shift blame on to child victims. Secondly, this assumption may not hold true for all children who may not fully comprehend the consequences of their actions.

Policy implications

TVP should endeavour to deliver equitable treatment of victimised children and child offenders by developing a reporting mechanism to recognise the risk child victims of serious or enduring violence face. This system should acknowledge that child victims are at a comparable high risk of experiencing or perpetrating harm to child offenders. Just as child offenders are provided with support and intervention services, victimised children should receive equivalent resources and services to address their trauma and prevent potential offending behaviour, (Bailey., 2019). TVP should collaborate with Children's Social Care and relevant stakeholders to ensure a comprehensive approach to supporting children that complements the application of police powers.

Thames Valley Police should endeavour to capture the 'Voice of the Child' for every indirect victim of DA and every young person in custody or subject to a voluntary interview by mandating completion of a Child Protection template for consideration by the Multi-Agency Safeguarding Hubs (MASH). This mirrors the existing process for direct victims, in line with the 'Child First, Offender Second' model, prioritising the child over their culpability in a crime. This approach promotes understanding, fostering empathy from attending officers and applying the key principles of procedural justice to children, motivates prosocial behaviours and increases trust and confidence in police.

Thames Valley Police should enhance the use of flags, markers and warnings, revising existing policies to ensure their effective and consistent application. Consideration should be given to the application of Robotic Process Automation to improve adherence and precision in the use of flags, markers and warnings. Without implementing these proposed changes, the ability of flags, markers and warnings to inform deployment or intervention strategies will remain limited.

Conclusion

This study set out to understand whether a case-control research design could effectively analyse secondary police-held data to identify shared characteristics among those children who had committed serious violence in Thames Valley over a five-year period. The evidence shows several factors associated with serious violence; these include being male, being aged 16-17, experiencing early contact with the police before the age of four and exposure to domestic abuse. Remarkably, out of

a random sample of 100 children that committed serious violence, 5% (n=5) exhibited all of these risk factors. Out of 51 males in the SV cohort aged 16-17, four were not known prior to their index offence. Of the remaining 47, 16 were known to TVP from the age of four or under. 13 of these individuals were exposed to DA, and 25 were indirect victims at their first contact with TVP. This highlights the complex interplay of gender, age, and early life experiences in relation to serious violence.

It is crucial to note that the findings represent statistical associations and do not necessarily imply causation. Further research is needed to fully understand these relationships, their implications and the trajectories of children with these risk factors. Additionally, findings could be improved upon through repetition, increased sample size, temporal analysis of flags, markers and warnings and tracking of the sample population through a longitudinal study. This system of monitoring the progress and outcomes of these children over time provides valuable data on the long-term effectiveness of intervention strategies in existence today.

This would enable TVP to test the age-crime curve and Moffitt's (1993) theories, generating an evidence-base for future focused interventions that target the optimum age and offence types that have the strongest associations with escalating or enduring criminality. Continuing to develop on this evidence-base in TVP and evaluate the cost-benefit of early intervention could significantly shape policing culture in a number of ways: enhanced understanding of the long-term impacts of indirect victimisation of children at domestic-related or other crime incidents can foster empathy among police personnel and create a more person centred approach, increasing victim satisfaction.

Secondly, it could shift the focus from reactive to time effective, less resource intensive proactive policing measures. Thirdly, it encourages collaboration with partner agencies to manage the social and environmental factors influencing an individuals lived experiences and trajectories, generating better outcomes for children overall. Finally, demonstrating a commitment to protecting vulnerable children and preventing future harm could improve public trust and confidence in Thames Valley Police.

In conclusion, this study has successfully met the objectives outlined in the research question and reported statistically significant findings on the factors most prevalent in children who commit serious violence. These results will not only inform discussions on existing practices but also serve as a foundation for further exploratory work in Thames Valleys Multi-Agency Safeguarding Hub. The study has made valuable recommendations that will not only support future research but also enhance how wider TVP collect and record information from children at risk of serious harm. This will aid in the development of effective multi-agency interventions, thereby contributing to a more comprehensive and informed approach to child protection. The implications of this study are far-reaching, promising to influence both policy and practice in the field.

Recommendations

Based on its findings, this study proposes the following recommendations for Thames Valley Police to consider in their ongoing efforts to prevent community serious violence:

1. **Equitable Treatment:** deliver equitable treatment of victimised children and child offenders. This includes providing equivalent Multi-Agency Safeguarding Hub resources and services to both groups, identifying pathways to address their trauma and prevent further victimisation or offending behaviour.
2. **Voice of the Child:** capture the 'Voice of the Child' for every child at risk of harm through mandating Child Protection templates for every indirect child victim of DA and every young person in custody or subject to a voluntary interview.
3. **Improve Application of Flags, Markers, and Warnings:** improve consistency in the application of flags, markers, and warnings to assist in identifying those at highest risk of high harm.

These recommendations aim to promote a more empathetic and comprehensive approach to dealing with children who come into contact with the police, whether as victims or offenders

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Appendix

List of abbreviations

ACE	Adverse Childhood Experience	ADD	Attention Deficit Disorder
ADHD	Attention Deficit Hyperactivity Disorder	CAWN	Child Abduction Warning Notice
CCHI	Cambridge Crime Harm Index	CCE	Child Criminal Exploitation
CDI	Crime Data Integrity	CJS	Criminal Justice System
CPP	Child Protection Plan	CSDD	Cambridge Study in Delinquent Development
DA	Domestic Abuse	DQ	Data Quality
DASV	Domestic Abuse and Sexual Violence	HMICFRS	His Majesty's Inspectorate of Constabularies, Fire & Rescue Services
HMP	His Majesty's Prison	HOCR	Home Office Counting Rules
MASH	Multi-Agency Safeguarding Hub	NCRS	National Crime Recording Standards
ND	Neurodiversity	NDAS	National Data Analytical Solution
Niche RMS	Niche Records Management System	Non-SV	Non-Serious violence
PHA	Public Health approach	PTSD	Post Traumatic Stress Disorder
RCT	Rational Choice Theory	SAT	Situational Action Theory
SLT	Social Learning Theory	SV	Serious Violence
TVP	Thames Valley Police	VAWG	Violence Against Women and Girls
V-OO	Victim-Offender overlap		

