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TARGETING ESCALATION IN COMMON DOMESTIC ABUSE: HOW MUCH IF ANY?

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Abstract

Escalations of severity and intermittency have been long held beliefs among domestic abuse scholars and practitioners. This study looked at over 36,000 police records of domestic abuse between 2009 and 2014 recorded by Suffolk Constabulary, a police force in the east of England. The objectives were to identify patterns in escalation of severity and intermittency and concentration of harm, using the Crime Harm Index as the instrument of severity and harm measurement.

The study found no evidence for statistically significant escalating severity among a cohort of 727 unique victim and offender units, known as dyads, which called police five or more times in a three year period. There was however, evidence to suggest that intermittency decreased over time among the same group. The study also found that while 75% of dyads reported to police just once, less than 2% of all dyads accounted for 80% of all domestic abuse harm. In over half of these high harm dyads, there had been no prior contact with police regarding domestic abuse and in these cases, victims were more often non-White British, male, without children and from less areas than was typical of all dyads.

The study also reached two other notable conclusions. Firstly, that the conditional probability of reporting domestic abuse rose with each additional call and that after the third call for service, a dyad was more than 50% likely to call again. Secondly, that 17% of domestic abuse offenders committed offences against more than one victim. This represented 47% of all repeat domestic abuse offenders.

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I owe a great deal to the important people who helped me undertake this work, most especially:

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Domestic Abuse in England and Wales

"Any incident or pattern of incidents of controlling, coercive, threatening behaviour, violence or abuse between those aged 16 or over who are, or have been, intimate partners, or family members, regardless of gender or sexuality"

UK Home Office Definition of Domestic Abuse

If domestic abuse was once a crime in the shadows, then it is no longer. The UK government has made it clear to police forces in England and Wales that domestic abuse is a priority and with the findings of the recent HMIC inspection (HMIC 2014) of the police's response to domestic abuse; it has made it clear that forces are not doing enough.

That domestic abuse is "big business" in crime and social harm is not a new notion. Not only is it apparently widespread, it is also high harm and high cost and as such seriously affects the lives of some of its victims. Scholars have written about domestic abuse and its variants (domestic violence, intimate partner violence, wife-battering) at length since Feld and Straus' work on the National Family Violence Survey (1979) revealed the extent of the problem in the United States. The HMIC quotes costs of £15.7billion per year (HMIC, 2014), and 77 deaths of women in the UK linked to domestic abuse in 2012/13 . Although these figures are lower than the figures published in 2008 (Richards et al., 2008), they are considerable nonetheless. The problem is not unique to the United Kingdom as research has repeatedly shown; violence by men against their wives is rooted in Roman traditions (Dobash & Dobash, 1979) and it is possible that it

pervades the majority of societies across the world. Not only has the Crime Survey of England & Wales (CSEW) estimated that 31% of women and 18% of men in the UK have been a victim of domestic abuse at some point since they were sixteen, American scholars have for some time estimated the annual number of cases to be in the millions (Stark, Flitcraft & Frazier, 1979; Straus & Gelles, 1986; Sherman, 1992). 21st century US police records endorse these findings: between 2003 and 2012 there was on average more than 1.4 million recorded cases of domestic violence each year (Truman & Morgan, 2014). In the UK the annual number is over 200,000 – around 8% of all recorded crime (HMIC, 2014) and widely believed to be highly underreported. With these numbers, it may be that the appropriate term is not 'problem', but 'epidemic'.

Escalation of Severity and Intermittency in Domestic Abuse

Yet despite the rich body of research on domestic abuse overall, much is still unknown about particular aspects, especially in the United Kingdom. Until very recently, Police Chief Officers were asserting in public that victims of domestic abuse suffered 34 episodes prior to reporting to police. This figure was exposed as highly spurious by Cambridge scholars in 2014 (Strang, Sherman & Neyroud, 2014). Another potential myth is that of escalation – the notion that over the life of a domestic abuse relationship the severity and frequency of violent events will increase with each further report. According to Pagelow (1981), escalation is something on which researchers can agree, although she does not make it clear why.

Indeed, in England & Wales, police and other organisations have put escalation at the centre of their efforts to assess risk of harm in future cases. All English and Welsh forces are required to complete a risk assessment form with the victim even if no crime

has been proven. That risk assessment (known as 'DASH'), which to varying degrees is later validated by a specialist, asks specific questions about escalation in severity and frequency. If the answers to either of those questions are 'yes', the case could be given a higher risk rating and access to further support services and other resources. Yet while published literature asserts that violence generally shows patterns of escalation (Richards et al., 2008), question marks remain about the extent of the empirical evidence that supports the theory.

Although escalation has been often cited in research and domestic abuse publications as an evidenced phenomenon (Pagelow, 1981; Richards et al., 2008; Walker, 1979, 1984), the evidence is at best, mixed. The literature review chapter that follows this introduction examines just how mixed the evidence is, and where the important gaps remain.

Purpose and Structure of This Research

This research aims to add to the body of research on escalation and the general understanding of harm in domestic abuse cases. It is clear from HMIC's recent inspection (HMIC, 2014) and the strong public response by the Home Secretary (Casciani, 2014a), that the police in England & Wales are on the cusp of a new paradigm in the policing of domestic abuse. Data gathering, risk assessment and cultural values will all be re-examined. This research will seek to establish if the theory of escalation should be part of the future paradigm and if so, consider how. Further evidence will be needed across the field of domestic abuse to help police and partners address the gaps highlighted by HMIC. The principle assertion that forces are equipped far better to deal with "traditional" acquisitive crime which should move over for domestic abuse may have some merit, but

current suggestions as to future direction are far from adequate. For example, it is unclear what evidence HMIC has collected to enable it to state that police should consider using the same tactics they employ for serious and organised crime groups against domestic abuse perpetrators. Contemporary research, such as this, should challenge these assertions in a way that helps refine and build an evidence-based strategy for targeting domestic abuse with proven, tracked tactics.

To try to contribute to this aim, this research will focus its analysis on three principle areas set against a dataset of over 36,000 domestic abuse events that were reported to Suffolk Constabulary between 1st January 2009 and 31st March 2014. Firstly, it will address the issue of escalation of severity and intermittency in repeat cases. For the former, the Cambridge Crime Harm Index (CHI) has been employed as the instrument for measurement of severity (Sherman, Neyroud & Neyroud, 2014). The literature review chapter contains a review of literature around severity and harm measurement methodologies and the methods chapter a detailed analysis of CHI. In this regard, this study represents one of the early attempts to use this measurement tool against a deep and detailed dataset and with luck this will prove useful to those who follow in attempting to use CHI for similar analyses of harm. The number of days between calls to police will be used to measure intermittency.

Secondly, this study will use CHI to profile individual dyads (couples of offenders and victims as distinct, unique units) for concentrations of harm. This is some of the first research into domestic abuse of this kind and will attempt to test the theory of the "power few" (Sherman, 2007) in the context of harm rather than volume.

Thirdly and finally, this research will use conditional probability and analysis of CHI scores in tandem to try to identify ways to predict those cases which are likely yield further demand and further serious harm for law enforcement agencies.

The next section is the literature review chapter, which as described, considers the evidence and theories that exist in respect of domestic abuse particularly repeat victimisation, escalation and measurement of severity.

This is followed by a chapter on methodology which will set out the five research questions this study seeks to answer. It will also summarise the process of data cleaning and preparation and the analytical techniques used to answer the five questions. This chapter closes with an assessment of external validity. For those readers tempted to dismiss these findings because their own jurisdiction is “nothing like Suffolk”, this section is a recommended read.

The chapter on results presents the findings in detail under the heading of each question. This includes a section on the profile of the data which examines the issue of external validity further. Finally, the discussion chapter examines the strategic and tactical implications the findings of this research, particularly in light of the forthcoming Authorised Professional Practice that is due to be published by the College of Policing and the recommendations set out by HMIC (HMIC, 2014). All of this content is then drawn together in the final chapter which attempts to make a reasoned and progressive conclusion.

Literature Review

Domestic abuse is often heralded by scholars and agencies as a crime epidemic of modern times. The field of domestic abuse (here taken to incorporate wife battering, domestic violence and intimate partner violence) has one of the deepest bodies of research of any type of crime, but gaps and limitations remain.

This chapter will consider the literature on domestic abuse and in particular the phenomenon of repeat victimisation. It will also examine what theoretical concepts and evidence on escalation in domestic abuse. Escalation is one of the areas that has been scrutinised comparatively sparsely when compared to other aspects of domestic abuse, but this has not prevented it from becoming an accepted fact and an underpinning feature of domestic abuse risk assessment in England and Wales (Richards et al., 2008). This chapter will therefore attempt to describe the nature of escalation as established by evidence and at the same time discuss the research studies which fail to evidence it.

The chapter concludes with a review of the literature on instruments for measuring crime severity. As this study will attempt to track the trajectory of severity over a longitudinal period for multiple units, it will require the application of such an instrument and so consideration of those used in the past is pertinent.

Extent of Incidence and Harm in Domestic Abuse

Research varies widely in its assessment of how much domestic abuse there is in populations but the existing evidence universally points to one general conclusion; it is a

widespread occurrence which affects many millions of people around the world (Dar, 2013; Truman and Morgan, 2014)

HMIC (2014) reports that there were 269,700 domestic abuse crimes recorded by English and Welsh Police Forces between April 2012 and March 2013 –some 8% off all crime. It is likely this is just the tip of the iceberg. The Crime Survey of England & Wales (CSEW) estimated that in 2003 there were 12.9 million incidents of domestic violence (Walby & Allen, 2004). The same report estimated that 6% of women and 5% of men had been victims of domestic violence in the previous year. By 2011/12, the estimate for women had been revised upward to 7%. (Dar, 2013). Even more strikingly, the CSEW revised its 2003 estimates of women and men who had been a victim of domestic violence at least once since the age of 16 up from 21% and 10% respectively to 31% and 18% in 2011/12 (Walby & Allen, 2004, Dar, 2013). CSEW is a highly organised survey which uses a stratified, multi-stage random probability design to identify a representative sample of the over 16 population. As such this research provides very strong evidence that domestic abuse is widespread[1]

Other UK organisations involved in tackling domestic abuse such as Co-ordinated Action Against Domestic Abuse (CAADA) have used CSEW data to conduct estimates based on risk. CAADA claims that 100,000 women are at risk of serious harm and murder (CAADA, 2012). This is a highly questionable figure, however. CAADA used Walby and Allen's analysis of women who had been victims of domestic violence and sexual offences and stalking as a proxy measure for being at risk and subject to a pattern of abuse. No criteria concerning patterns of escalation was applied and indeed there is no evidence

1 This estimate included non-crime incidents as well as crimes.

presented as to why being a victim of all three forms of crime should elevate the risk level above a person who had suffered from just one or two forms.

Scholars outside England and Wales have also concluded that domestic abuse is widespread. Straus and colleagues' work on the National Family Violence Surveys conducted in 1975 (n=2,143 families) and 1985 (n=6,002 families) allowed Straus and Gelles (1986) to calculate the rate of domestic violence at 160 per 1000 couples (1975) and 158 per 1000 couples (1986). This led to estimates of around 1.6 to 1.8 million women as victims of domestic violence each year in the United States (Straus & Gelles, 1986, 1990b). Other scholars went further with estimates ranging from two million to four million (Stark, Flitcraft & Frazier, 1979; Warshaw, Ganley & Saber, 1995). Sherman (1992) suggests that American police attended 8 million domestic abuse calls around the time he wrote.

Alongside the literature that evidences the widespread nature of domestic abuse, there is considerable evidence that it generates high levels of harm, both economically to populations and to the health of individuals. Walby (2009) examined the costs of domestic violence in respect of services, lost economic output and human and emotional costs. She found that in 2008, domestic violence cost the UK economy £15.7 billion, a figure quoted by HMIC (2014) to illustrate the impact of domestic violence. What is interesting about this figure is that it is a reduction of over £7 billion on 2001. Walby cited the decreasing rate of domestic violence as a key driver, but equally interesting is that the cost implications for services (police, courts and other agencies) rose in the comparison period. This cautiously suggests that more victims were engaging with the services available to them and that the scale of the domestic violence issue (in terms of its

incidence) was beginning to contract. While this evidence is partially logical –if there is so much domestic abuse, it follows that the associated costs should be significant –it remains somewhat generalised. The majority of the costs attributed to domestic abuse are linked to "human and emotional costs" which are estimates of what individuals would pay to avoid being victims of crimes. This is clearly open to methodological criticism from a number of perspectives.

There is more specific evidence concerning the effects that domestic abuse has on the health of its victims. Research has identified that domestic abuse victims are five and half times more likely to suffer from alcohol or substance misuse than those who were not victims, and three times more likely to commit suicide or suffer from Post-Traumatic Stress Disorder (PTSD) and depression (Golding 1999). Domestic violence victims (controlled for obesity and family history) more often have type II diabetes than those who are not domestic abuse victims (Kendall-Tackett & Marshall, 1999). Domestic abuse victims have also been linked to a range of physical conditions (Koss, Koss & Woodruff, 1991), bed confinement (Stets & Straus, 1990a) and lower self-rating of their own health than non-victims (Straus & Gelles, 1990a).

The aggregate picture of this research is that domestic abuse is a widespread problem with dangerous implications for individuals and populations. There is little difficulty in presenting a justifiable case for tackling it, but first it is important to develop a greater understanding of the specifics of the issue.

Repeat Victimisation

Alongside the body of evidence for the widespread occurrence of domestic abuse, there is an equally robust range of research that a high proportion of it occurs among a small proportion of the population. This type of concentration extends to other forms of crime, analysed by different types of units such as place as well as person. The concept of clustering of high volumes of crime among a small proportion of the overall units is known as 'the power few' (Sherman, 2007).

For instance, Walby & Allen (2004) found that of their estimated 12.9 domestic incidents, just 28% were accounted for by people who reported just one incident. Walby and Allen identified that some female victims had suffered very high numbers of incidents. They found on average, female victims experienced almost 20 incidents in the twelve months preceding their survey. Male victims experienced just seven. They also found that of the women who reported they had been a victim of domestic violence at some point since they were sixteen, 32% stated they were victimised many times by the perpetrator of the worst incident. Again the figure for men was much lower at just 11%.

Feld & Straus (1990) conducted a twelve month follow up of their 1985 NFVS survey and found that 66% of couples, who reported violence in the first return, reported further calls in the subsequent twelve months. The same data led Straus to conclude that women using shelter services were reporting on average 15.3 incidents per year (Straus 1990c). Others have found considerably more; Okun (1986) reports 65 incidents per year and Giles-Sims (1983) a similar average of 68.7 (albeit in a much smaller sample of 31 compared to Okun's 300).

Further data on repeat offending and victimisation come from experiments designed to test the effectiveness of police strategies. Several of these are reviewed by Sherman in *Policing Domestic Violence: Experiments and Dilemmas*. In the book, Sherman describes a Minneapolis based experiment which tested the effects of arrest or other measures on repeat offending and four variations of the same experiment in other cities. As one might expect from experiments predicated on the existence of repeat victimisation, each study presented evidence of it but also interesting findings concerning the impact of police response. The Minneapolis experiment found that the rate of reoffending within six months ranged from 10% to 24% depending on the treatment applied (Sherman, 1992). Omaha, the closest replication of Minneapolis found that the rate of repeat victim reports ranged from 558 per 1000 to 715 per 1000 (Sherman 1992). While the findings did not replicate one another precisely, both showed evidence of repeat victimisation or offending as a phenomenon. The Charlotte study, which followed Omaha, found repeat reoffending at six months follow up in between 12% and 19% of cases. Milwaukee found between 26% and 27% at a nine month follow up and in Miami-Dade between 10% and 18% of victims reported again at six month follow up (Sherman, 1992).

Chambers-McClellan (2002) also found evidence of repeat victimisation at a household level. She analysed 19,686 recurrent residential domestic abuse Emergency 911 calls received in Georgia in 1997 from a possible residential total of 57,221. 47% were households which called a single time and a further 18% were discarded at the coding

stage. While Chambers-McClellan's work has some obvious limitations (non-residential calls were excluded and the study is limited to one year of call records), there is still evidence for high levels of repeat victimisation. At the base level 53% of households reporting domestic abuse made more than one call in a year and indeed Chambers-McClellan found a number of households with particularly chronic issues as illustrated in table 1.

Table 1: Distribution of Recurrent Domestic Violence Episodes by Call Frequency from Households (Chambers-McClellan 2002)

Call Frequency	Number	Percent
2 Calls	3188	53.0
3 Calls	1246	20.7
4 Calls	601	10.0
5 Calls	353	5.9
6 Calls	203	3.4
7 Calls	128	2.1
8 Calls	93	1.5
9 Calls	61	1.0
10 Calls	37	0.6
11 Calls	23	0.4
12 or more calls	88	1.7
Total	6021	100.0

There is also evidence that domestic abuse cases which result in serious crimes have a history of repeat victimisation albeit to a much more limited extent. Kansas City research by Breedlove et al (1977) showed that in 90% of domestic homicides, police had previously attended the address of victim or suspect in the two years prior to the crime

and that in half of those cases, they had attended five times or more. While it should be noted that Breedlove's work was based on a low response rate survey, this notion of previous violence in the most serious cases is supported by Websdale (1999) and Saltzman et al (1992). But in all of these cases it is notable that the focus is on homicide – the most serious crime and as such the evidence for repeat victimisation in non-homicide serious cases (near misses, sexual offences etc.) is more limited. However, the potential for this evidence gives way to the possibility of a linear trajectory of escalation – and it is this possibility which has become a cornerstone of the contemporary method for assessing risk levels in domestic abuse cases in England and Wales (Richards et al., 2008). One element of this cornerstone belief is that victims of domestic abuse have, on average, been subject of 34 domestic abuse incidents prior to their first contact with police (Burris and Jaffe, 1984). This striking number, which has been oft-quoted in English and Welsh circles has since been criticised as a "mythical number" by Strang, Sherman & Neyroud. (2014) who identified low statistical power and lack of external validity in the source work. The research featured in this paper starts at a point where it is possible, despite the assumptions of some scholars (O'Leary, 1993; Straus, 1990b) that escalation is as spurious as Burris and Jaffe's 34 calls prior to police contact.

This section would be incomplete without reference to research on places as well as people. There is a logical progression from the nature of domestic crime (it is thought to take place in the home), the phenomenon of repeat victimisation and the theory that domestic abuse is spatially concentrated to some extent. Sherman (1992) offers a good indicator that this logic is true with the example of 911 Park Avenue South in Minneapolis. In Minneapolis Sherman, Gartin and Bueger (1989) found that a 'handful'of

addresses generated 53% of police calls in a year. They conclude that relative to the actual number of places domestic assaults could happen the concentration is actually greater than public place crime (Sherman, Gartin and Buerger 1989). This conclusion is limited by the exclusion of any "domestic" crimes which happen outside residential addresses but still has some merit.

Escalation in Domestic Abuse

With repeat occurrences an evident phenomenon in domestic abuses cases, the question of escalation becomes pertinent. As is mentioned in the previous section, escalation in the form of increasing severity and decreasing time periods between offences or calls is a cornerstone of the England and Wales Domestic Abuse risk assessment process (known locally as DASH). Richards et al. (2008) describe the DASH, an ACPO approved model as being "evidence based" and suggest there is a high degree of rigour behind it. It outlines one question (out of fifteen) with regard to escalation, in two halves: is the abuse happening more often and is the abuse getting worse. These appear to be based on the assertion that previous offending is the best predictor of future offending. Richards et al. also indicate that research suggests violence has an upward severity trajectory in a general sense but they offer no citation as to the evidence behind this claim.

Indeed considering that escalation is attributed such gravitas in risk assessment; there is little empirical evidence either for or against it. Mildred Pagelow (1981) asserted that escalation was something most researchers seemed to agree on, but even then offered little by way of evidence of this agreement. The first signs of escalation as an evidenced phenomenon in domestic abuse research came in Leonore Walker's work (1979, 1984). Walker surveyed 435 women and their partners and identified multiple

data points: the first event, last event, one of the worst and the most recent. From this Walker theorised about a cycle of escalation beginning with a “tension-building phase”, followed by an “acute phase” and then a “honeymoon phase” before starting the cycle again with higher severity in the acute phase at each cycle. Although Pagelow (1981) was critical of the final stage, of which she had found no evidence, Walker was explicit that frequency and severity increase over time (Walker, 1984). Chambers-McClellan identifies Walker’s failure to develop an effective tool for measuring severity as one of the key flaws in her work, yet acknowledges that Walker’s is one of the key citations in the escalation theory (Chambers-McClellan, 2002).

The survey methodology relied heavily on the victim’s recall of events and as opposed to crime data, which in England and Wales at least is classified and audited against a nationally established framework, also put the classification of severity at the door of victim and researcher.

Other researchers have found mixed results relating to escalation, particularly in severity. Like Walker, Feld and Straus (1989) also used survey data. Collected from the 1985 National Family Violence Survey in the United States, their key advantage over Walker’s study was a much higher sample size (n=6002) and a longitudinal follow up survey after twelve months, albeit one that provided only two data points. Their analysis hypothesised that any violence in the first data point would be a predictor of severe violence at the second. They found that minor assaults in year one were linked to severe violence reported twelve months later. However, their results are limited by the attrition rate associated to their methodology and the subsequent small sample size, both of which they fully acknowledge.

Feld and Straus' work (1989) also provides a useful series of theoretical frameworks to support their hypothesis identifying the following possible causes of escalation indicated by the occurrence of minor violence at the first data point: 1) the normalisation of violence which was previously counter-normative, 2) the potential for reoccurrence of stressors which predicated minor violence, 3) the attacker is successful in achieving aims and thus revisits the violence tactic and 4) that one violent attack will beget a response from the victim at follow up. For balance it is also worth noting that Feld and Straus hypothesised there would be a high rate of desistance, which their results confirmed.

Chambers-McClellan (2002) had more conclusive results in her analysis of emergency calls to Georgia, U.S in 1997. Chambers developed a severity score derived from 911 call operators'notes and the Conflict Tactics Scale (Gelles & Straus, 1988) and analysed this and the interval time between episodes across domestic violence for 6,021 households displaying recurrent violence (defined as two or more calls in a one year period). She found that on average the interval between domestic violence calls decreased by eleven days with each additional call. She also concluded that on a scale of 4 (least severe) to 18 (most severe), violence escalated on average by 0.07 CTS points with each additional call. This is perhaps the clearest evidence this review has considered, but it too is not without its limitations. While the work is longitudinal, and follows cases over twelve months, this may not be enough time to detect true rates of escalation or desistance. There is no theoretical or empirical base that states domestic abuse cases have an average twelve month life span. Chambers'methodology also excludes a significant amount of cases, most notably those that reported just once. If severe

violence emanated from these cases it could contradict the general assertion Chambers (2012:200-201) makes about escalation. And while it is probably the most rigorous study of patterns of escalation, the severity measurement instrument is not indefensible. The CTS classification systems are not equally weighted (for instance there is no empirical evidence that the most severe type of offence is 4.5 times more severe than the least).

Piquero et al. re-examined Sherman and Berk's 1984 Minneapolis data (n=314) and four replications of that experiment (Piquero et al., 2005) and found no conclusive evidence of escalation. Collectively known as the Spouse Assault Replication Program (SARP), these experiments tested the effects of arrest and other means (advice and separation) on reoffending rates. Piquero's primary methodology was to compare the severity of the call at point of treatment (the presenting incident) and from victim surveys, the events that took place after that incident. Piquero and colleagues'measurement of severity was a binary comparison of injury versus no injury. They found that results varied from experiment to experiment, with some displaying escalation and others de-escalation. This work contains strong insight into its own limitations and highlights the restrictive influence of missing survey data, the focus on relatively less severe domestic abuse cases (the more severe cases were not eligible for the experiments), the lack of more than two data points and the short-term nature of the experiments under examination. Balanced against these limitations, Piquero et al. offers a strong examination of literature and theory around escalation and highlights two significant gaps which influence the design of this research: 1) a lack of longitudinal studies and 2) an absence of research focused on escalation within dyads – units of the

same offender and victim. This unit of analysis is important because relationship is a key factor in domestic abuse.

Against this backdrop of mixed (albeit limited) findings for and against the existence of escalation, Piquero et al. draws upon theories of sub groups within domestic violence cases devised by Johnson (1995) as a potential explanation. Johnson sets out two mutually exclusive forms of domestic violence based on existing literature. He states some couples fall under the classification of "patriarchal terrorism", characterised by violence which is rooted in patriarchal traditions and typified by men who must exhibit signs of control over women. He states that others fall under the title of "common couple violence", cases where violence is not normative behaviour and represents a rare occurrence. Johnson asserts that patriarchal terrorism is most often reflected in studies based on women's shelter surveys (Pagelow, 1981, Walker 1975, 1984). It is in this form of violence that Johnson suggests escalation occurs. Indeed, he goes as far as to suggest that NFVS data, which represents greater numbers of common couple violence, actually indicates de-escalation among that group. The latter assertion is grounded in more evidence than the former, for which Johnson only offers Pagelow as a citation, however, his sub-classifications of violent couples provide an interesting context to the issue of escalation and have potential implications for research attempting to identify that phenomenon, most notably in the notion that data may need to be analysed in a way that offers a sub-classification of these two theories.

Measurement of Crime Severity

However it may categorise cases, research into escalation of severity will need to utilise an instrument for measurement of that severity and as such it is worthwhile considering some of the systems that have been used and are currently being developed.

In her research, McClellan-Chambers (2002) utilised the Conflict Tactics Scale (CTS), a three tiered index of violence with multiple levels in each tier sorted in a hierarchy. CTS was developed by Muray Straus in 1979 as a specific tool for measuring domestic abuse severity. Levels were established from face to face interviews by classifying the "tactics" respondents have used to family disputes. The three indices measure reasoning, verbal aggression and physical aggression and the system offers a number of potential analytic options as described by McClellan-Chambers (2002). As discussed in the review of Chambers'work, the CTS is an imperfect measurement tool. It does not have an equal system of weighting and it can rely on the judgments of researchers and respondents in classifying the level at which an event sits. In its favour, CTS has been examined by a number of different studies, although some have found notable differentials between respondent views and police recorded data (Claes and Rosenthal, 1990 as cited in McClellan-Chambers, 2002).

Other scholars have focused on the concept of harm as a measurement of severity. Sellin and Wolfgang (1964) were among the first scholars to attempt to develop a different system. They surveyed a range of groups including students, police officers, judges and community members, asking them to rank 141 crimes on a scale of 1 (least serious) to 11 (most serious). Their methodology has been subject to considerable criticism of its sampling methodology but the work found a strong correlation between the rankings of each group.

Wolfgang et al (1985) took this methodology further, opening up the ranking questions to 60,000 survey respondents. They amended the scoring system to a weighted range of 0.2 to 72.1 and again found general levels of agreement on severity rankings.

Recently, Sherman, Neyroud and Neyroud (2014) have developed the Cambridge Crime Harm Index as a successor to Wolfgang and Wolfgang & Sellin's work. Sherman et al. (2014) challenge the notion that a single count of crime is a strong measure of harm as misleading because all crimes are not equal. Instead they propose an index based alternative which converts each crime into a value and discuss alternatives for the basis of such an index: firstly, a public opinion based ranking similar to Wolfgang's, secondly the actual cost of crime and thirdly a measure of the actual sentences given for each crime in a given time period. Sherman, Neyroud and Neyroud reject all three and propose a ranking system based on the starting point recommended sentence for a first time offender. The value of the index is proposed as the number of days in prison that a sentence is equivalent to. One of the primary advantages cited by the authors is that the minimum sentence (starting point) excludes all sentencing variables associated to the offender's previous history, which would skew the weighting.

Sherman et al.'s method is advanced if somewhat untested at least as a measure associated to performance. As a measure of scale of harm it is robust, but to date no study of domestic abuse has utilised it as the primary instrument for the measurement of severity. Equally its external validity for police agencies not based in England and Wales is limited albeit, it offers a useful structure.

The obvious gap in the field of crime severity measurement is that there is no single taxonomy of harm and thus no one universal tool. The challenge for research in

this field is to find a model which gives a considered weighting to each type of crime, based on empirical data. While the Cambridge Crime Harm Index may not be based on quantitative measures of actual harm (rather sentences are derived from opinion polls, debates and scrutiny (Sherman, Neyroud & Neyroud, 2014), it at the very least offers a weighted system of ranked harm linked to a tangible outcome (minimum days in prison based on sentencing guidelines).

Summary of Literature Review

This review has considered research and publications which establish domestic abuse as a highly prevalent form of crime. This is emphasised in England and Wales in particular by the HMIC (2014) and the linked work conducted by the Home Office over the last fifteen years (Walby & Allen, 2004; Dar, 2013).

The same work and others have identified that repeat victimisation and high concentrations of crime among small proportions of the population are tangible issues (Chambers-McClellan, 2002; Feld & Straus, 1990; Sherman, 1992; Walby & Allen, 2004). Within that repeat victimisation there is contrasting evidence to support theories surrounding escalation. The predominant view that escalation of severity and frequency occurs appears to originate from Walker's work (1975, 1984) and is attached to the "patriarchal terrorism" view of domestic abuse presented by Johnson (1995). Johnson also presents an alternative class of domestic abuse cases labelled as "common couple violence", which do not escalate. This may go some way to explaining why studies have found mixed results ranging from those which present evidence for escalation (Chambers-McClellan, 2002; Feld & Straus, 1989) to those which find no evidence (Piquero et al., 2005) although it should be considered that all are beset by

methodological concerns. There is little by way of longitudinal analysis, and this review has found none concerning dyads.

This review has shown that by looking at some of the established methods for measuring severity of crime that there is no single definitive measure – part of the methodological issues that have arisen among the other studies reviewed. The Cambridge Crime Harm Index is identified as the model most suitable for an appropriately weighted system of severity measurement.

Methods

This chapter considers the methods that have been used to test the research questions set out in the introductory chapter. It begins by establishing the key definitions related to the subject matter and then describes the nature and quality of the data that has been used. It goes on to set out the analytical methods used to answer each research question in turn and finishes with a discussion on external validity.

Definitions

Domestic Abuse

At the outset it is important to define key terms that are repeated many times during this research. At present, domestic abuse is not a crime classification in its own right in England & Wales, although the government are actively considering legislation to change this (Casciani, 2014b). Domestic abuse does have a standardised national definition, authorised by the Association of Chief Police Officers (ACPO) and endorsed by the Home Office (see introduction) but it is important to state at the beginning of this section that domestic abuse can take any form of crime. As a consequence, this study will consider more types of crime than just violence. Where a vehicle is stolen or a house burgled as part of a domestic dispute, those crimes are included in this analysis. As an English police agency, Suffolk Constabulary works to the national definition of domestic abuse and audits is records to test for compliance with that definition

Dyads

Much previous research into domestic abuse has centred on either victims or offenders. Little research has been done on trends among dyads (Piquero et al., 2005). As such, "dyad" is an unfamiliar term in UK policing circles. Dyad is used in sociological contexts to refer to a group of two people, but is not reflective of the relationship between the pair. In this sense, the term is fully applicable to this analysis which will consider domestic abuse patterns for victim and offender combinations regardless of the nature of their relationships. Considering abuse patterns from this perspective will be a useful addition to the literature on domestic abuse. It is an area often not covered owing to the complexities of matching victims and offenders from databases in an efficient way but this research has attempted to overcome this problem.

Repeat Victimisation

Although it may seem unambiguous, the term repeat victimisation is often debated in policing circles in the UK with HMIC reporting that forces vary in the ways they identify repeats (HMIC, 2014). With this in mind, it is worth stating at the beginning of this methodology what this study will mean when using the term. Within this research repeat victimisation should be taken to mean any victim or dyad that has been subject to two or more events within the dataset. It is worth noting the distinction between victims and dyads here is deliberate. There is the potential for victims to be party to more than one dyad but the presence of a repeat victim within a dyad does not alone make that dyad subject to repeat victimisation. For the latter to be applicable, the dyad must be subject to more than one event within the dataset. As such the data has been organised so that victims and dyads can be identified as separate entities. This study does not particularly focus on repeat offending, but where this term is mentioned the same principles apply.

Data Sources

Suffolk Constabulary records crime on a database known as Crime Information System (CIS). Emergency and non-emergency calls are recorded on a separate system and it is the norm that calls which are classified as crimes are entered onto both systems. However, in the case of domestic abuse related calls, everything is transferred to CIS with crimes referred to as crimes and calls which are not crimes colloquially referred to as "domestic abuse non crimes". This is primarily because Suffolk Constabulary utilises CIS to manage and record its risk assessment (DASH) scores. The product is highly beneficial for this research because it means a large amount of data pertaining to individual cases is held on one system and therefore in one format. Other agencies and researchers seeking to replicate this research may need to link data from multiple systems. It is advantageous to this research that the structure of data for crimes and non-crimes is recorded in the same format with victims and suspects identified even where no crime has been committed. To be clear, this does not mean individuals are being incorrectly criminalised by Suffolk Constabulary; rather the force consciously assigns roles of "victim" and "suspect" based on the circumstances of the call.

As with all English & Welsh forces, crime in Suffolk is subject to audit against National Crime Recording Standard (NCRS) principles. The "domestic" nature of offences is determined by the recording parties either in the Contact and Control Room (CCR) or by the investigating officer. A "flag" is marked on CIS to denote a crime is domestic. If this is falsely marked in the positive it is declassified by the crime registrar or by domestic abuse specialists in the Central Tasking and Referral Unit. The latter also performs the role of identifying domestic cases which are falsely negative.

The original data extract from CIS provided 143 variables pertaining to items like crime classification, date and time, location of event, detection status, victim and offender and risk assessment. Variables were supplemented in the data cleaning and analysis phases of this research and the final number of variables is above 160. Not all of these have contributed to the final analyses but hopefully this summary gives a sense of both the scope such a rich dataset potentially offers and the complexity of handling such a large set of variables.

Data Issues and Limitations

As is common with many police datasets, the pool of domestic abuse data extracted from Suffolk Constabulary's CIS system had a wide range of issues and limitations associated to it.

No Crimes

Like all police forces in England & Wales, Suffolk Constabulary sometimes de-classifies crimes where there is evidence that no crime took place. These are colloquially referred to as "no crimes" which practitioners often use as a verb ("that has been no-crimed"). The original data extract which covered all crimes and "non-crimes" (not to be confused with "no-crimes"), contained 37,466 records between 1st January 2009 and 31st March 2014. 358 records were marked as "no crimes" and removed from the dataset. At just 0.01% of the original dataset this appears to be low, but the common practice is to reclassify domestic "no crimes" to "non-crimes". No further work has been undertaken to understand why in these 358 cases this did not happen.

Free text fields

Suffolk Constabulary's CIS contains a number of free text fields which make analysis difficult without extensive reading and coding. Most of these were excluded from this analysis with the exception of 'victim occupation'. With regard to this field searches were conducted on variations of the word "unemployed" to enable analysis of cases where the victim had at some time been unemployed. Caution should be used accordingly when interpreting those results.

DASH

One of the significant advantages of Suffolk's dataset is the inclusion of DASH form data. This includes 57 variables based on the question set completed by officers with victims and the risk level subsequently prescribed by domestic abuse specialists. The potential for meaningful analysis here was significant but sadly this data contains a high rate of missing values (81%) owing to the DASH/CIS process not being started until late in the period covered by the dataset. Future iterations of this analysis will be better positioned to mine this potentially useful source of data but for the most part, this research has not examined these variables.

Major Variables in the Data - Age

Analysis of the age profile of the dataset revealed two notable issues. Firstly, despite the domestic abuse definition not applying to victims below 16 years of age, a number of records appeared in the 0-16 age band. This was partially due to the inappropriateness of the database age bandings, partially due to input error of date of birth and partially due to incorrect application of the definition. In 40 % of the 609 events where the victim is marked as under 0-16, the victim was actually 16 at the time of offence, and therefore

eligible under the definition of domestic abuse. Of the remaining 364 events, 298 relate to repeat dyads and 66 to single event dyads. None were eligible for the study group of five or more events in a three year period. These 364 events were subsequently removed from the data set.

Victim URN

The most significant obstacle to meaningful analysis of Suffolk Constabulary's data set was the absence of a victim unique reference number (URN). Offenders and suspects are classified by a "nominal" number beginning with "N" followed by a sequence of numbers. The force regularly audits these records to remove duplicates and as such it is typical that analysis focusses on repeat offending and offender profiling more frequently than it does victims. Victim details are recorded however, the dataset contains surname, forename, gender and data of birth as well some higher level address information relating to where the event took place. It is with some of these variables than an "artificial" URN has been created for victims in the dataset. The process for this is described as follows.

For each record of data (n=36,742) a new variable was created concatenating the victim surname and date of birth. This was the basis of a victim URN but remained subject to errors, primarily in spelling or incorrect dates of birth. As such, further cleaning was required to match different victim "URNs" which are in fact related to the same victim.

To achieve this, each of the victim "URNs" was applied to a formula which created a code based on the letters that appeared in the victim forename and surname and the district and sector in which the event took place. For example, John Smith, victim of crime in Newmarket, Forest Heath would generate a code of HIJMNOSTForestHeathNE. The component parts of this code are the letters which appear in the name, in ascending

alphabetical order, the district in which the event took place (Forest Heath) and the sector in that district in which the event took place (in this case NE stands for Newmarket). These codes were then sorted in ascending order and used to aid a visual matching exercise of the database. Where codes matched the episodes were assigned a matching victim "URN" (based on the first URN that appeared in the sequence).

There were two inherent flaws in this process which merit discussion. Firstly, the coding system assumes that even when names are mistyped, they use the same letters. Secondly, it assumes that victims' offences take place in the same locality, which of course, they may not. However, both these flaws were partially mitigated by the manual nature of the matching exercise, whereby the author visually examined each record and was able to identify where these flaws yielded errors. This was done in short batches of around 1,000 records over a period of about two months to reduce the chances of human error. It is important to underline that this process is not without its limitations, but it represents a methodical and meticulous attempt at defining unique victims.

Other Data

While the CIS dataset is variable-rich, this research does not include data from other systems which may relate to victim, offender or dyad. Some of these data are potentially highly relevant. Suffolk Constabulary keeps additional information on intelligence, prison sentences and domestic abuse interventions which could be pertinent but the complexity of data matching and accessibility of these datasets has prevented them from inclusion in this research. Similarly, it may be useful to explore other data from CIS pertaining to non-domestic abuse records of the suspects and victims in this dataset, but again time

constraints and the limits of the research questions have precluded this. These issues are considered in more detail in the discussion chapter.

Missing Data

Other data variables besides DASH were subject to missing data in various degrees as denoted by Table 2.

Table 2: Summary of Missing Data Values in Suffolk Constabulary Domestic Abuse Dataset

Variable	# Blank Records	Percent
Date reported	5	0.01
Finalisation date	2931	7.90
Victim age	3624	9.77
Suspect age	1703	4.59

With respect to victim age, the proportion appears problematic to analyses. However, of the 3,624 records with this data missing, 37% were for victims who had at least one other event attributed to them and in the majority of those cases, the age variable was not missing in all of the other events. This meant that the actual percentage of events with missing victim age is somewhat lower than 9.77%.

Procedure

This study seeks to address five principle research questions set out with their analytical methodologies as follows.

What is the Extent of Repeat Victimisation?

There is a strong evidence base for repeat victimisation among domestic abuse cases (Chapter 2:

Repeat Victimisation) and indeed for escalation to be detectable through quantitative analysis of police records, there needs to be. The aim of answering this question is to establish whether the evidence found elsewhere is replicated in Suffolk. This should give an indication as to the detectability of escalation if it exists and should also lend useful context to researchers seeking to replicate this work in other jurisdictions.

The principle method of analysis to answer this question is a comparison of the counts of dyads, offenders and victims at each level of events (one event in the dataset, two events, three events and so on). The analysis is run three times to establish to what extent victims and offenders move between dyads.

What is the Conditional Probability Associated to Repeat Offending?

Sherman and Berk's (1984) work set the scene for establishing conditional probability increasing at higher rates of repeat victimisation. This research aims to replicate their methodology to test if the same is applicable to domestic abuse cases. Simply put, if you call x number of times, how likely is it that you will call again, and with what degree of likelihood. The answer has a high level of potential significance to risk assessment; particularly if it can be further established how likely that next call is to be serious.

Does Severity Increase with Further Events?

One of the central aims of this research is to establish whether there is any upward or downward trajectory in levels of severity. The principle instrument for measuring severity in the analysis undertaken to answer this question, is the Crime Harm Index (CHI). To achieve this, a new variable has been added to the dataset and a LOOKUP formula applied to insert a CHI value based on the NCRS classification of the event. The LOOKUP function identifies the relevant event classification in a cross-reference table which has

been manually populated by the author based on the original work of Sherman, Neyroud & Neyroud (2014) and further research conducted using UK Sentencing Guidelines (Sentencing Guidelines Council, 2008; Sentencing Council, 2011; CPS.gov.uk, 2014). The resultant lookup table contains CHI values for 119 offence types and a substitute value (0.1) assigned to "non-crimes". 0.1 has been selected as a "non-crime" carries no sentence tariff or equivalent other than an investment of police time. As such this is the lowest value possible in this version of CHI, but as it is more than 0 it will influence mean harm scores.

To track the trajectory of harm, a dyad study group of cases meeting a higher repeat threshold was identified. Eligibility for this group was determined as a minimum of five events (crime or non-crime) in a period of three years commencing from the date of the first event in the dataset. The three year period was determined to achieve consistency between the dyads and a substantially longer longitudinal period than other studies have analysed. The number of events was set at five to enable an opportunity to see change over a range of data points. Again in this regard, this study goes further than many of its predecessors. The study group comprised of 727 dyads.

For each of these dyads, the CHI scores were mapped across each event in the sequence and the mean CHI score for each sequential event was then analysed using ANOVA to test for significant variance. This analysis was repeated on four further cohorts derived from the eligible dyads to determine if significant change in severity occurred within the eligible group. These cohorts were 1) those dyads which were among those which caused the most cumulative harm, 2) those dyads where an arrest was made at first event, 3) those dyads which took place in an area classified among the highest

quintile for deprivation and 4) those dyads which had a gap of less than 60 days between the first and second event.

Does Intermittency Decrease with Further Events?

The other side of the escalation issue is intermittency. This research also seeks to establish the voracity of the theory that calls to police become more frequent with each passing call. As with the question concerning severity, ANOVA tests were used to test a null hypothesis that there was no difference in the mean intermittency between any combination of events. These tests were run for the 727 dyads with five or more events in a three year period and two cohorts derived from this group. Firstly, chronic high harm cases which featured with those dyads contributing to 80% of CHI scores in the whole dataset. Secondly, those dyads in which events took place within the 20% most deprived wards in Suffolk. These cohorts were chosen to test if the null hypothesis was proven or disproven in the particular circumstances each cohort reflected.

The variable under scrutiny was the number of days that had elapsed between the reported date of each crime in the sequence. Using this variable does not control for so-called “historic reporting” (where victims report days, weeks and in some cases months and years after an event has happened) but it does reflect intermittency of reporting. In any event, analysis of the dataset showed that 82% of events were reported on the same day they were committed and 93% within seven days.

Where ANOVA tests led to the rejection of the null hypothesis, Tukey’s Honestly Statistically Different (HSD) tests were used to identify between which particular events in the sequence that the differences were attributed to.

To What Extent Does the "Power Few" Theory Apply to Severity of Harm in Domestic Abuse Cases?

The final question this research seeks to address concerns concentrations of harm. In his Joan McCord Prize Lecture, Lawrence Sherman (2007) discussed a potential solution to the problem of criminological experiments yielding small effects. His proposal – to focus interventions and research on the small percentage of places, victims, offenders and other units that produced the greatest amount of harm – was entitled "the power few". This research will explore this concept with regard to dyads, victims and geographical units using a descriptive analysis of the variation in levels of harm and if applicable those with the highest cumulative harm when cross-referenced with other variables such as age, ethnicity, and gender.

External Validity

While national statistics on domestic abuse are not available in England & Wales, HMIC report that domestic abuse represents 3% of Suffolk Constabulary's calls for assistance and 7% of all its recorded crime – comparable with the national position (HMIC, 2014). While Suffolk is predominantly a rural county, it has a number of urban areas and corresponding issues with high deprivation and comparative levels of some types of offending.

Table 3 shows a comparison of Suffolk against the overall figures for England & Wales for illustrative purposes:

Table 3: Summary of Key Demographic Statistics for Suffolk and England & Wales (Suffolk County Council, 2012)

Statistic	Suffolk	England & Wales
Age Groups		
0-19	24.4%	23.9%
18-64	59.4%	59.2%
65+	18.3%	16.5%
Gender		
Male	49.0%	49.2%
Female	51.0%	50.8%
Ethnicity		
White	97.2%	85.9%
Black and Minority Ethnic	2.8%	14.1%

Suffolk Constabulary's data should be comparable to other English and Welsh forces in many regards, but most particularly in the application of NCRS rules. This alone should mean that all forces in England & Wales could derive some relevance from the findings detailed in the next chapter. What is less certain is the replicability of this study, which will be dependent on forces' individual circumstances relating to the recording of "non-crimes".

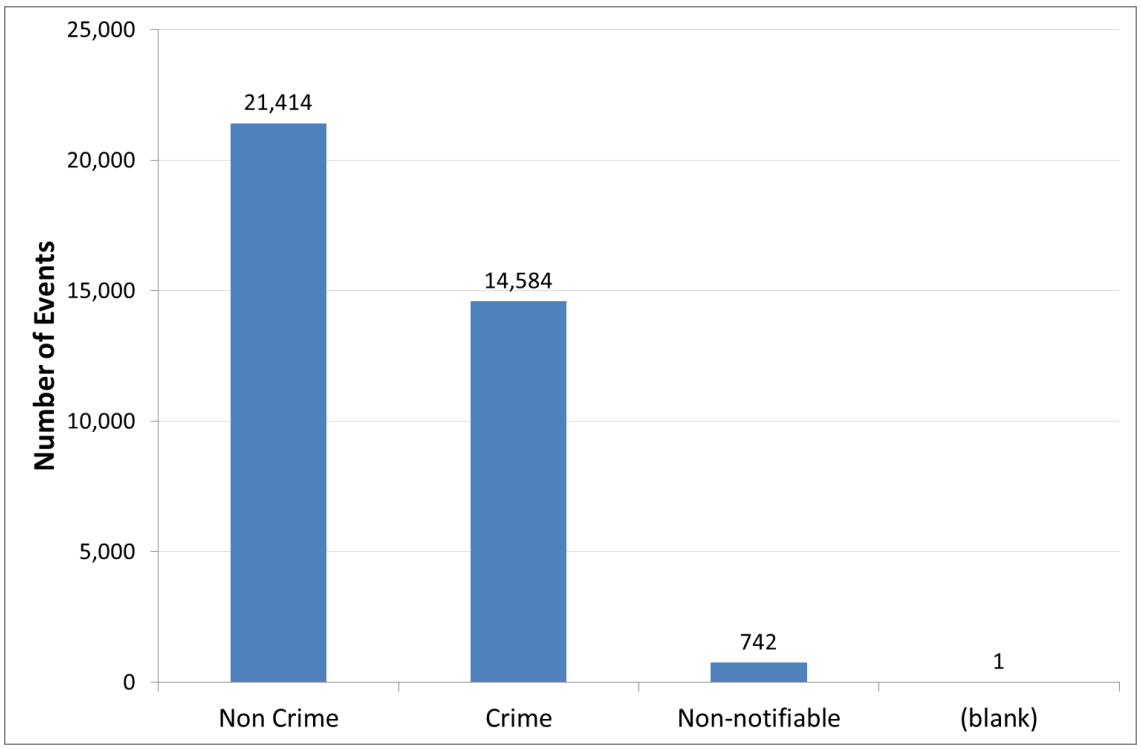
Results

This chapter begins with a description of some of the key features of the data to place the results in context. It then addresses each research question in turn, considering analysis from the perspective of dyad, victim and offender as the unit wherever relevant and possible. These sub-sections begin with analysis of the extent of repeat victimisation and offending. The chapter then moves on to analysis of conditional probability of further calls. It then presents the findings of the ANOVA and post-hoc tests in relation to escalation of severity and decreasing intermittency between calls. Finally it presents an analysis of the concentrations of harm, assessing what proportion of harm is attributable to what proportion of units. The chapter contains a considerable amount of material and so concludes with a summary of results which is sub-divided by each of the research questions.

Description of Data

The final cleaned dataset contained 36,742 domestic abuse event records that were recorded within Suffolk Constabulary's jurisdiction between 1st January 2009 and 31st March 2014. This data included crimes under formal NCRS definitions, "non-crimes" (where a report had been made but no crime evidenced) and non-notifiable crimes (ostensibly crimes, but where there is no statutory responsibility to report to the Home Office).

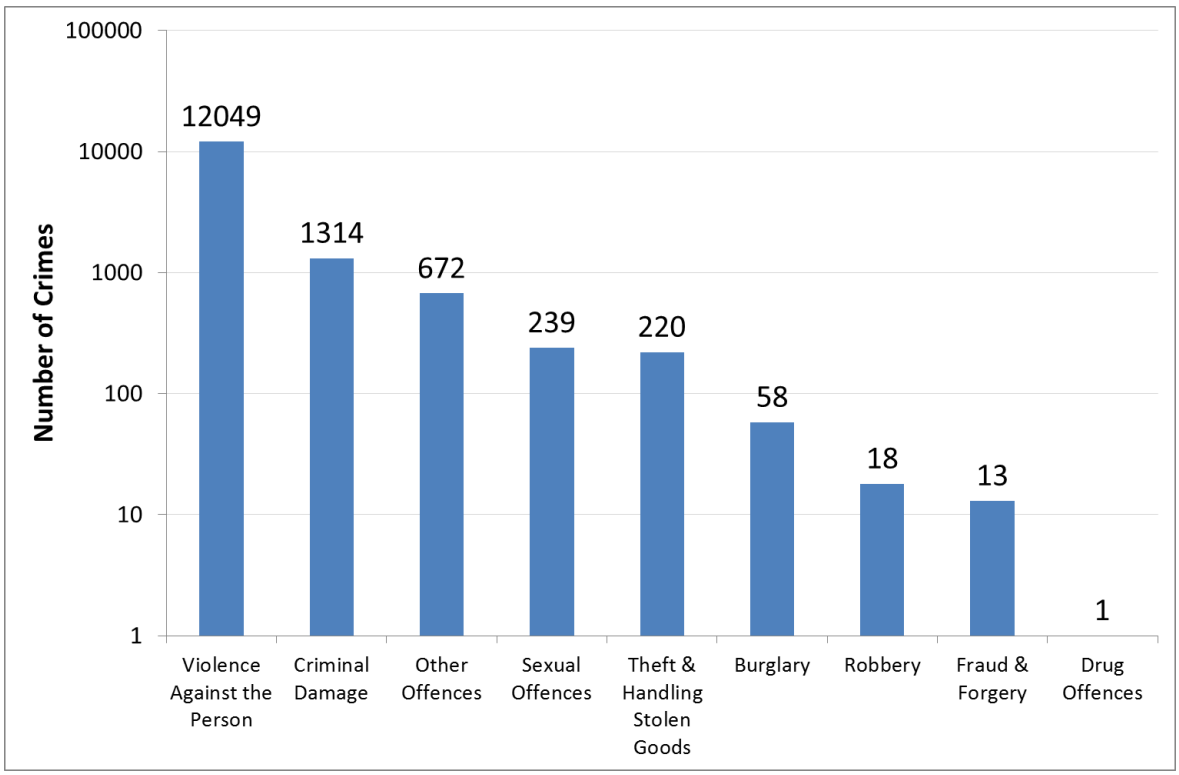
Figure 1: Number of domestic abuse Crimes, non-crimes and non-notifiable rimes



58% of the dataset relates to non-crimes, which adds a substantial amount of power to the analysis in the following subsections. This simple statistic is interesting in its own right; suggesting that a high amount of police demand relating to domestic abuse may come from incidents which are not crimes. This inference is weakened by the absence of weightings which will be covered later in this chapter, but it is valid to consider that in the majority of cases, police resources are dispatched to attend the location of the event and conduct a risk assessment as a minimum.

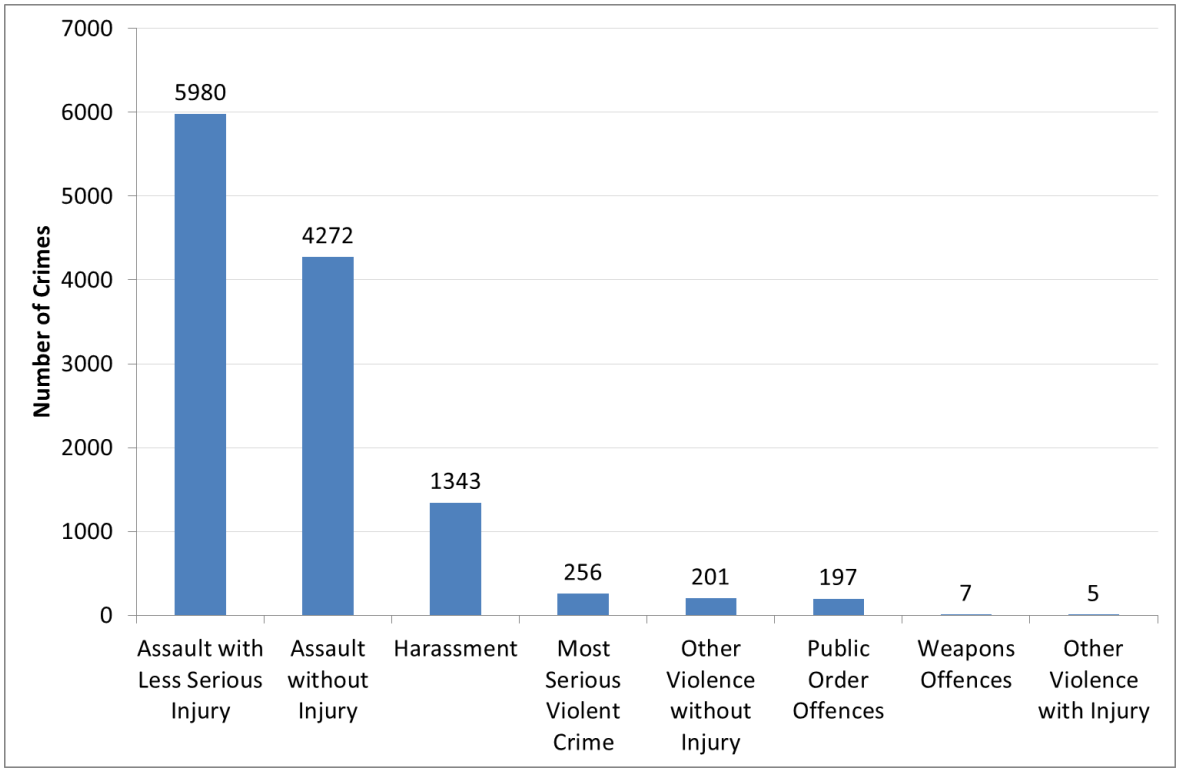
The majority of non-notifiable offences relate to malicious use of public communications networks to send indecent or obscene messages. Although non-notifiable for statutory statistical returns, the sentencing guidelines do enable a CHI value for this type of offending.

Figure 2: Numbers of crimes by classification



The majority (82%) of crimes within the dataset are classified as some form of violence, which includes threatening behaviour as well as contact violence. Violent and sexual offences have typically been the principle focus of domestic abuse research but in this instance they will form just 33% of the overall dataset. The majority of 'other offences' are public disorder, which are non-contact but can relate to threatening or intimidating behaviour.

Figure 3: Breakdown of categories of violent crime



As Figure 3 shows, most violent crime is recorded with no injury or with less serious injury. The "most" serious injury based cases make up less than 1% of the entire dataset. The key demographic breakdowns of the data are also worth consideration.

Table 4: Age breakdown of male and female victims in domestic abuses cases

Age	Female	Male
16-18	1400	317
18-29	10158	2240
30-39	6337	1613
40-49	5253	1609
50-59	1865	829
60-69	540	369
70-79	228	141
80-89	49	19
Not Stated	20	2
Blank	2636	1021
Total	28486	8160

Table 4 excludes 97 records where gender data was missing. It shows that in 77% of cases, victims of domestic abuse in Suffolk are female. The most frequent age banding is common for males and females with 18-29 year olds making up over a third of all domestic abuse events.

The dataset also showed that most victims of domestic abuse in Suffolk were "White British" (as classified by the Home Office 16+1 ethnicity codes) as shown in Figure 4. 88% of victims fell within this category which as Table 3 showed is approximately correlated with the demographics of the county.

Figure 4: Breakdown of events by ethnicity

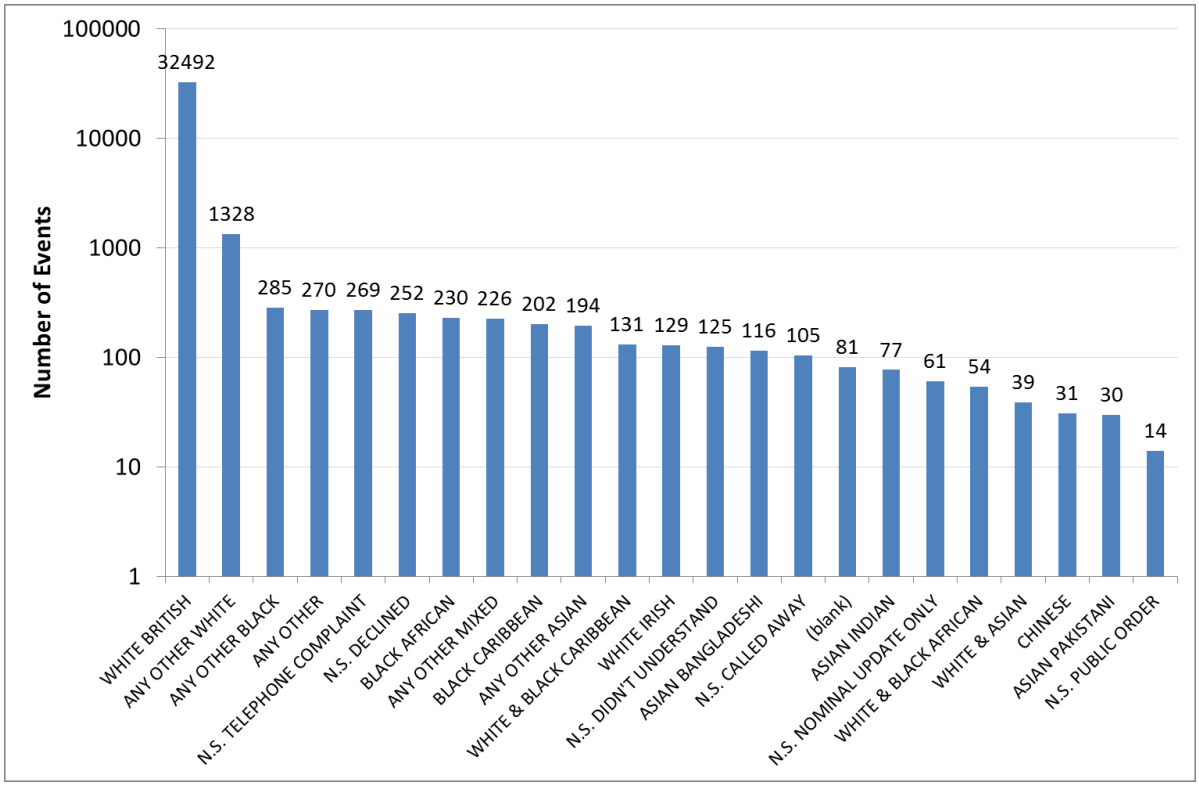


Figure 5: Number of unique dyads, victims and offenders

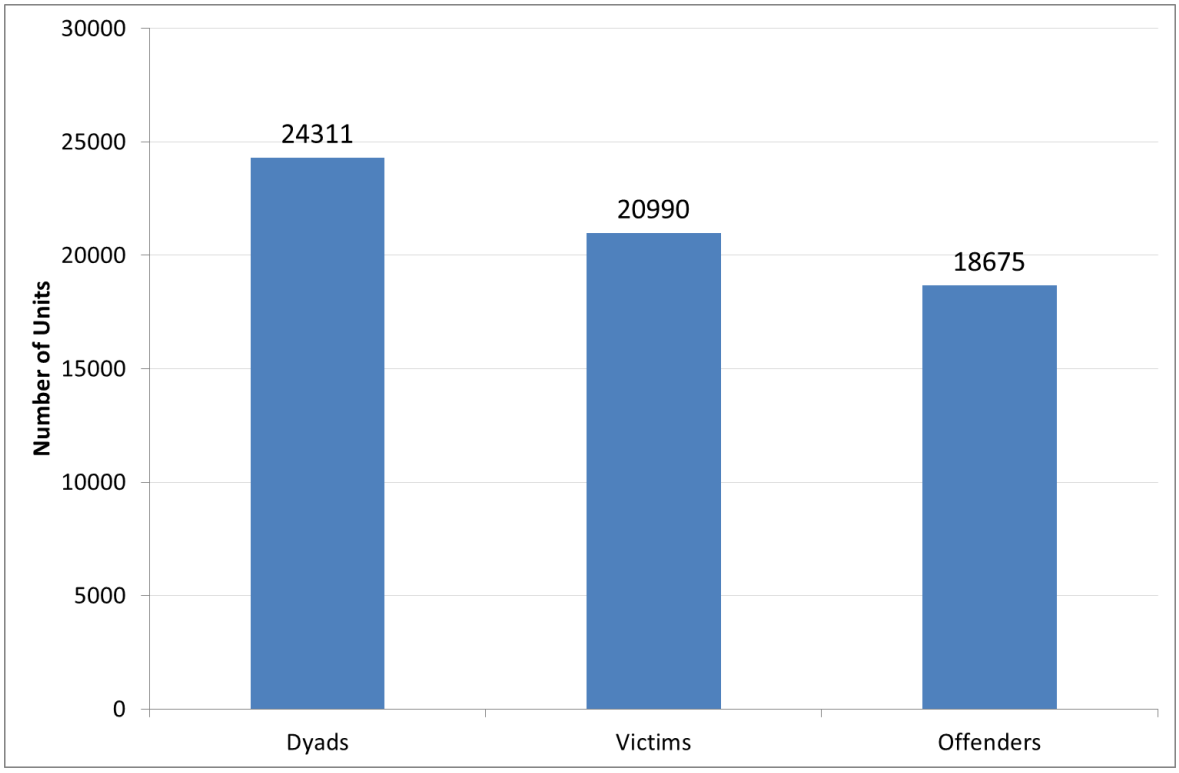


Figure 5 gives a clear message regarding victim and offender movement in dyads. The ratio of unique victims to dyads is nearly 1:1. For offenders it is about 33% higher. This indicates that offenders in Suffolk had a greater tendency than victims to feature in multiple dyads. The victim ratio is also interesting as it indicates that at least 3,321 victims have reported more than one event.

Repeat Victimisation

Dyads

Figure 6: Number of dyads by level of events reported

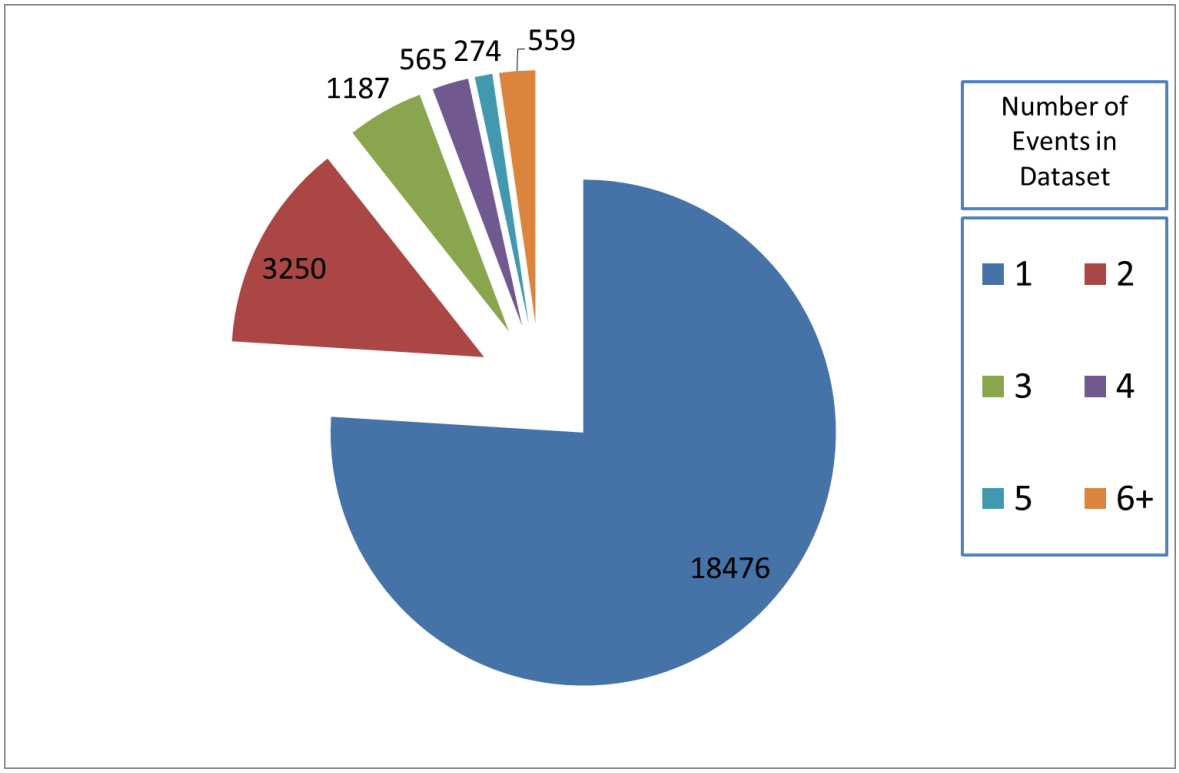


Figure 6 shows that most dyads presented to Suffolk Constabulary just once during the analysed period. Indeed those 18,476 dyads represent 76% of all dyads that reported in the dataset meaning a total prevalence of repeat victimisation among dyads of 24%.

It is also very evident that there is a decay effect with the number of dyads decreasing at each additional event reported. Figure 6 has aggregated those dyads that reported six or more events in the whole dataset for the purposes of presentation, but it is worth examining the breakdown of dyads that reported in this group. The maximum number of events reported by a dyad was 23, but only one dyad reached this level. Only four others exceeded 19 events and there were less than 40 dyads at each level from 13-

19 reports. In total 125 dyads (0.7% of all dyads in the dataset) reported more than ten times, which at the very minimum would be approximately two calls per year. While this is a small proportion of the overall dyad population, it indicates chronic problems do exist.

Table 5: Breakdown of dyads with six or more events

Number of events reported	Number of dyads	Number of victims	Number of offenders
6	202	241	271
7	115	167	171
8	71	102	120
9	46	80	94
10	37	59	61
11	27	41	32
12	11	13	34
13	12	23	25
14	16	9	19
15	5	12	13
16	3	5	14
17	0	6	6
18	3	9	4
19	5	2	5
20	4	7	5
21	1	5	6
22	0	4	3
23	1	1	3
24	0	1	1
25	0	0	0
26	0	0	0
27	0	3	0
28	0	1	0
29	0	0	0
30	0	0	0
31	0	1	0

Victims

Figure 7: Number of victims by level of events reported

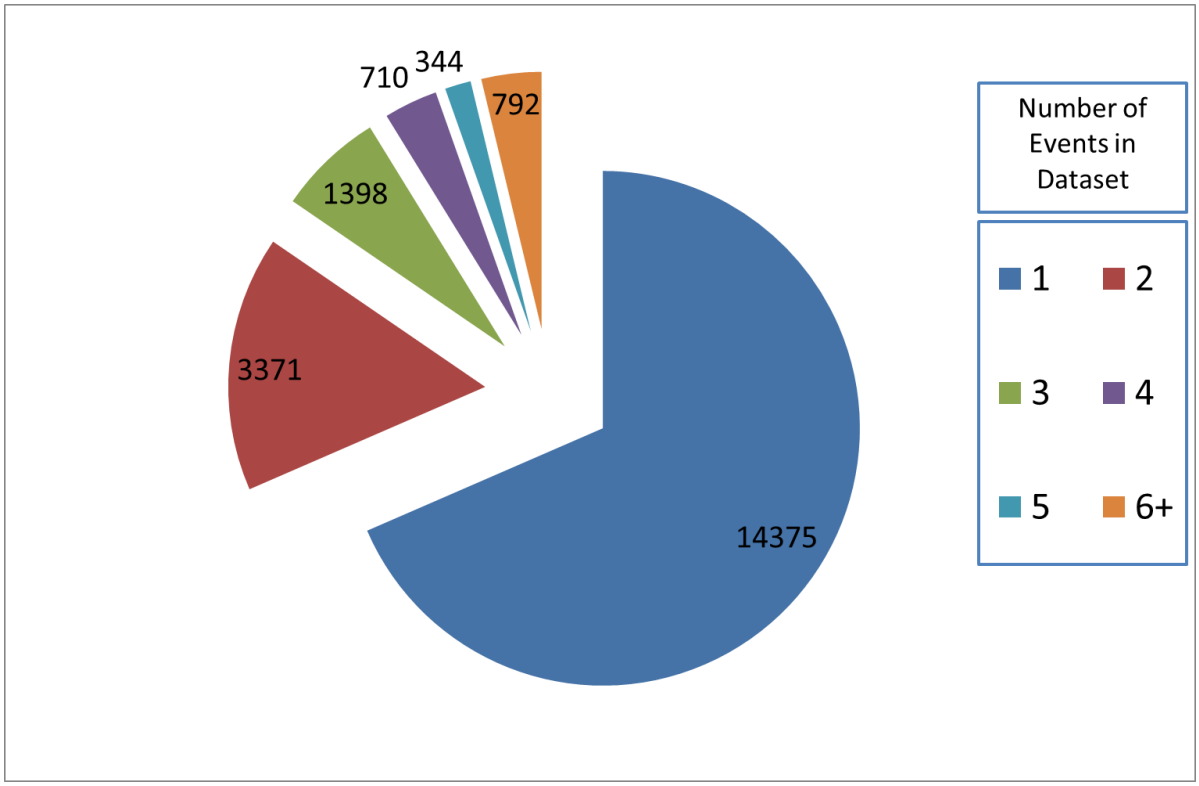


Figure 7 also gives a clear indication that most victims reported one event in the dataset. However, the prevalence of repeat calls among victims is higher than among dyads. 32% of victims reported more than one event to Suffolk in the five years, three months analysed, 8% higher than dyads. This indicates some movement of victims between dyads.

The decay effect present with dyads is equally applicable to victims, with decreasing numbers at higher numbers of events (. However the data indicates that there were more 'chronic' victims than dyads, again suggesting that victims are subject to abuse by more than one offender. The maximum number of events attributed to one

victim was 31 and there were 23 victims with 20 or more reports as compared to just four dyads. In all 202 victims reported more than ten times.

Offenders

Figure 8: Number of offenders by level of events reported

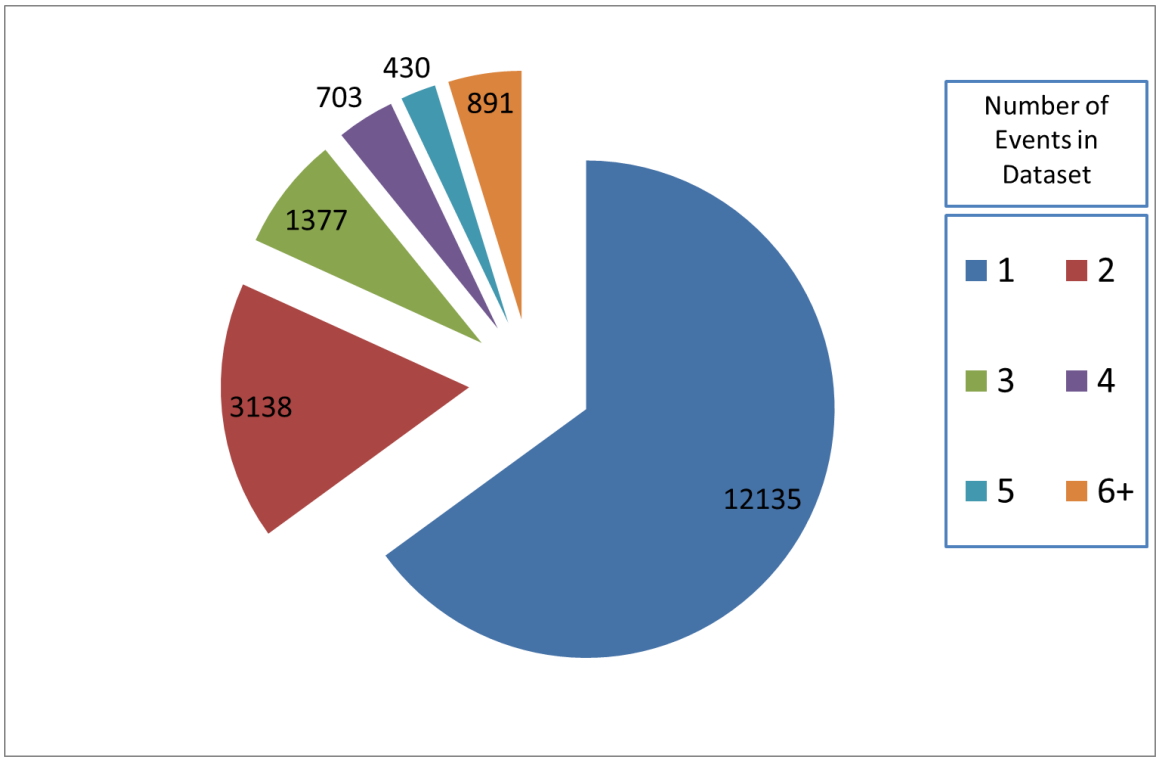


Figure 8 shows that repeat offending was more prevalent in the dataset than victimisation among either dyads or victims. 65% of offenders were linked to just a single event, lower than the 76% of dyads and 68% of victims already shown. This indicates that offenders are also associated to multiple dyads.

While the decay effect is also present among offenders, there are higher numbers at higher levels of events than for victims and dyads. 22 offenders were linked to more than 20 events by comparison to 15 victims and just four dyads. 235 offenders (1.1%) were linked to ten or more events compared to 202 victims and 125 dyads.

Multiple Dyads

Table 6: Per cent of victims and offenders present in more than one dyad

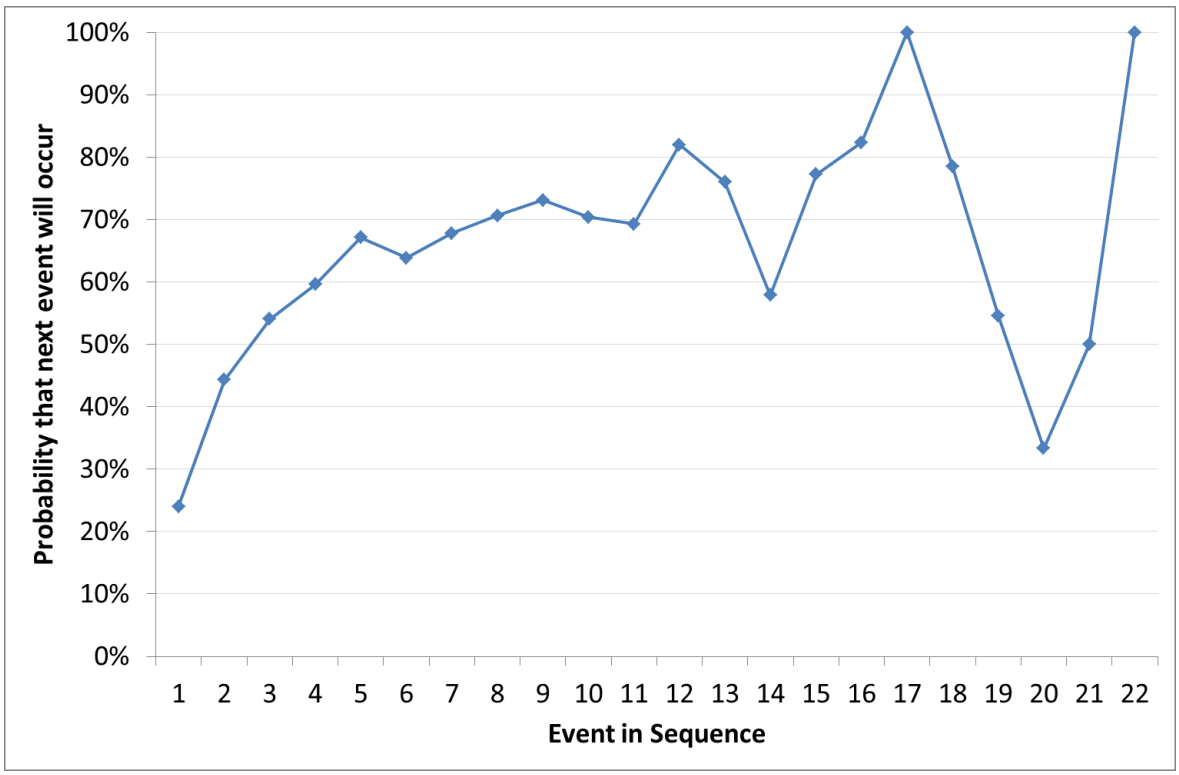
	Per cent
Victims	12.5
Offenders	16.7

As suggested by other findings, offenders committed offences against multiple victims to a greater extent than victims were victimised by multiple offenders. 2,615 victims in the dataset were victimised by more than one offender. That represents 29.5% of all repeat victims. By comparison, 3,144 offenders offended against multiple victims – 47.6% of all repeat offenders.

Conditional Probability

Dyads

Figure 9: Conditional probability of further events reported at each cumulative total of dyad's events



The initial probability that a dyad reporting once will report a second event is just 24%. This probability rises with each subsequent event reported. If a dyad is the subject of two events, then it is 44% likely to report a third. If it reports a third, it becomes 54% likely to report a fourth and so on.

This analysis identifies two notable peaks. Firstly, the conditional probability rises to around 70% from the 8th event onwards. Secondly, after this point that probability rises even further, peaking at 82% likelihood that a 13th call will follow the 12th. After this point the probability scores become volatile due to the low numbers of dyads at those levels of event reporting.

Figure 10: Conditional probability of further crimes reported at each cumulative total of dyad's events

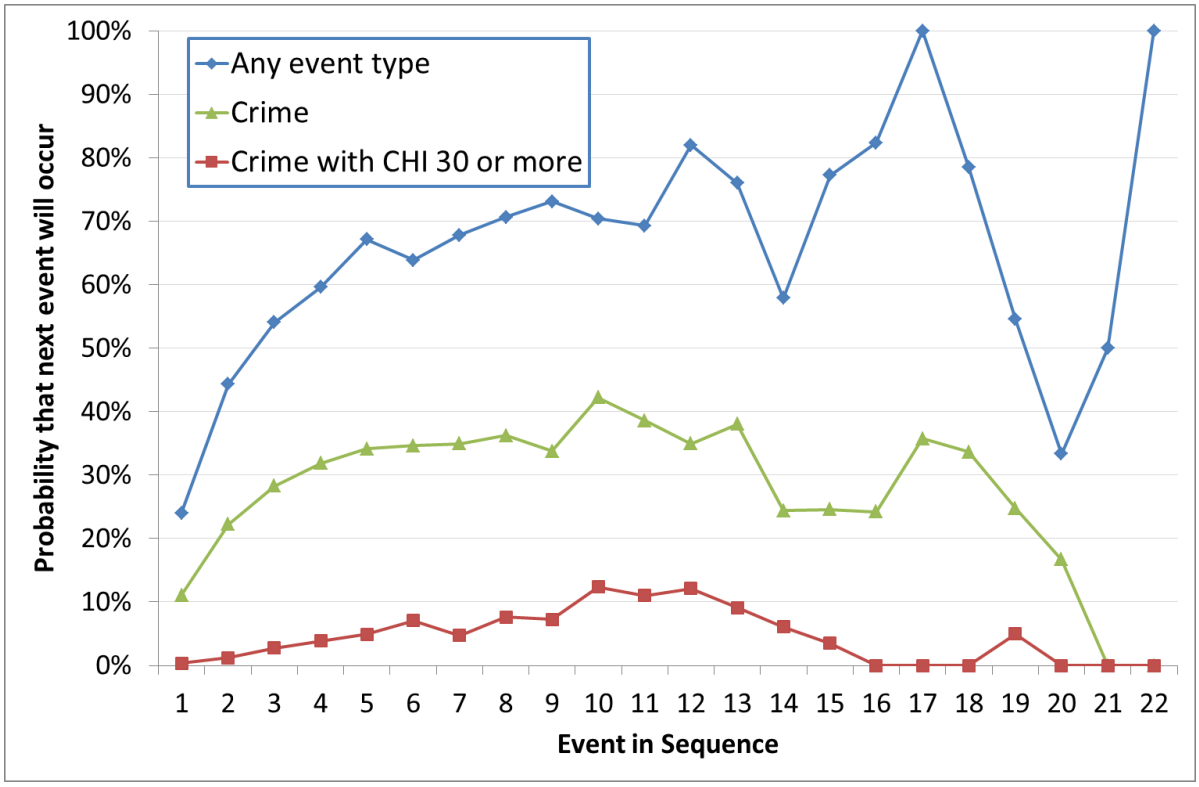
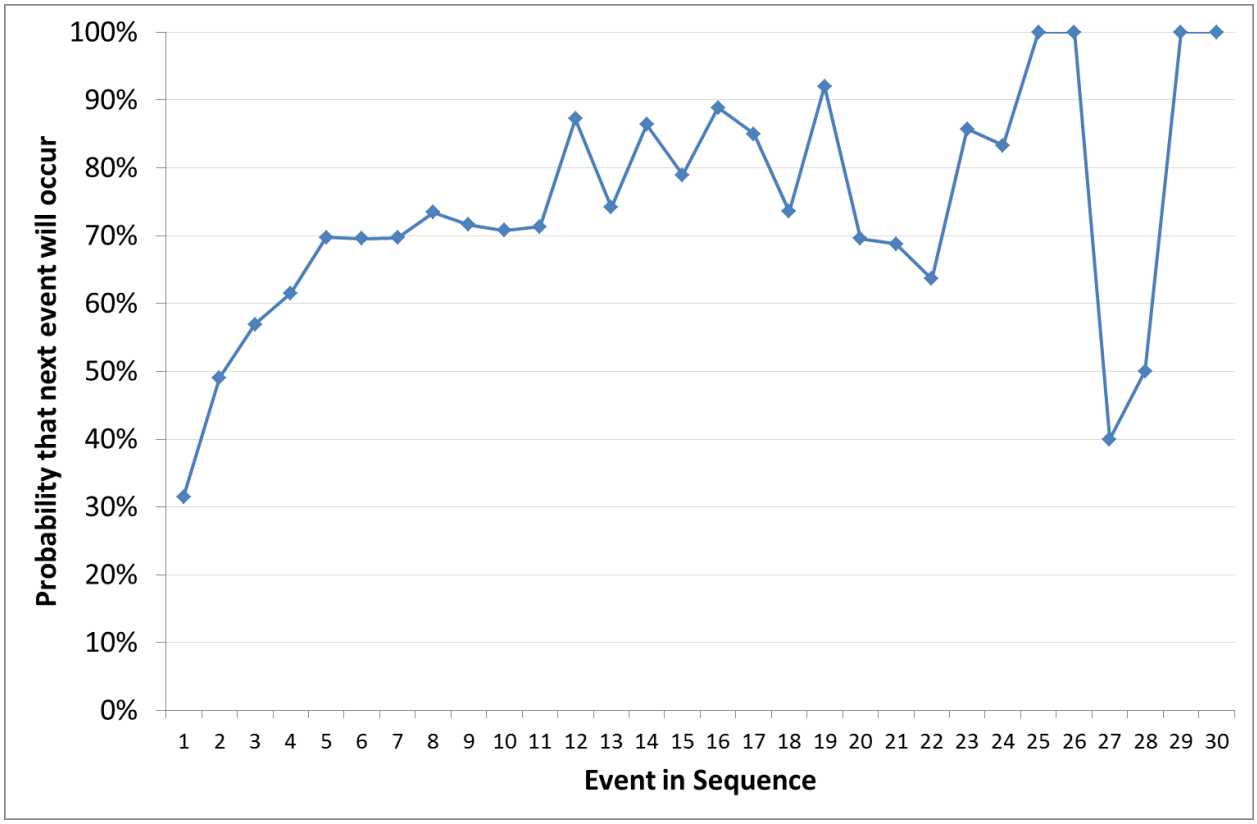


Figure 11 builds on Figure 9 by adding probability scores at each event in the sequence for two additional variables. Firstly, the probability of the next event is any crime (thus excluding all non-crime events) and secondly the probability of the next event

is a crime with a CHI value of more than 30 days in prison. The probability the next event is a crime peaks at 42% at event ten. The probability that the next is a crime that carries a CHI value of 30 or more peaks at 12% at events ten and twelve.

Victims

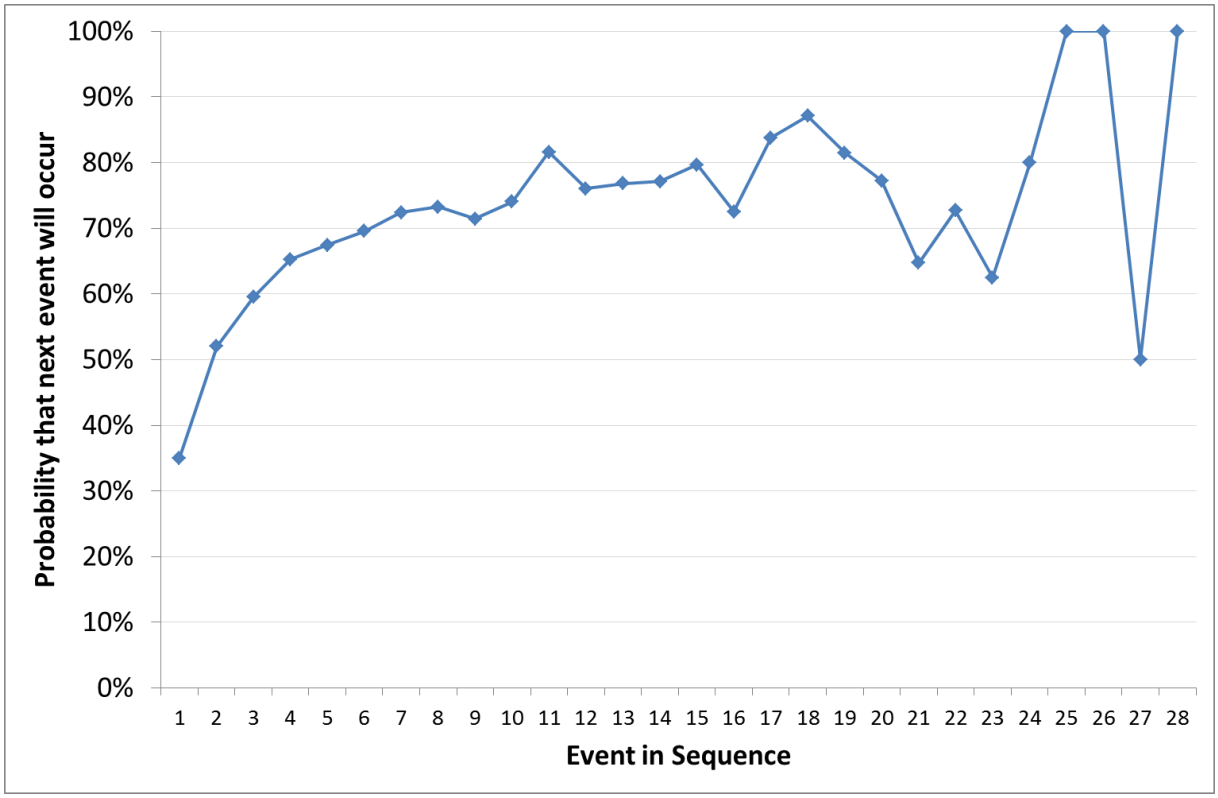
Figure 11: Conditional probability of further events reported at each cumulative total of victim's events



The initial probability that a victim reporting domestic abuse for the time will report a **second** domestic abuse event is at 32%, higher than for a dyad. This can be explained by the fact that some victims feature in more than one dyad (Table 6). The probability of further events then remains higher than the equivalent levels for dyads up until the eighth event. The result is striking. After just the second event there is just less than a one in two chance that this victim will report a third to police in the future. At five reports, there is 70% likelihood and the probability stays around this level until the numbers of cases become small and percentages volatile.

Offenders

Figure 12: Conditional probability of further events reported at each cumulative total of offender events

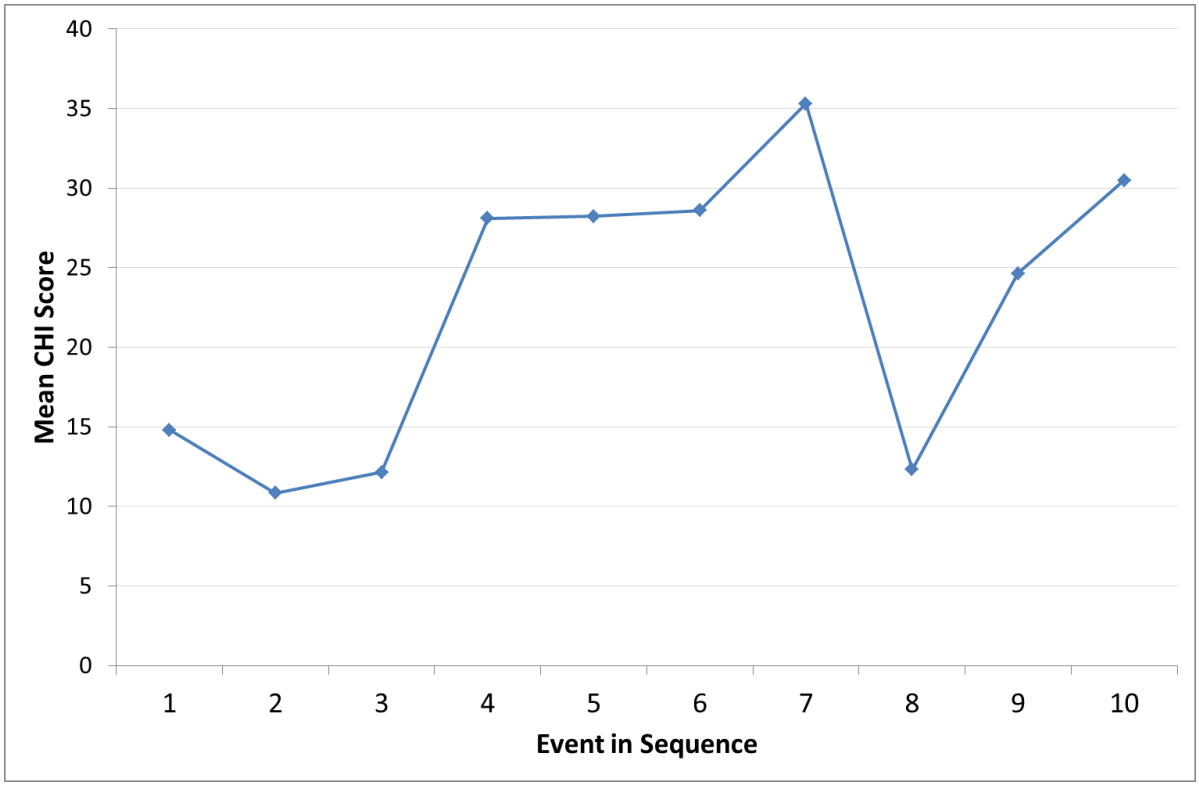


A first time offender of domestic abuse is 3% more likely than a victim to be the subject of second event. This is reflective of offenders' greater tendency to feature in multiple dyads. Like victims and dyads, the probability of further events rises with each event reported until the numbers of cases in the dataset become so low that they produce erratic results. Like dyads and victims, by the time an offender has been subject of a third call, there is a better than one in two chance that they will be the subject of a fourth. After ten events, probabilities exceed 75% indicating that chronic offending issues are highly likely to remain chronic.

Escalation in Severity

All Eligible Dyads

Figure 13: Average CHI scores in first 10 events for all eligible dyads



From event 1 to event 10 Figure 13 indicates an upward trajectory in the mean CHI values for the first ten calls among all eligible dyads. This analysis is restricted to the first ten calls as sample sizes drop away after this point. For events 1-5 the sample size was 727. By event 10, the sample size was 92. Standard deviations were above 100 for 6 out of the 10 events indicating that CHI scores varied frequently for the eligible dyads at most events. A single factor ANOVA test determined no statistical significance, $F(9, 4802) = 1.76$; $p = .07$.

Chronic High Harm Dyads

Figure 14: Average CHI scores in first 10 events for all eligible dyads featuring with dyads causing 80% of cumulative CHI

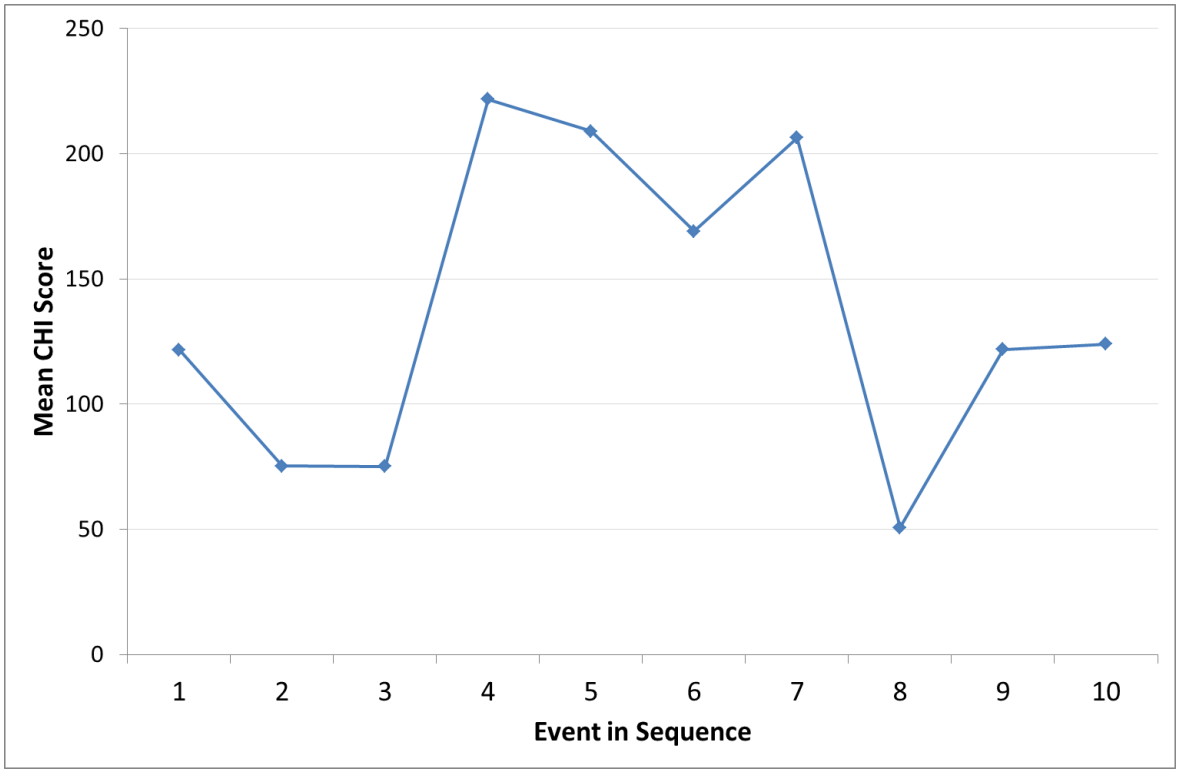


Figure 14 suggests no consistent upward trajectory in mean CHI scores from event 1 to event 10 among eligible dyads who were within the group of dyads contributing 80% of cumulative CHI in the whole dataset (Table 9). This group is referred to as "chronic high harm dyads" (n=76) and it should be noted that this is a very small sample size. As would be expected given the criteria of this cohort, the average level of harm was higher than for other cohorts. Sample sizes were extremely low, falling to just 18 cases by event 10. A single factor ANOVA test determined no statistical significance, $F(9, 539) = 1.29$, p=.24.

Arrest at First Event

Figure 15: Average CHI scores in first 10 events for all eligible dyads featuring with dyads where an arrest was made at the first event

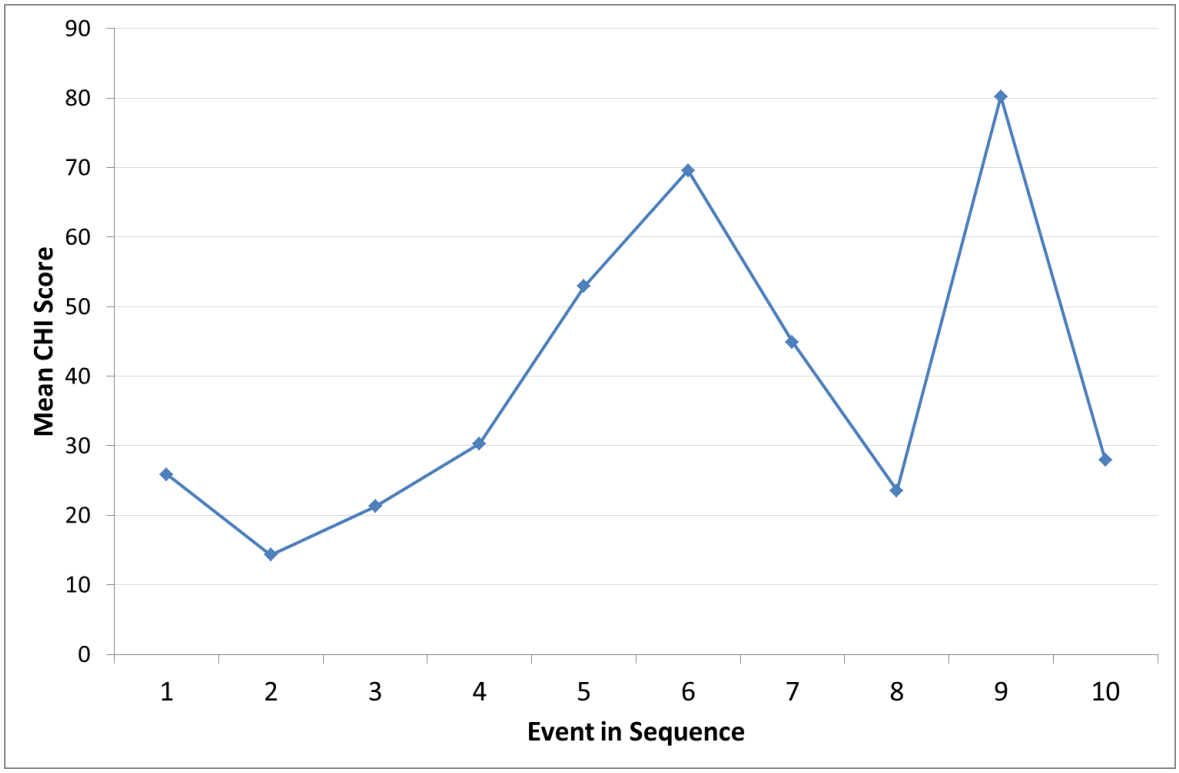


Figure 15 indicates an upward trajectory in mean CHI scores between events 2 and 6 for this cohort (n=189). At event 6 the sample size was 114 and after this it declined considerably to just 20 cases at event 10. A single factor ANOVA test determined no statistical significance, *F(9, 1200) = 1.24, p=.26.*

Higher Deprivation

Figure 16: Average CHI scores in first 10 events for all eligible dyads featuring with dyads where events took place in an area within the most deprived in Suffolk

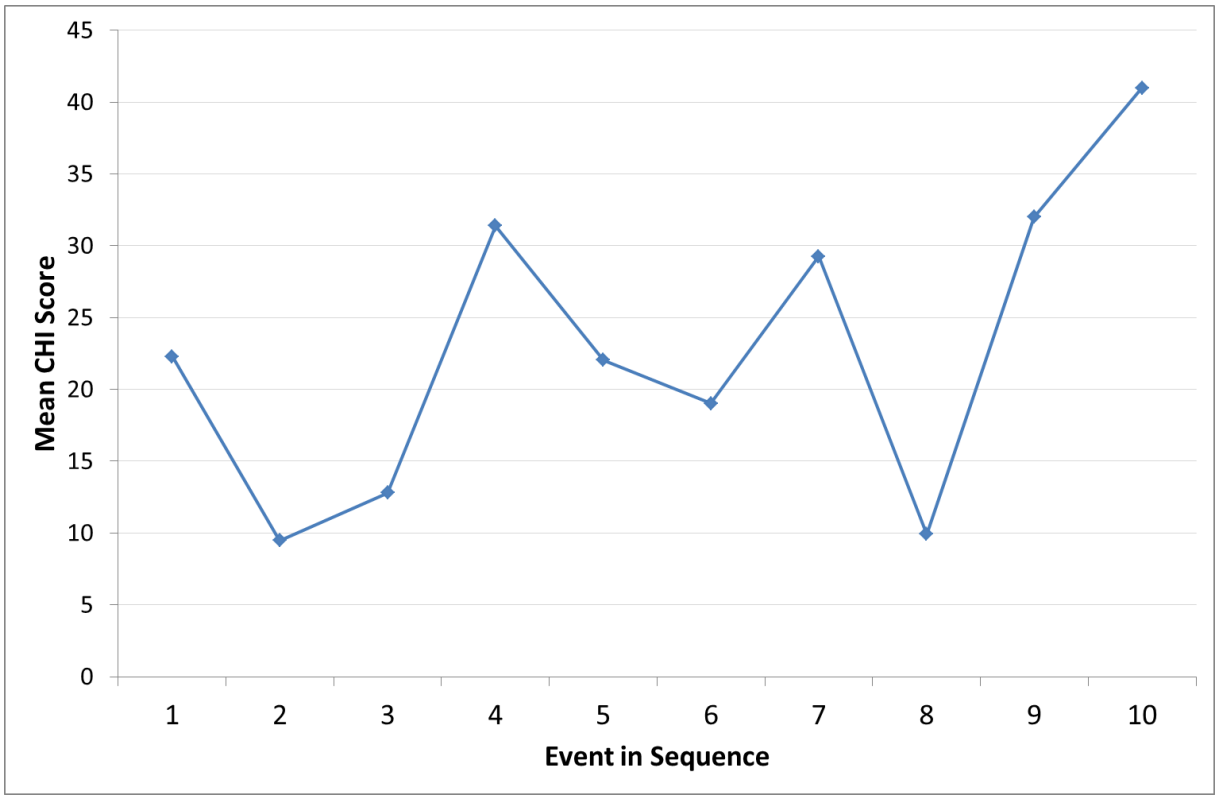


Figure 16 indicates an upward trajectory for mean CHI in this cohort (n=450) albeit with four events showing declines in average CHI scores. The sample size at event ten was 54. Standard deviation was above 100 for eight of the ten events. A single factor ANOVA test determined no statistical significance, *F(9,2974) = 1.00, p=.44)*

Second Event within Two Months

Figure 17: Average CHI scores in first 10 events for all eligible dyads featuring dyads where the number of days between the first and second event was less than 61.

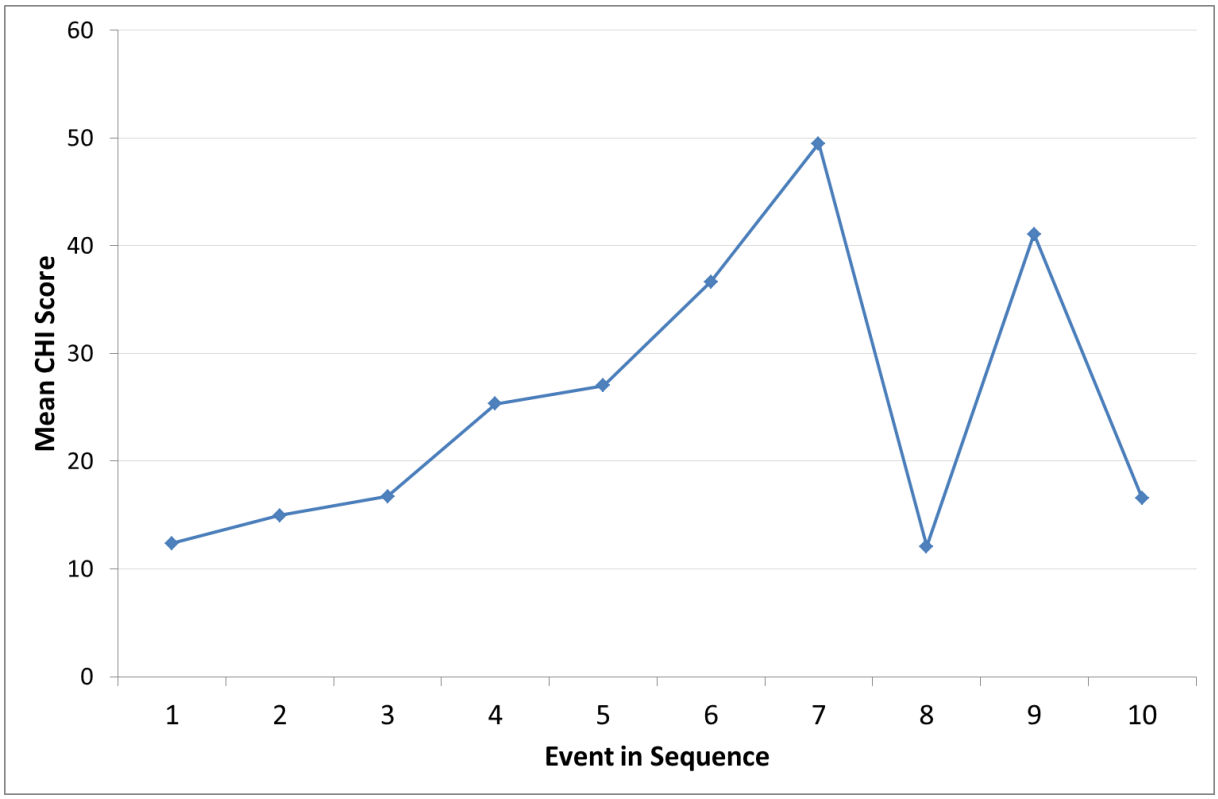


Figure 17 indicates an upward trajectory for mean CHI in this cohort (n=336) until event 7. After event 7 the sample size drops from 135 to 91. A single factor ANOVA test determined no statistical significance, *F(9,2221) = 1.10, p=.35.*

Percentage of Events with a CHI Value

Figure 18: Percentage of events that have a CHI value equivalent to more than 0 days in prison

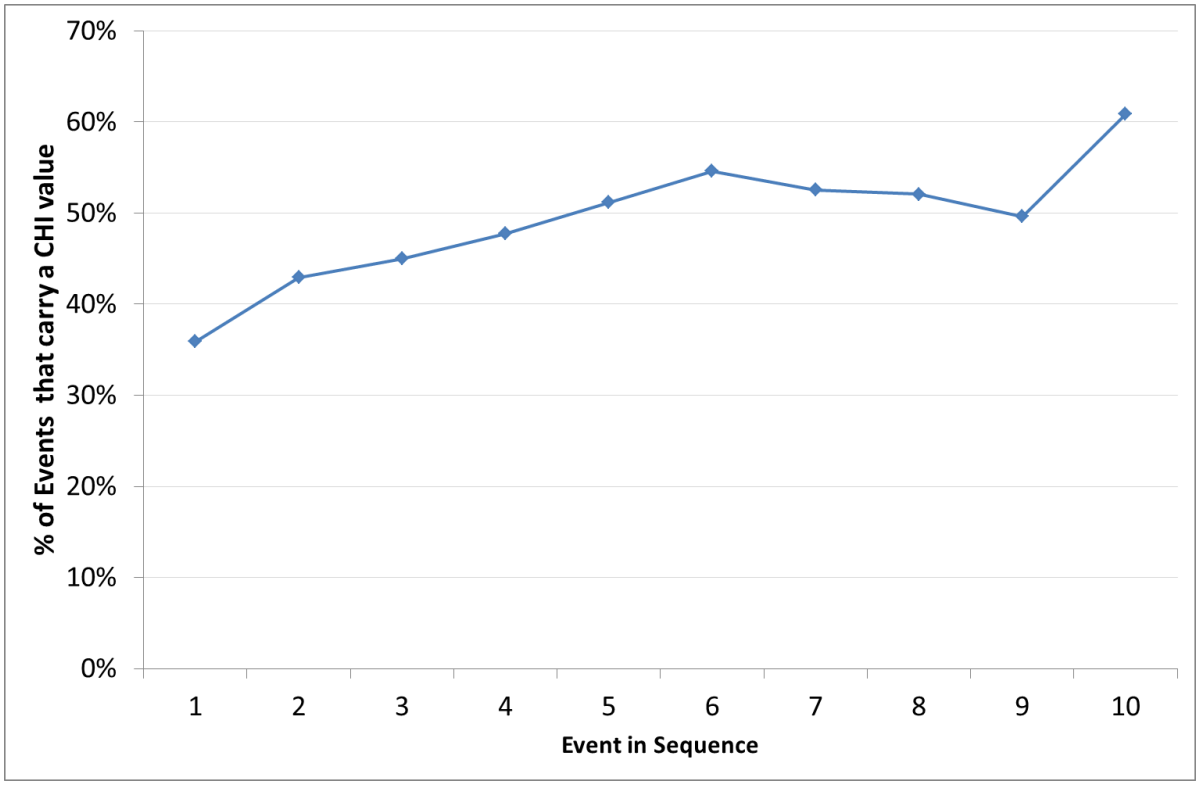
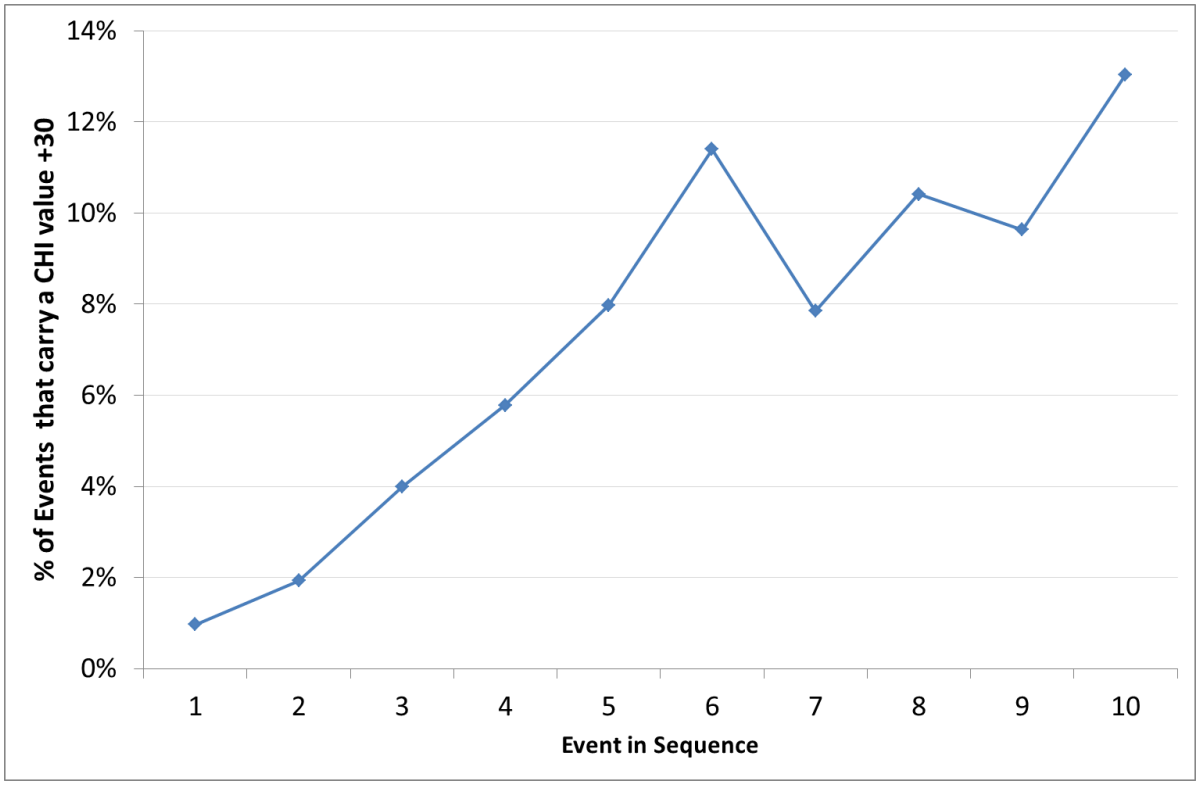


Figure shows that among eligible dyads, the percentage of domestic abuse events that carry a sentence equivalent CHI value of any kind, has an upward trajectory between events one and six. Of the 727 eligible dyads, 36% had a first event classified as a crime or non-notifiable crime. This rose consistently to 55% at event six and then plateaued thereafter. Event ten is based on a sample size of 92.

Figure 19: Percentage of events that have a CHI value equivalent to more than 30 days in prison



At the first event, among eligible dyads, just 1% of events carried a CHI value equivalent to more than 30 days in prison. This rises consistently until event six when 11% of events carried this tariff. After this, the percentage becomes less consistent, peaking at 34% at event ten with a sample size of 92.

Decreasing Intermittency between Calls

All Eligible Dyads

Figure 20: Average intermittency between the first ten events in eligible dyads

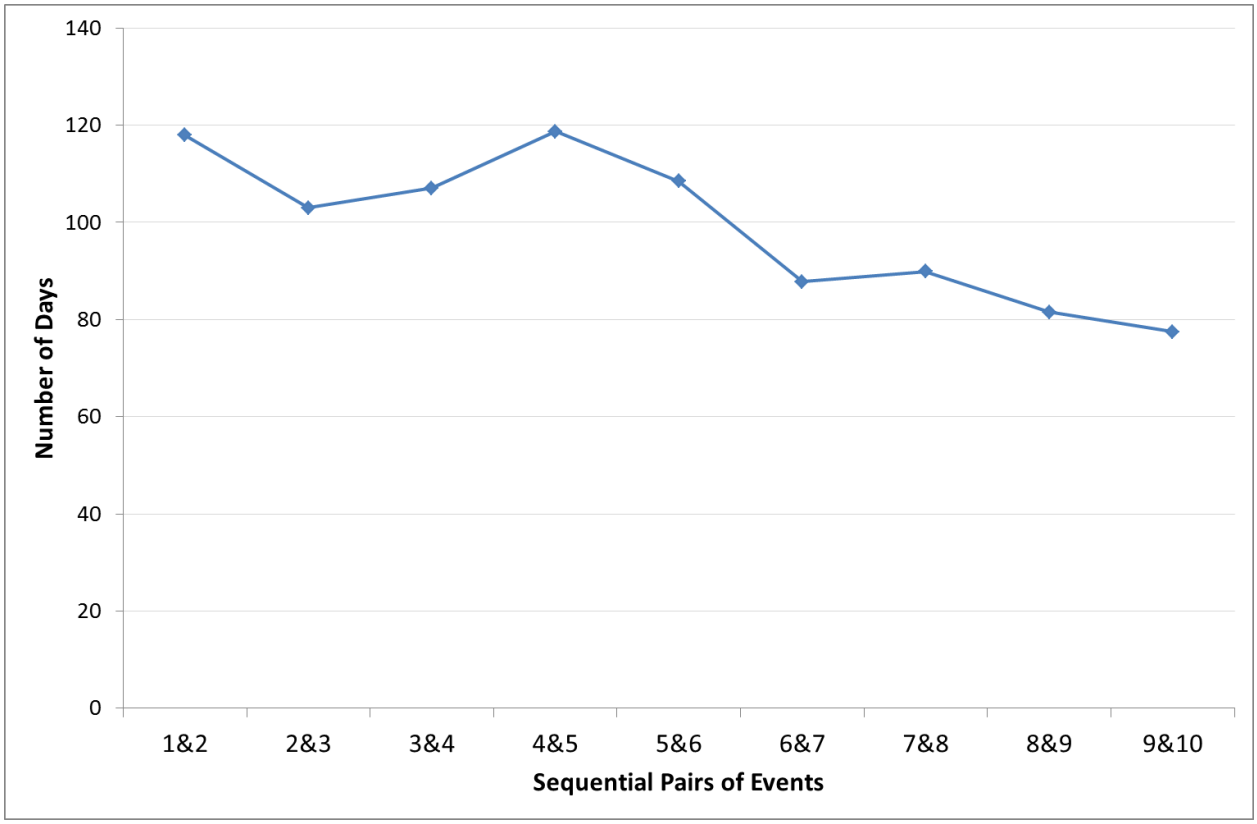


Figure 20 shows a general downward trajectory between events one and ten, with rises at three sequential points; events 3 & 4, events 4 & 5 and events 7 & 8. For all eligible dyads, the average number of days in between events is over 100 at every pair up to the sixth event. Thereafter the average falls to less than 90. Standard deviation is above 100 days for every pair of events. A single factor ANOVA test determined that at least one relationship between two of these pairs was statistically significant, $F(8,4076) = 3.68$, $p<.001$. This means the null hypothesis of no differences between means is rejected. ANOVA does not explain which groups have statistically significant differences, rather it just identifies that at least two groups do. A Tukey's HSD test identified significant differences between the means of 13 pairs of events (as shown in Table 7)

Table 7: Tukey's HSD results for intermittency means at first 10 events for eligible dyads.

Event Pair	1&2	2&3	3&4	4&5	5&6	6&7	7&8	8&9	9&10
1&2	-								
2&3	14.94	-							
3&4	10.91	4.04	-						
4&5	0.79	15.73	11.70	-					
5&6	9.42	5.52	1.49	10.21	-				
6&7	30.12*	15.18	19.21	30.91*	20.70	-			
7&8	27.98*	13.04	17.07	28.77*	18.56	2.14	-		
8&9	36.35*	21.41	25.45*	37.14*	26.93*	6.24	8.37	-	
9&10	40.43*	25.48*	29.52*	41.22*	31.01*	10.31	12.45	4.07	-
Critical range = 22.44 **- significant to 0.05*									

These results indicate that there was significant difference (in this case decreases) in the number of days between domestic abuse reports predominantly in the cases of earlier events compared to later events. For example, the difference in time (days) between events one and two was significantly higher than the difference between events six and seven, seven and eight and eight and nine. This supports the notion of escalating intermittency between initial and later events, and highlights specifically that there was a step change in intermittency from around event eight onward. These results should be considered in the context of unequal sample sizes which mean that Tukey's HSD results are more conservative.

Chronic High Harm Dyads

Figure 21: Average intermittency between the first ten events in chronic high harm eligible dyads

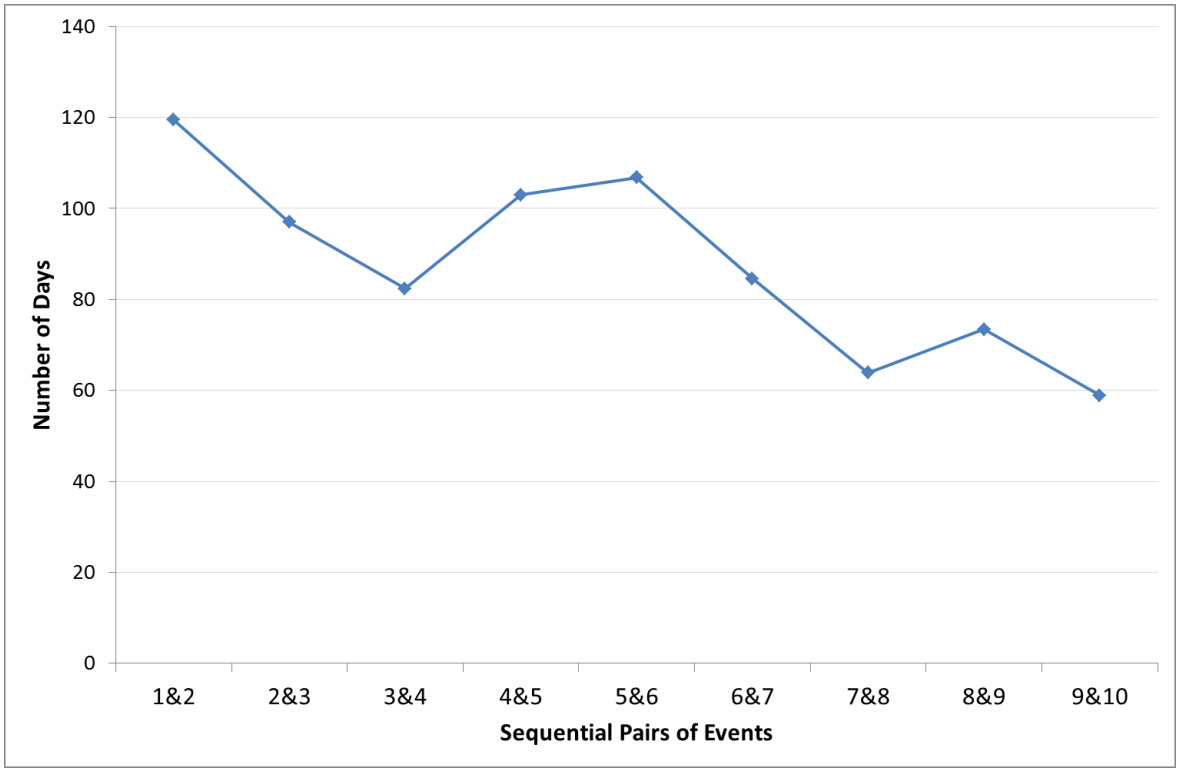


Figure 21Figure 20 shows a similar general downward trajectory in intermittency among chronic high harm dyads (n=76) as for all eligible dyads. A notable difference is that the tenth event took place on average 59 days after event nine (compared to 77 days for all eligible dyads, SD=106.7). The standard deviation for the ninth and tenth pairing for chronic high harm dyads is 56.3 but the sample size is just 18 cases and so these results are weak.

A single factor ANOVA test determined that none of the relationships between any of these pairs was statistically significant, $F(8,464) = 1.05$, p=.39. This means the null hypothesis that there is no difference between means is accepted.

Higher Deprivation

Figure 22: Average intermittency between the first ten events in eligible dyads where events took place in an area within the most deprived in Suffolk.

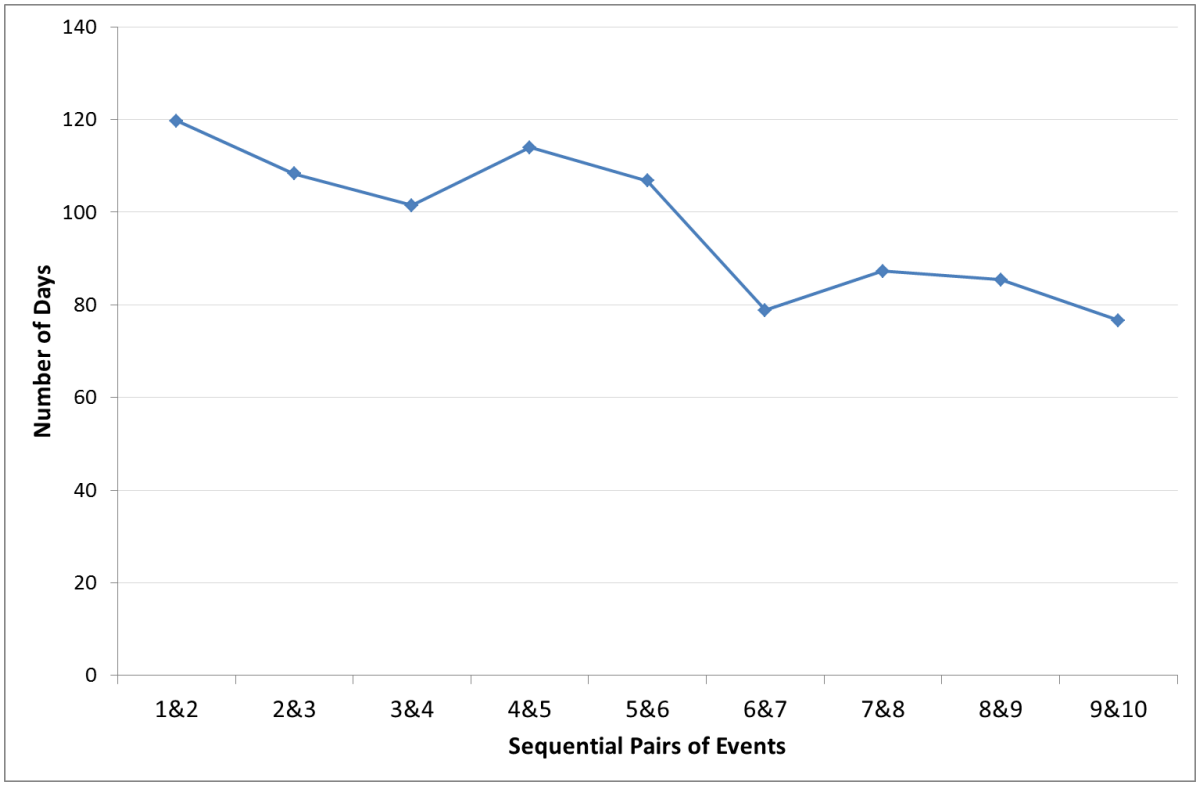


Figure 22 shows that eligible dyads where events took place within the 20% most deprived in Suffolk also showed a downward trajectory of intermittency over time. Sample sizes ranged from 450 for the first five events to 54 at the tenth. Standard deviation ranged between 85.5 (events six and seven) to 149.4 (events four and five).

A single factor ANOVA indicated that the difference in mean intermittency between at least two events was statistically significant, $F(8,2525) = 2.70$, $p<0.01$.. Tukey's HSD test identified significant differences between 12 of the 36 possible combinations.

Table 8: Tukey's HSD results for intermittency means at first 10 events for eligible dyads where events took place in an area within the most deprived in Suffolk.

Event Pair	1&2	2&3	3&4	4&5	5&6	6&7	7&8	8&9	9&10
1&2	-								
2&3	11.37	-							
3&4	18.20	6.83	-						
4&5	5.73	5.64	12.47	-					
5&6	12.86	1.49	5.34	7.13	-				
6&7	40.84*	29.47*	22.64	35.11*	27.98	-			
7&8	32.43*	21.06	14.23	26.70	19.57	8.41	-		
8&9	34.22*	22.85	16.02	28.49*	21.36	6.62	1.79	-	
9&10	43.02*	31.65*	24.82	37.29*	30.16*	2.18	10.59	8.80	-
Critical range = 28.37 **- significant to 0.05*									

These results indicated significant differences between the mean intermittency at event two and the mean intermittencies at events seven, eight, nine and ten. This supports the inference dyads based in more deprived areas of Suffolk experience decreasing numbers of days between offences after event seven.

Concentrations of Harm

Dyads

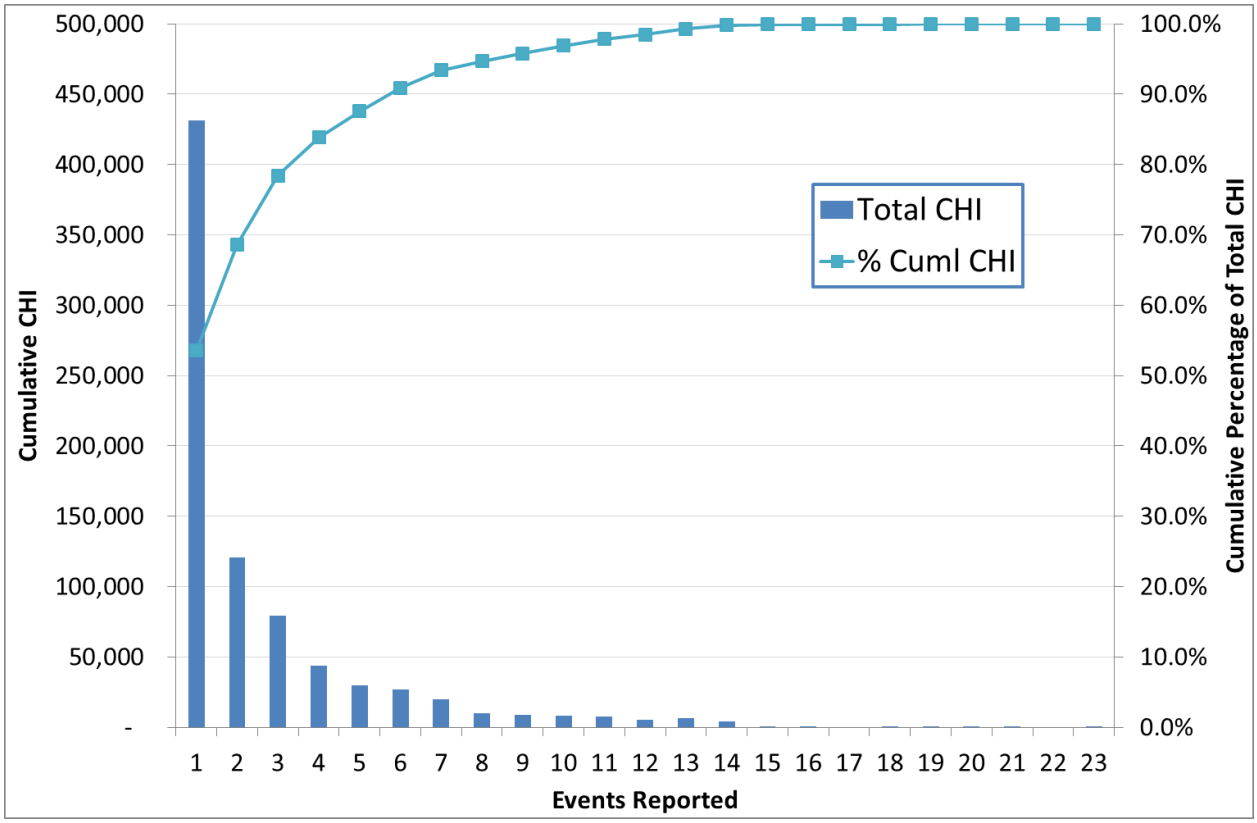
Table 9: Distribution of cumulative harm among dyads

Cumulative per cent of total CHI	Number of dyads	Cumulative per cent of dyads
1	2	0.01
5	10	0.04
10	20	0.08
20	59	0.24
50	192	0.79
80	412	1.70
100	24,311	100.0

CHI scores were highly concentrated among dyads as indicated by Table 9. It is striking that 10% of all domestic abuse harm within five years and three months was attributable to just 20 dyads (out of 24,311 that reported in that time). It is equally notable that 80% of harm was attributable to just 1.7% of dyads – a much higher concentration than the theoretical "80-20" rule would suggest. These results strongly support the conclusion that a very small number of dyads account for a majority of harm. Conversely, this also suggests that a very high number of dyads report a very low amount of harm.

Figure 23 shows the proportion of total CHI attributed to dyads at each level of reporting. Those dyads which reported just one event (n=18,476) accounted for 53.6% of all harm, yet made up 76% of all dyads. This suggests two interesting issues. Firstly, police in Suffolk may have no prior records of domestic abuse in the cases which make up over half of all domestic abuse harm. Secondly, that there is uneven distribution of harm between the number of dyads at each level of event reporting.

Figure 23: Pareto chart for cumulative Crime Harm Index scores by number of events reported per dyad



This finding is demonstrated in more detail by Table 10.

Table 10: Distribution of harm compared to proportion of overall sample by dyad reporting level

Number of Events Reported	Proportion of Overall Dyads	Proportion of Overall CHI
1	76.0%	53.6%
2	13.4%	15.0%
3	4.9%	9.9%
4	2.3%	5.4%
5	1.1%	3.7%
6	0.8%	3.4%
7	0.5%	2.5%
8	0.3%	1.3%
9	0.2%	1.1%
10	0.2%	1.1%
11+	0.4%	3.1%

Breakdown of the Power Few

Further analysis of the 412 dyads which accounted for 80% of cumulative CHI scores in the dataset identifies three sub-categories of dyad based upon event reporting history. 293 of the 412 dyads (53%) had only one reported event in the dataset. This implies that police had no prior record of domestic abuse in over half of the most harmful cases in a five year period. This cohort is henceforth referred to as "Never Called Before" or "NCB".

76 of the 412 dyads (18%) met the eligibility criteria for the CHI and intermittency analysis undertaken in this research. This is to say that just less than one in five of the most harmful dyads reported five or more events in a three year period. This cohort is henceforth referred to as "chronic".

The remaining 119 dyads (29%) reported more than one event, but less than five in a three year window from the first event. This cohort is henceforth referred to as "intermediate" The range of variables available in the dataset enables some analysis between these groups as shown in Table 11.

Table 11: Comparison of High Harm Dyad Cohorts

Variable	Chronic	Intermediate	NCB	All Data
% dyads within highest quintile of deprivation[2]	59%	52%	49%	51%
% of dyads where victim was unemployed	71%	27%	17%	25%
% of dyads where victim was female	93%	88%	71%	78%
% of dyads where children were present at any event	67%	55%	30%	49%
% of dyads where victim was not "White British"	8%	15%	19%	12%

This data suggests differences in the demographic composition of the chronic and NCB cohorts in particular. NCB dyads tend less frequently to have unemployed, female

[2] Based on indices of multiple deprivation score for the ward within the offending took place.

and white British victims than was generally observed in the dataset. They also have children present in fewer cases. By contrast, the chronic dyads displayed the opposite trend; dyads were more frequently featuring unemployed, female or white British victims or where children were present.

Victims

Table 12: Distribution of cumulative harm among victims

Cumulative per cent of total CHI	Number of victims	Cumulative per cent of victims
1	2	0.01
5	10	0.05
10	20	0.10
20	58	0.28
50	189	0.91
80	406	1.93
100	20,990	100.0

The analysis of cumulative harm among victims is very similar to that among dyads (Table 9) with a very small proportion of victims accounting for a large proportion of harm. There are therefore the same striking implications as present in the equivalent analysis of dyads. 80 per cent of harm emanating from domestic abuse in Suffolk resided with just 406 victims from a total of over 20, 000.

Offenders

Table 13: Distribution of cumulative harm among offenders

Cumulative per cent of total CHI	Number of offenders	Cumulative per cent of offenders
1	2	0.01
5	10	0.05
10	21	0.11
20	56	0.30
50	184	0.99
80	406	2.17
100	18,674	100.0

The analysis of cumulative harm among offenders is also very similar to that among dyads (Table 9). A very small proportion of offenders accounted for a large proportion of harm in the data set with an identical number as for victims (406) contributing 80% of cumulative CHI scores.

Summary of Results

What is the extent of repeat victimisation?

The data clearly shows a notable degree of repeat victimisation (and linked offending). 24% of dyads that reported in the five year period covered by the dataset, reported more than once. This rate rose to 32% for victims and 35% for offenders, confirming the existence of both serial victims and serial offenders. Indeed, 29.5% of all repeat victims were victimised by more than one offender and 47.6% of all repeat offenders offended against more than one victim.

The data suggests that the prevalence of reported domestic abuse among the total population of Suffolk (based on the 2011 census) is around 4% of the population aged over 16. If the CSEW estimates of prevalence of domestic abuse (Dar, 2013) were

applied to Suffolk using the same 2011 census data, there would be 144,042 victims of domestic abuse in the county. This would place the reporting rate at 14.6% for the five year period covered by the dataset. While these figures are hypothetical and based on cross-sectional foundations (offences counted in the CSEW methodology happened over a much longer timeframe than just five years), they infer that under-reporting is still a significant issue for Suffolk Constabulary.

What is the conditional probability associated to repeat victimisation?

For dyads, victims and offenders there is a strong overall upward trend in the probability that each additional event will result in a further event. For dyads, it is notable that after the third report there is a better than 50% probability that the couple will feature in a fourth report. This probability is even higher for victims and offenders independently. It is also highly relevant that by the fifth event report, there is around a 70% probability that dyad, victim or offender will feature in a domestic abuse report to police again.

Analysis of dyads also shows that there is rising probability of the next event being a crime (as opposed to an incident) up to the tenth event. Similarly, the probability that the crime will carry a CHI value of 30 days or more rises too, albeit until just the sixth event. The probability for occurrence of crime and crime with 30+ CHI is considerably lower than any event occurring, however.

Does severity increase with further events?

ANOVA tests showed no statistically significant variation in CHI scores between event pairs among eligible dyads or cohorts thereof. Analysis of percentage of cases which were either any crime or a crime with a CHI value of 30+ did show a pattern of general

escalation. However, it is impossible to conclude any strong evidence for the phenomenon of linear escalation in severity.

Does intermittency decrease with further events?

ANOVA tests showed that there was statistically significant variation in the number of days between events among eligible dyads, falling from around 120 days between the first and second events, to around 80 between the ninth and tenth. The post-hoc test identified that the significant variations were between the ninth and tenth events and pairs up to and including the fourth and fifth. Interpreted plainly, this strongly suggests that after a dyad has reported a fifth time, the intermittency will escalate. However, this was not shown to be the case among eligible dyads which caused high levels of harm. It was shown to be a statistically significant finding in cases occurring in the 20% most deprived areas however.

To what extent does the Power Few theory apply to severity of harm in domestic abuse cases?

Analysis of CHI scores among dyads, victims and offenders showed harm to be highly concentrated to the extent that 80% of harm is attributable to less than 2.5% of any of those units. If this is the most striking finding in this research, it is closely followed by the finding that of the 412 dyads that contributed 80% of domestic abuse harm, over half (53%) had just one reported event in the dataset. While this does not preclude further events that may have been reported outside the dataset parameters, it is a notable statistic. Also notable is that less than one in five of the highest harming dyads had five or

more events in a three year window. These findings have potentially significant relevance to police strategies for identifying and managing risk.

Furthermore, comparison between the different kinds of dyad which made up the 412 highest harmers revealed interesting differences between the “NCBs” and the “chronic” cases. NCBs were more likely than was typical in the data set to be non-white British, male, without children or from a less deprived area, whereas the inverse was true of chronic dyads.

Discussion

The results presented in the previous chapter present some interesting issues in the context of policing domestic abuse in England and Wales. They bring into question some aspects of the current approach to assessing risk in domestic abuse cases and highlight areas where the police response is perhaps lacking at present. There are also practical implications among the findings which should influence how the police respond to domestic abuse calls for service.

This chapter discusses the theoretical, policy and research implications of the findings presented in this research. It firstly considers how those findings could contribute to and augment the existing literature on both domestic abuse generally and escalation in particular. It then examines some of the implications for the policing response in terms of how police might target and track. It moves on to discuss the implications for future research, both on escalation and building on this research. The chapter concludes with a discussion on the limitations and strengths of this work.

Theoretical Implications

These findings pose further serious questions to Pagelow's (1981) assertion that escalation in domestic abuse is the "one thing that researchers can agree on". Indeed as is shown in the literature review section of this research, many researchers have failed to find evidence of escalation since Pagelow's claim. Of course escalation is a complex issue; it can relate to severity or intermittency, it can be measured on different scales, using different units and over different timescales. This research offers new perspectives which may help mature the debate around escalation in three principle ways.

Firstly, there is no universal rule of escalation in severity of harm among domestic abuse cases. It should not be an accepted fact that any domestic abuse case will progress from the non-severe to the severe unless intervention is made. This conclusion is reached through two means; firstly that there are many cases within the data analysed which reported many times but neither reached any level of "serious" offending or displayed any evidence of escalation; and secondly that a great deal of high harm cases showed no evidence of escalation at all, indeed they showed no previous domestic abuse record at all. There are few existing theoretical frameworks to explain this evidence in the context of domestic abuse, though it is of course possible to speculate. In the case of the high volume of cases which reported just once and with low harm, Police intervention may have caused desistance. Alternatively, initial violence may have been counter-normative and the relationship either ended or returned to normal after the first report.

Secondly, the existence of chronic low harm dyads may be explained by the semi-normalisation of violence. Reporting may be used by the victim as retaliation tactic. Alternatively, the reporting may be generated by a third party, which could include Police proactively contacting victims and offenders through part of an ongoing risk management or investigation process. Indeed the completion of a DASH form itself often leads to the collection of information about further offences.

Thirdly, NCB cases may point toward reluctance in victims to report if offending patterns were pre-existing. This is potentially endorsed by theories of underreporting and the gap between the levels of violence reported to surveys and reported to police. If violence does exist in NCBs before the report to police, then police and partner efforts to identify it become crucial to any risk management strategies. Opportunities may exist in

data mining, or referral networks such as the Sexual Assault Referral Centres (SARCs) which enable victims to approach agencies without the obligation of reporting to police. There is also a strong implication that agencies should not scale down efforts to encourage reporting. Alternatively the crime may represent an "explosion" of violence that is counter-normative to the relationship. If this were the case, it may run contrary to theories of underreporting.

Certainly, the existence of these 'sub-types' of domestic abuse dyads (NCB, chronic high harm, chronic low harm, one time low harm) lends credence to theories of multiple taxonomies. Johnson's (1995) is the most publicised; dividing dyads into those of "common couples" for whom violence is rare and not the norm and "patriarchal terrorism" for whom males display continuing patterns of violence to control females. As discussed in the literature chapter, Piquero et al. (2005) theorised that Johnson's different classifications may be the reason that studies see different patterns of escalation. The results presented in this research do not directly evidence "patriarchal terrorists" or "common couples", but they do present a clear picture of distinctly different patterns among dyads which is worthy of further exploration to see if additional theories can be identified.

The results set out clearer evidence for decreasing intermittency among domestic abuse cases and this evidence too merits consideration of theoretical implications. Why do cases become more likely to report again and more quickly with each passing call? Possibly the most obvious explanation is that these dyads develop a "relationship" with the Police; with victim advocates or investigating officers and staff, which engenders confidence to report, other access routes (such as individuals' contact details) or that

simply questions are asked more often leading to additional reports. There have been no studies undertaken to substantiate this, so this point is speculative but merits further exploration.

The final theoretical implication concerns victims moving between dyads. The concept of serial offenders is well established and is at the heart of legislation such as "Claire's Law" where victims are able to make checks on partners to see if they have a history of violent offending. Less is known about serial victims, those who experience domestic abuse from more than one offender. While this research has not examined the nature of the relationships in each dyad, the inference is that victims end one abusive relationship and then enter another. Why this happens is a question which merits theoretical consideration. Is violence normative to these victims? Do offenders "seek out" victims with certain characteristics? Understanding this phenomenon could have interesting implications for prevention strategies.

Policy Implications

Preventing domestic abuse is a key priority for police forces in England and Wales (HMIC 2014) and at the heart of prevention is the DASH form – a tool used by officers and specialists to form judgements about the risk of harm. The tool, which grades cases as "standard", "medium" or "high" risk is a determinant of prevention strategy. Part of the form specifically questions the presence of escalation in severity and frequency; if a victim answers yes to these questions they are considered more likely to be at risk of harm. Yet this research has identified two pieces of evidence which contradict this process. Firstly, not all cases that escalate in intermittency become high harm. Secondly the majority of high harm cases, do not exhibit patterns of escalation in severity or

intermittency. This second point, coupled with other research about DASH (Thornton, 2011), should lead to a major re-think about the role of escalation in domestic abuse risk assessment. Put simply, England and Wales police forces can currently prioritise scarce preventative resources on criteria directly contradicted by empirical evidence.

The fact that more than half of the cases representing 80% of all harm were unknown to the police for domestic abuse has wider implications for policy than just rethinking the risk assessment process. It should also prompt examination of how police (and other domestic abuse stakeholders) identify victims. This examination should focus on two separate aspects of identification: victim-reported and agency generated.

For the former, agencies should continue to target efforts and evaluate tactics for increasing victim confidence. Importantly however, these efforts need to spread wider than just those victims who they already have contact with. Indeed, a good proportion of effort and resource should be expended on people who have never made contact with police before concerning domestic abuse. The data examined here suggests that police in Suffolk at least should increase engagement with higher employment areas, males and those in non-white British communities. The external validity of this research means this is a worthy consideration for other English and Welsh forces too.

Secondly, police and partners consider how they can leverage their data collectively to identify cases before they become NCB. This could begin with an exploration of police data and expand into partner databases. The advent of “troubled families”, integrated offender management and multi-agency safeguarding hub programmes should be an enabler in this respect. This study does not offer an answer to the question of whether the NCB cases have truly never called before, but it does give

Suffolk Constabulary and its partners a cohort of victims and offenders that it could examine for prior contacts of any kind. This could lead to a review of how police analysts and intelligence units proactively seek out risky cases and target engagement.

From this implication this discussion returns to risk assessment. At present a DASH form is generated upon report of a domestic incident or crime. The evidence presented here would suggest a fundamental change should be considered – that a domestic abuse risk assessment may need to be triggered by something other than a domestic abuse event. Unfortunately, this research does not examine the history of NCB cases which may yield the answer to this question. This is explored further in the 'research implications' section of this chapter, but at this juncture it can be concluded that this evidence suggests police and partners may be missing opportunities to assess the risk of high harm cases.

Following the "Everyone's Business: Improving the Police Response to Domestic Abuse" report (HMIC, 2014), domestic abuse policy is highly topical for England and Wales police forces. The evidence arising from this research has implications for some of the recommendations that forces are currently working to. The College of Policing is reviewing risk assessment processes, which should now take into account the evidence regarding escalation and NCBs. The same agency is updating the authorised professional practice and in doing so will set out minimum standards in approaches to identifying repeat and vulnerable victims. The evidence presented here is relevant to this too and the College should in particular consider the finding that conditional probability increases with each call.

Finally, in its review of domestic abuse data standards, the Home Office should consider how data standards can be set to ensure that forces are able to identify repeat victims. The process of data cleaning required to undertake this research precludes Suffolk Constabulary from being able to accurately and systematically identify repeat victims. This means that call operators or officers attending scenes may not have the full knowledge of the history of the dyad or victim. It may mean that serial victims go unnoticed. It certainly means that DASH assessments could be completed multiple times on the same victim, without ever being linked. If police agencies are serious about preventing domestic abuse and providing service to victims, these points need to be corrected.

Research Implications

While this research has reached some definite conclusions in relation to its research questions, those have in turn generated more questions.

Regarding escalation in general, this study is the first to use the Crime Harm Index to measure escalation and dyad/victim based concentrations of harm. CHI proved a successful instrument and this research should mean that it can be used by other researchers with a degree of confidence. CHI opens up a new paradigm of analytical opportunities ranging from geographical to temporal. Its use may expand beyond the academic and it would be interesting to see a force use CHI to track its performance in preventing domestic abuse.

Never Called Before Dyads

CHI has been used in this research to describe the existence of NCBs; a group of high harm dyads that have not come to police attention for domestic abuse prior to the high harm event. However, apart from some basic demographic analysis, this research has not examined NCBs in any detail. The first question of interest regarding further research should be whether the phenomenon exists in other force areas and to what extent. Part of this research may be whether NCBs have in fact never called before. This study was limited to five years of data, so it is possible that some NCBs may have reported prior to the commencement of the data period. However, given the findings on intermittency, it is improbable that the majority of NCBs feature elsewhere in police data regarding domestic abuse. What is less clear is whether the victims or offenders were known to police for anything else.

If other police forces experience NCB, the ramifications for domestic abuse strategy are wide ranging and it will be important to learn even more about this group. In Suffolk, this group was more frequently employed, male or non-white British than high harm chronic or the general dataset. This analysis however, is based on a limited number of variables. Further analysis, perhaps based on interviews or surveys with NCB victims and offenders could prove invaluable to future prevention and identification strategies.

It would also be extremely useful to understand what happens to NCBs after the high harm event. Data in this study implies a high rate of desistance. Understanding this could help identify what works in preventing repeat offending.

Chronic Dyads

While further research of NCBs could prove valuable, further research of the chronic cases (both high harm and low harm) should not be ignored. Those chronic cases which have desisted could also help identify what works in preventing repeat offending and what role police intervention has in both desistance and further offending. For Suffolk Constabulary, the high harm chronic cases could become a cohort of dyads which represent the best short term return on investment in terms of traditional "performance" and harm reduction. Perhaps the most important question research could answer for this group is whether they are being managed at all and if so, how?

Experiments and Dilemmas

Perhaps the biggest challenge for researchers in light of the findings of this study, is to determine what works in identifying potential victims of high harm domestic abuse. Predicting crime is not easily accomplished and in domestic abuse the current method of predicting (DASH) hides behind a label of being about "prevention, not prediction" (Richards et al, 2008). This is a fallacy. To prevent something occurring one needs to know when or where or who it will happen to and it is not possible to know these things without some form of predicting. In the sense that it leads to decisions about the investment of preventative resources, the DASH form is a predictive tool. While it is possible to criticise DASH for its lack of accuracy or actuarial output (Thornton, 2011), it is far easier to criticise it than it is to suggest an alternative.

The answer may lie within random forest analysis. This would entail building an actuarial model of prediction of future domestic abuse cases based on the computation

of a range of variables taken from previous cases. If future research could build such a model to accurately predict the probability of any dyad becoming an NCB or any form of high harm case, the result could bring about a paradigm shift in domestic abuse case management and identification.

Perhaps the biggest obstacle to undertaking such research would be in compiling the variables. The dataset used in this research required extensive cleaning because of the method (or lack of) in Suffolk Constabulary for classifying victims uniquely. This research would be more efficiently undertaken in a force which accurately compiles victim records in to a single entity based unique reference number.

Limitations of this study

This chapter concludes with a discussion of the limitations of this study. Like most pieces of research, particularly retrospective analysis, this study was subject to several restrictions.

First and foremost, the data analysed was taken only from Suffolk Constabulary's crime system and as such represented the cases which the agency knew about. It is widely documented that not all crime is reported to police and indeed this is why many previous domestic abuse studies have been based upon survey data instead. Suffolk's data, like many other forces, is classified as domestic abuse based on a "tagging" process whereby an officer ticks a field on the computer system while an data quality control process is in place, even if data are 100 per cent compliant., it is highly probable that police recorded data does not represent all domestic abuse that takes place. While police data makes for a convenient and well-structured data source, there is no escaping this fundamental limitation.

The other major limitation of this data was specific to Suffolk and has been referred to repeatedly throughout this study. Suffolk records unique reference numbers for offenders, but not for victims. As such, identifying unique victims is highly manual and labour intensive. It is probable that a small number of cases have also been incorrectly included or excluded on this basis.

On the other hand, the use of police recorded data makes the study more relevant to other England and Wales police forces that will use the same systems of classification of crime. Of course, this study has examined data from just one force, and one which has relatively small urban areas. This may offer opportunity to challenge the external validity of this study particularly as far as metropolitan forces are concerned.

The use of CHI at the level of definition required necessitated the author to supplement the research of Sherman, Neyroud and Neyroud (2014) by cross referencing a list of offences from the dataset with available online resources (Sentencing Council, 2011). In some cases the wording of crimes on Suffolk's system did not exactly match those in the reference material which required some interpretation. While it is highly unlikely this skewed the overall findings, researchers working with CHI in future should review their own systems against the reference material and the values shown in appendix I.

It should also be considered that it was not possible to control for variables that may have influenced severity or intermittency. The most prominent of these is police involvement. It was not possible to determine which cases had been assigned to the Suffolk Multi-agency risk assessment conference (MARAC) or had been assigned an Independent Domestic Violence Advocate. Either of these may have had an influence on

mitigating violence or increasing the frequency of reports. Further studies or future iterations of this study should seek to identify these points at the outset.

Finally it should be considered that both ANOVA and Tukey's HSD are linear tests, which is to say they assume a linear relationship in the data they are applied to. Domestic abuse is of course highly complex and it is perhaps unlikely that escalation always assumes a directly linear pattern. Future studies may wish to consider whether a non-linear model can be applied.

Despite limitations, this study retains strong internal validity. As police recorded data, the classifications are subject to national standards and local audit. Data is linked to unique offender records by intelligence operatives and subject to rigorous local checks. The nature of the data also makes a wide number of variables available for analysis, many of which have been examined in this research. The data period extended over five years and cleaning made the analysis of dyads viable for the first time in an escalation study. This study has taken advantage of this to provide a longitudinal based analysis, something which previous escalation studies have cited the absence of as a weakness.

This research has also made use of the Crime Harm Index and as such has used an evidence based source of measuring severity which is open for translation to any other police force in England and Wales seeking to replicate this analysis. The CHI also offers a consistent method for understanding the difference in harm, here measured in days (or equivalent) spent in prison as opposed to other studies which have used non-scaled methods such as CTS.

Conclusions

Domestic abuse has become a significant priority for police forces in England and Wales. Her Majesty's Inspectorate of Constabulary has identified police are not doing enough to protect victims (HMIC 2014) and as such there is greater political and public scrutiny on police forces. At the heart of the matter is how forces identify repeat and vulnerable victims. The current method of risk assessment places an emphasis on "escalation", potentially prioritising cases which exhibit upward trends in severity or frequency.

The phenomenon of escalation has been discussed by researchers for more than 30 years yet evidence actually proving its existence is mixed at the very best. There is a good deal of evidence for domestic abuse as a repeat phenomenon but establishing rising severity has been more problematic. This may be in part due to the lack of a consistent instrument to measure crime severity. For England and Wales agencies, this is no longer the case, with the advent of the Cambridge Crime Harm Index.

This study examined over 36,000 cases of domestic abuse crimes and incidents reported to Suffolk Constabulary between 1st January 2009 and 31st March 2014. Through extensive cleaning of data, this research was able to compile findings by dyad, a longstanding gap in the research on escalation. The data showed that three quarters of dyads reported to police just once in the period analysed, but that harm was highly concentrated, with over 80% of cumulative harm for the whole period attributable to less than 2% of dyads. Furthermore this study identified that just over half this "high harm" group called the police for a domestic abuse incident or crime, just once in the period. It is inferred that this group of "never called before" (NCB) offered Suffolk Constabulary no

opportunity for preventative measures by conventional domestic abuse means. In addition, these cases offered no opportunity for the observation of escalating patterns. The existence of the NCB group has implications for research, theory and policy. It is important that research examines whether the phenomenon exists in other police areas. If it does, research should be undertaken to examine the group in more detail to attach any relevant theoretical concepts and importantly to refine the way police identify cases and engage with people who don't present as victims of domestic abuse. This study indicated that NCB victims were more often male, non-white British or from areas of lower deprivation than was typical. Examining the profile of NCBs further, perhaps with a random forest analysis, could generate a game changing approach to domestic abuse prevention in England and Wales.

This study also examined 727 dyads which met the eligibility criteria of five or more offences within a period of three years from the first case. The study concluded that there was no evidence of escalating severity among this group, but that events reported after the fifth call were reported significantly more frequently (i.e. less days) than those before the fifth. Just 76 of the 727 dyads featured in the most harmful 80% indicating that many high repeat dyads were "low harm". More research into this "chronic" group should focus on the effect of police interventions, particularly on intermittency. This evidence provides a direct contradiction to the notion of escalating violence in domestic abuse cases. Researchers may wish to further examine the notion of differing typologies of domestic abuse case, exploring the theoretical differences underpinning high and low harm, chronic and NCB cases, but the implication of this evidence regarding escalation is clear; at best it is not a universal phenomenon.

This study also found evidence that conditional probability of domestic abuse rises with each passing event. After a dyad has reported three times, it is more than 50% likely to report a fourth time. The probability of the next event being a crime or being a crime with a CHI value of over 30 also rises, but is at a much lower level. This evidence should influence forces to consider how they respond based purely on level of event reporting in a case history. This may provide practical difficulties to forces in identifying dyads as entities, but the pattern of escalating probability is evident in offenders and victims too. Further research may consider sub-classifications of dyads to detect differing patterns in conditional probability.

Finally, the study concludes that both victims and offenders are "serial" to differing extents when it comes to domestic abuse. Repeat victims were victimised by multiple offenders in almost 30% of cases, but almost half of all repeat offenders offended against more than one individual. This area is worthy of further exploration as it may assist with developing the understanding of victim vulnerabilities, theories concerning different "types" of offender, victim and dyad and the management of cases.

That escalation is not an evidenced phenomenon should contribute to the debate on the validity of the current domestic abuse risk assessment process in England and Wales. Furthermore, the conclusion that over half of the most harmful cases were not known to the police for domestic abuse should prompt a review of how forces and their partners engage with potential victims and how they use their data to proactively identify risk. The status quo of using a non-actuarial, non-evidence-based, reactive risk assessment is untenable. An alternative needs to be developed which takes into account

that much of the harm caused to domestic abuse victims comes from cases which have never even been subject to risk assessment.

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Appendices

Appendix I: List of Crime Harm Index Values

Arson endangering life 3825
Abduction of child by parent 84
Administer poison/noxious thing to injure/annoy 10
Aggravated burglary - dwelling 730
Aggravated taking - motor vehicle - twc 30
Arson 30
Assault occasioning ABH (s.47) 10
Attempted murder 4380
Attempted rape - female aged 16 or over 1825
Attempted robbery - personal property 10
Blackmail 10
Breach of Non-molestation Order 91
Breach of Restraining Order (Protection from Harassment) 91
Breach of the peace (common law) 10
Burglary - dwelling 15
Burglary - dwelling with intent 15
Burglary - dwelling with violence 730
Cause harassment/alarm/distress (s.5 POA) 10
Cause intentional harassment/alarm/distress (s.4A POA) 10
Cause/incite into sexual activity - offender aged under 18 - female aged under 13 - penetration 730
Causing an affray 5
Common assault (no injury) 0.3
Community resolution - non crime 0.1
Controlling prostitution for gain 10
Criminal damage - dwelling - over £5000 84
Criminal damage - dwelling - racially/religiously aggravated 15
Criminal damage - dwelling - under £5000 15
Criminal damage - dwelling - value unknown 15
Criminal damage - other - over £5000 84
Criminal damage - other - under £5000 15
Criminal damage - other - value unknown 15
Criminal damage - other building - over £5000 84
Criminal damage - other building - under £5000 15
Criminal damage - other building - value unknown 15
Criminal damage - vehicle - over £5000 84
Criminal damage - vehicle - under £5000 15
Criminal damage - vehicle - value unknown 15
Criminal damage endangering life 3825
Cruelty to animals 0.96
Cruelty to or neglect of children 84
Dangerous driving 20
Domestic incident - non crime 0.1
Driving motor vehicle taken without consent 0.3
Driving motor vehicle with excess alcohol 0.96

Drunk and disorderly in a public place 0.3
False imprisonment 10
Fear or provocation of violence (s.4 POA) 5
Fraud by false representation - cheque/plastic card 0.6
Fraud by false representation - other fraud 0.6
GBH serious wound without intent (s.20) 15
Harassment - breach of injunction (s.3) 10
Harassment - breach of restraining order 91
Harassment - cause fear of violence (s.4) 10
Harassment - pursue course of conduct (s.2) 10
Harassment - pursue course of conduct (s.2) - non-crime 10
Harassment - racially/religiously aggravated 10
Harm/threaten juror/witness/person assisting in investigation 42
Having an article with a blade/point in public 0.3
Homophobic incident - non crime 0.1
Interference with motor vehicle (tampering) 1
Intimidate juror/witness/person assisting in investigation 10
Involuntary manslaughter 3825
Kidnapping 84
MALICIOUS COMMUNICATION - SEND LETTER ETC 0.6
Minor wound without intent (s.20) 15
Neglect illtreat person lacking capacity 84
NON COUNTING FRAUD INVESTIGATION 0.1
OBSTRUCT/RESIST A POLICE OFFICER 0.3
Obtaining services dishonestly 0.3
Other notifiable offences 5
Permitting premises to be used - Cannabis 0.3
Pervert the course of justice 1460
Possess air weapon/imitation with intent to cause fear of violence 0.3
Possess extreme pornographic images - sexual act with animal 10
Possess firearm/imitation to commit indictable offence 0.3
Possess offensive weapon without authority 0.3
RACIAL MINOR WOUND WITHOUT INTENT 15
Racial/religious agg assault - common/beating 10
Racial/religious aggravated har/alarm/distress 10
Racial/religious aggravated intent harassment/alarm/distress 10
Racial/religiously aggravated ABH 10
RACIALLY AGGRAVATED ASSAULT - COMMON/BEATING 10
RACIALLY AGGRAVATED ASSAULT/ABH 10
RACIALLY AGGRAVATED HARASSMENT 10
RACIALLY AGGRAVATED HARASSMENT,ALARM,DISTRESS 10
Racially motivated incident - non crime 0.1
Rape - female aged 16 or over 1825
Rape - female aged under 13 - by male 3650
Rape - female aged under 16 2920
Rape - male aged 16 or over 1825
Robbery - personal property 365
SEND OR TELEPHONE OFFENSIVE/INDECENT/OBSCENE 0.6
SERIOUS SEX OFFENCE - NON VALIDATED 0.1
Sexual activity - offender aged 18 or over - female aged 13-15 - penetration 1460
Sexual activity - offender aged under 18 - female aged under 13 - penetration 730

Sexual assault - female aged 13 or over 15
Sexual assault - female aged 13 or over - by penetration 730
Sexual assault - male aged 13 or over 15
Stalking - cause fear of violence 10
Stalking - cause serious alarm or distress 10
Stalking - pursue course of conduct 10
Take a conveyance - motor vehicle - twc 5
Take conveyance other than motor vehicle - twc 0.6
Take etc indecent photographs of children 182
Take or ride pedal cycle without consent etc 5
Theft - by employee 0.6
Theft - from motor vehicle 10
Theft - from the person 10
Theft - in dwelling 10
Theft - of mail 0.6
Theft - of motor vehicle 126
Theft - of pedal cycle 0.6
Theft - other 10
Threat to commit criminal damage 0.64
Threat to kill 10
Trespass with intent to commit sexual offence 730
Use public communications network to send indecent/obscene/threatening/false message 1.5
Use violence to secure entry 10
Wasting police time 0.32
Wound with intent to cause GBH (s.18) 1460